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ABSTRACT

Thematic poster session (TPS)

AEROBIOLOGY AND POLLUTION 1

000042 | Cha o 3 may not be a major allergen in Japanese cypress pollinosis

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Background: Japanese cypress (JCy) pollinosis is common in Japan. Most often, sensitization and clinical pollinosis to JCy and Japanese cedar (JCe) occur concomitantly. In addition to the JCy major allergens Cha o 1 and 2, which are homologous to the JCe major allergens Cry j 1 and 2, respectively, an additional JCy allergen, Cha o 3, was recently identified that lacks homology to known JCy and JCe allergens. Here, the allergenicity of Cha o 1, 2, and 3 is compared.
Method: JCy/JCe allergic patients were selected ($n = 27$, specific IgE (s-IgE) >0.7 Ua/mL for both species). Cha o 1 and 2 s-IgE was measured (ImmunoCAP, Phadia). No Cha o 3 s-IgE assay by ImmunoCAP was available. Basophil activation test (BAT; Allergenicity kit) was performed with purified, native Cha o 1, 2, and 3. The specificity of IgE towards JCy extract was assessed by inhibition with purified, native Cha o 1, 2, and 3 ($n = 60$).
Results: Twenty-seven (100%) patients were sensitized to JCy extract, 26 (96%) to Cha o 1, and 24 (89%) to Cha o 2. In BAT, stimulation with Cha o 1 and 2 (10 ng/mL, respectively) led to an increase in $CD203c^+$ cells of ≥5% compared to PBS (Cha o 1: 96%, $n = 26$, Cha o 2: 67%, $n = 18$). In contrast, no increase was observed with Cha o 3 (100 ng/mL, $\%CD203c^+$ cells ≥5%). In inhibition test, JCy s-IgE was 8.76 Ua/mL (mean value). 86% of JCy s-IgE binding (mean = 1.25 Ua/mL) was suppressed by pre-incubation of patients' sera with mixture of Cha o 1 and 2. In contrast, a few inhibition of JCy s-IgE (mean = 8.49 Ua/mL) was observed by pre-incubation with Cha o 3.
Conclusion: This study demonstrates that Cha o 1 and 2 are major allergens in this cohort of JCy allergic patients. The lack of increased $\%CD203c^+$ cells in BAT, even at a 10-fold higher concentration than used for Cha o 1 and 2, as well as a very modest inhibition of IgE binding to JCy extract, indicate that Cha o 3 only plays a minor role in JCy pollinosis compared to Cha o 1 and 2.
Conflicts of Interest: YK and AN received research funding from Torii Pharmaceutical.

000738 | Non-occupational hypersensitivity pneumonitis: A case serie

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Background: Hypersensitivity pneumonitis (HP) is a complex syndrome caused by the inhalation of antigens, mostly derived from bird proteins and fungi, in susceptible and sensitized individuals. Recent guidelines have been published categorizing HP as either fibrotic or non-fibrotic. Diagnosis is based on an exposure history, characteristic Chest high-resolution computed tomography (HRCT) Scanning, specific Immunoglobulin (Ig) G antibodies to the suspected antigen, bronchoalveolar lavage (BAL) and pathological features. Complete antigen avoidance is the mainstay of treatment. Pharmacotherapy consists of immunosuppressive drugs such as corticosteroids.
Method: We collected data using electronic clinical records (DXC-HCIS, Healthcare Information System). We searched for patients with diagnosis of non-occupational hypersensitivity pneumonitis in the Allergy Department at La Paz University Hospital in the last 10 years (from 2012 to 2022). Then, we described the general characteristics of the patients, medical background, housing conditions, animals and other potential antigens, time until diagnosis, pulmonary function, Chest HRCT Scanning, biopsy, BAL and treatment received.
Results: We included eight patients, all women. The median age was 53.5 years old (between 15 and 75 years). Half of them never smoked. One patient was asthmatic and four had seasonal rhinoconjunctivitis. Six patients had a kind of bird at home; of the two who didn't, one had feather duvets and pillows and damp spots at home, and the other one was receiving treatment with methotrexate. The median time from the onset of the symptoms to the diagnosis was 8.5 months. 7 of them presented typical HP Chest HRCT Scanning findings and one presented compatible findings (following ATS/JRS/ALAT Clinical Practice Guidelines). The BAL was done in five patients and three of them had elevated lymphocyte percentage, two of those three also had a CD4:CD8 ratio over 2. In five patients a biopsy was performed, in two of them we found a fibrotic pattern. Five patients retrieved the antigen to avoid exposure. All of

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them received oral corticosteroids treatment, and one patient used nintedanib but had to be suspended due to an adverse reaction. Only one of them needed oxygen 24 h daily. The Diffusing capacity of the lungs for carbon monoxide (DLCO) improved after treatment in three patients, remained similar in other three patients and two others had lower DLCO after.

Conclusion: Non-occupational hypersensitivity pneumonitis in our case series was more prevalent in women, and the presence of some kind of bird at home, even unexpected in products with feathers, was very common, clearly more common than fungi exposure. The Chest HRCT Scanning was a key tool in the diagnosis. The non-fibrotic pattern was more frequent in the biopsy, probably due to a short-time to diagnosis, and oral corticosteroids was the treatment received for all of them.

Conflicts of Interest: The authors did not specify any links of interest.

000101 | Aerobiological study in Lima, Perú, Tipuana-tipu, perhaps a new allergen?

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Background: Knowledge about local airborne allergens in any geographical area is essential for effective diagnosis and treatment of allergic diseases.*Tipuana tipu*, tree of the Fabaceae family, native from South America, it is present in the main avenues of metropolitan Lima and in some parks of the city.

Objective: Our objective was to report the *Tipuana tipu* pollen how a new allergen capable of triggering allergic symptoms.

Method: The pollen counts were made according to standardized technique with a Burkard seven days following the European Aerobiology Society's Network Group recommendations. The trap was installed on the roof of Clínica SANNA el GOLF, San Isidro, which is 20 m high, in the west-south of the Lima urban area. The sampling period was performed from September 2020 to October 2021. Collection of *Tipuana tipu* pollens and Preparation of *Tipuana tipu* pollen extracts 1:20 w/v was done using a previously described method. We carried out systematic skin-prick testing with *Tipuana tipu* pollen extract and other aeroallergens (mites, molds, cat and dog dander, cockroaches, grass and weed pollen), on 80 patients (18–50 years) seen in our allergy center suffering from November to January rhinitis and/or conjunctivitis symptoms. The majority living near avenues and large green areas, where Tipuana trees grew.

Results: We found a total of 952 grains/m^3 of *Tipuana tipu* pollen between November 2020 to January 2021, with the maximun concentration of 37 grains/m^3 on December 10th. We also found other airborne pollen Types: Poaceae, Myrtaceae, Compositae and Betulaceae. 14/80 patients (17.5%) show positive skin prick test only to *Tipuana tipu* extract. Most of the patients with positive tests to *Tipuana* extract presented symptoms of rhinoconjunctivitis during the *Tipuana* pollination period.

Conclusion: The west-south population of Lima urban city is exposed to *Tipuana tipu* pollen. We do not found previous publications about *Tipuana tipu* allergy. Almost 18% of the patients tested in our sample were mono-sensitized to this pollen. The results of this study should be compared with data from the forthcoming years, to identify seasonal and annual fluctuations, extend the traps to other locations in Lima, and of course try to standardize and improve the

Tipuana tipu pollen extract.

Conflicts of Interest: The authors did not specify any links of interest.

000317 | Correlation between allergic pollen concentration and COVID-19 in Georgia

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Background: Co-exposure to airborne pollen enhances susceptibility to respiratory viral infections, regardless of the allergy status. Various publications have linked the SARS-CoV-2 infection rate to the pollen concentration in a specific area, the most recent being that of Damialis et al, who reported that higher airborne pollen concentrations were related to higher COVID-19 infection rates according to the data on 31 countries around the world. To investigate this, we tested for relationships between SARS-CoV-2

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infection rates and pollen concentrations in three major cities of Georgia.

Method: Data was obtained at the period from 4th February 2020 till 29th November 2022. The airborne pollen monitoring for evaluation of concentration of allergic pollen was performed in Tbilisi, Kutaisi and Batumi with a Burkard Seven Day Volumetric Spore-trap (Burkard Manufacturing Co Ltd, UK), following the recommendations of European Aerobiology Society. Pollen concentration was calculated and expressed as the number of pollen grains per cubic meter of air (p/m^3). Daily COVID-19 cases, positivity rate and case fatality rate in 3 main cities Tbilisi, Kutaisi and Batumi were obtained from NCDC data base. All the analyses were performed using computer software (SPSS; Chicago, Illinois, USA).

Results: Once these data were available, a Spearman correlation was performed to determine whether there was a significant relationship between total pollen concentrations and cases of SARS-CoV-2 infection. Comparison of the daily positivity of COVID-19 with the daily pollen concentration in the cities analyzed yielded a weakly negative correlation coefficient (Figure 1).

Conclusion: The SARS-CoV-2 infection rates negatively correlate with the total daily pollen concentration in the environment. As the correlation is very weak, we can state that, in Georgia, there is currently no association between total pollen concentration and cases of COVID-19. A clear conclusion cannot be drawn due to limited evidence and hence more research is needed to show how pollen bioaerosols could affect virus survival.

Fig. 1. The correlation between the daily concentration of pollens and COVID-19

	Spearman's correlation test	Pollen grains per cubic meter	
City	%	Correlation coeff.	Sig. (2-tailed)
	Positivity rate	-0,203	0,000
Tbilisi	Case fatality rate	-0,100	0,002
	Positivity rate	-0,161	0,000
Kutaisi	Case fatality rate	-0,082	0,000
	Positivity rate	-0,246	0,000
Batumi	Case fatality rate	-0,204	0,000

Conflicts of Interest: The authors did not specify any links of interest.

ALLERGEN IMMUNOTHERAPY 1

000230 | Activation of the aryl hydrocarbon receptor improves outcome of allergen-specific immunotherapy: A novel adjuvant option?

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Background: Allergen-specific immunotherapy (AIT) is able to restore immune tolerance to allergens in allergic patients. However, some patients do not or only poorly respond to current treatment protocols. Therefore, there is still a need for better understanding of underlying mechanisms and further improvement of treatment strategies. The relevance of the aryl hydrocarbon receptor (AhR), a ligand-dependent transcription factor, has been investigated in several inflammatory diseases, including allergic asthma, but its potential role in AIT has not been addressed yet.

Method: Murine models of AIT in ovalbumin- and house dust mite-induced allergic asthma were performed with AhR-deficient (AhR$^{-/-}$) and wildtype mice. Furthermore, AIT was combined with the application of the AhR-ligands quercetin or 10-chloro-7H-benzimidazo[2,1-a]benzo[de]iso-quinolin-7-one (10-Cl-BBQ) to investigate the effects of AhR activation on the therapeutic outcome of AIT.

Results: AIT was comparable efficient in AhR$^{-/-}$ and wildtype mice. Nevertheless, combining AIT with the administration of the high-affinity AhR agonist 10-Cl-BBQ was able to improve therapeutic effects of AIT by an AhR-dependent mechanism, resulting in decreased BALF cell counts, pulmonary Th2 and Th17 cell levels, as well as sIgE levels. The low-affinity AhR agonist quercetin alleviated characteristics of allergic asthma independent of AIT in an acute but not long-lasting manner, probably by affecting mTOR signaling.

Conclusion: This study demonstrates that successful AIT is not dependent on the AhR. However, targeting the AhR during AIT can help to curb inflammation and improve tolerogenic vaccination outcome. Therefore, AhR ligands might represent promising candidates as immunomodulators to improve outcome of AIT.

Conflicts of Interest: The authors did not specify any links of interest.

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000299 | Subcutaneous immunotherapy with mannan-conjugated birch pollen allergoids – Clinical data from 3 sequential trials

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*Presenting author: C. Neuhof

Background: The success of allergen immunotherapy for the treatment of allergic rhinoconjunctivitis is most evident during the respective pollen season. Here, we evaluate the combined symptom and medication score (CSMS) from three studies in patients with allergic rhinoconjunctivitis treated with mannan-conjugated birch pollen allergoids (T502).

Method: Patients were treated with 10,000 mTU/mL T502 (5 pre-seasonal injection days) in 2 subsequent double-blind, placebo-controlled (DBPC) trials (1 dose-finding and 1 Phase III study). In the open-label follow-up study of the dose finding study, all patients were was further treated with T502 (independent of the previous treatment group) for another 2 years. During the birch pollen seasons 2020, 2021 and 2022, the CSMS of the patients was recorded. Quality of life was assessed with the RQLQ (Rhinitis Quality of Life Questionnaire) before and at the peak of respective birch pollen seasons (2020, 2021, 2022). At the study ends, patients and investigators also rated the efficacy of the treatment.

Results: In the DBPC dose-finding study, the CSMS was reduced by 25% in patients treated with T502 in comparison to placebo. In the subsequent Phase III DBPC study in a larger patient population, this could be demonstrated again, with a reduction of 35% when compared to placebo. In the second year (following the dose-finding study), the reduction was in CSMS −41% compared to the previous year. The third year of treatment further reduced the CSMS by 14%, resulting in an overall reduction of 49% in comparison to the first year of treatment. At the peak birch pollen season, the RQLQ was significantly reduced in the DBPC studies (−30%) in comparison to placebo. In the second and third year of open treatment, the RQLQ was consistently low in comparison to the first treatment year (−27%). At the end of the studies, 85% of the patients and 87% of the investigators rated the tolerability of the T502 treatment as either 'good' or 'very good'.

Conclusion: Already after the first year of treatment, T502 significantly reduced symptoms caused by birch pollen and thus the intake of anti-allergic medication. This effect was further enhanced in years 2 and 3.

Conflicts of Interest: J.-L. Subiza, M. Casanovas and E. Fernandez-Caldas are employes of Inmunotek S.L.

000302 | Subcutaneous immunotherapy with mannan-conjugated birch pollen allergoids – Safety data from 3 sequential trials

L. Decker[1]; E. Raskopf[2]; L. England[2]; C. Neuhof[2]; H. Sahin[2]; L. Radtke[2]; C. Zeyen[1]; S. Allekotte[2]; E. Xenofontos[1]; F. Hüffmeier[1]; M. Cuevas[3]; M. Casanovas[4]; E. Fernandez-Caldas[4]; J. L. Subiza[4]; R. Mösges[1,2]

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Background: Subcutaneous immunotherapy has not only to be effective, but also needs to be safe and well tolerated in order to be accepted by physicians and patients. Here we show the safety data from 2 double-blind, placebo-controlled studies (DBPC) and 1 open follow-up study with mannan-conjugated birch pollen allergoids (T502) administered subcutaneously.

Method: The data of all patients who received pre-seasonal treatment with either 10,000 mTU/mL T502 or placebo were analyzed. Safety and clinical tolerability were assessed by means of solicited and unsolicited adverse events (AEs) in all 3 studies and the data was then pooled. At the study ends, patients and investigators also rated the safety/tolerability of the treatment.

Results: In all 3 studies, no fatality nor other serious adverse event in relation to T502 was reported. No epinephrine was used. No systemic reaction (SR) grade III or IV occurred. In total, 23 SR were reported by 19 actively treated patients (4.5%, $N = 419$) and 1 SR by 1 placebo patient. In the second year of the open study, no SR occurred. SRs were mainly breathing problems, urticaria and swollen eyes or lips. Broken down to the number of T502 injections ($N = 3371$), SRs occurred in 0.7% of injections. Immediate local reactions (mean wheal diameters) following T502 treatment were all <6 cm (mean/median: 0.63/0.4 cm) at all visits with 25% being 0 cm. In the placebo group wheals were all <2 cm. Mean/median wheals documented in the diary cards (late phase LRs) were 0.44/0 cm with 83% being 0 cm. Unsolicited local AEs with a (possible) relationship to the IMP occurred in 46% of the actively and in 2% of the placebo treated patients. In the active treatment group, unsolicited local AEs were mainly injection site pruritus ($N = 155$, 4.6% of all injections) and swelling ($N = 54$, 1.6%) at the injection site. At the end of the studies, nearly all patients (95%) and investigators (90%) rated the tolerability of T502 as either 'good' or 'very good'.

Conclusion: Subcutaneous immunotherapy with T502 is safe and well tolerated with local and systemic reactions being comparable to other studies. As treatment progresses, the side effects decrease considerably.

Conflicts of Interest: M. Casanovas, J.-L. Subuza and E. Fernandez-Caldas are emplyees of Inmunotek S.L.

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000347 | Clinical development of mannan conjugated birch pollen allergoids for the treatment of birch pollen allergic patients

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*Presenting author: R. Mösges

Background: The aim of a drug development program for allergen immunotherapies is based on a good efficacy and safety/tolerability profile. Here, we describe the clinical development of Mannan conjugated birch pollen allergoids (T502) administered subcutaneously for the treatment of allergic rhinitis/rhinoconjunctivitis.

Method: At first, a Phase IIa study was conducted as a first-in-human, double-blind, placebo-controlled (DBPC) dose finding hybrid study with 1000, 3000 and 10,000 mTU/mL T502. The study comprised a treatment and a follow-up-phase during the birch pollen season, which covered both, safety/tolerability and efficacy. The second trial was then initially conducted as an open Phase II/III study with patients from the first study (independent of the treatment group I the preceding trial), with all patients being treated with the most effective dose determined in the dose-finding study. After 1 year the study was prolonged for an additional treatment year (2022) and subsequent follow-up-year (2023) The third (Phase III) trial was also a DBPC study in a larger patient population with the most effective dose.

Results: In the dose-finding study conducted in 2020 with 246 patients, the optimal dose of T502 was determined as 10,000 mTU/mL ($N = 61$ patients), based on the safety/tolerability (solicited and unsolicited AEs) and efficacy results (patient-related outcomes during the birch pollen season and immunology) in comparison to placebo ($N = 61$ patients). In the subsequent open follow-up trial (starting 2021), 159 patients from all 4 treatment groups (Placebo, 1000, 3000 or 10,000 mTU/mL) who completed the previous trial, were then treated for 2 more years (2021 and 2022) with 10,000 mTU/mL T502. In addition, a pivotal phase III DBPC trial was conducted in 2022 with either 10,000 mTU/mL T502 ($N = 199$) or placebo ($N = 99$), confirming the results of the dose-finding study with the dose of 10,000 mTU/mL. In total, 419 patients were treated with 10,000 mTU/mL T502 over a time period of up to 3 consecutive years and 160 patients were treated with placebo.

Conclusion: Early efficacy data could be collected already in the dose-finding study. Through the subsequent open design, long term data on safety, tolerability and efficacy could be collected.

Conflicts of Interest: J. L. Subiza, E. Fernandez-Caldas and M. Casanovas are emploees of Inmunotek S. L.

000349 | Mannan-conjugated birch pollen allergens continuously reduce the combined symptom and medication score with increasing treatment duration in birch pollen allergic patients

F. Hüffmeier[1]; C. Neuhof[2]; E. Raskopf[2]; L. England[2]; H. Sahin[2]; L. Radtke[2]; M. Cuevas[3]; M. Casanovas[4]; J. L. Subiza[4]; E. Fernandez-Caldas[4]; S. Allekotte[2]; R. Mösges[1,2]

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*Presenting author: F. Hüffmeier

Background: The success of allergen immunotherapy for the treatment of allergic rhinoconjunctivitis is most evident during the pollen season based on patients' symptoms and medication needs. The aim of this study was to evaluate the combined symptom and medication score (CSMS) during 3 consecutive birch pollen seasons in patients with allergic rhinitis/rhinoconjunctivitis treated with mannan-conjugated birch pollen allergens (T502).

Method: In this prospective open-label follow-up study, all patients who completed the preceding double-blind dose-finding trial were treated with 10,000 mTU/mL T502 for another 2 consecutive years (treatment year 1/year 2–3: placebo/10,000, 1000/10,000, 3000/10,000 or 10,000/10,000 mTU/mL). This was done with 5 preseasonal injections every 2 weeks. During the birch pollen seasons 2020, 2021 and 2022, the CSMS of the patients was recorded.

Results: Of the patients who completed the dose-finding study, $N = 146$ participated in year 2 and $N = 116$ participated in year 3 of the study. In year 2 (2021), the CSMS already showed an equalisation from the previous year regardless of the treatment group (placebo/10,000: 1.308–0.649, 1000/10,000: 0.93–0.667, 3000/10,000: 0.993–0.693, 10,000/10,000: 0.908–0.567) to an overall median of 0.650, which represents a reduction of 38% in comparison to the overall CSMS of the previous year. In year 3 (2022), the median CSMS decreased by a further 14% to 0.568 ($p = 0.005$), resulting in an overall reduction of 49% in comparison to the first year (2020). The symptom score (dSS) and medication score (dMS) also showed a steady reduction with increasing treatment duration: the dSS decreased from 0.672 to 0.468 to 0.403 (−30%, $p < 0.005$ and −15%, $p = 0.011$). The dMS decreased significantly from 0.2 in year 1 to 0.086 in year 2 (−57%, $p < 0.005$) and 0.033 in year 3 (−62%, $p < 0.005$).

Conclusion: Already after the first year of treatment, T502 significantly reduced symptoms caused by birch pollen and thus the intake of anti-allergic medication. This effect was further enhanced in years 2 and 3.

Conflicts of Interest: M. Casanovas, J. L. Subiza and E. Fernandez-Caldas are employees of Inmunotek S. L.

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000478 | Cup A1 Precision Immunotherapy: A First Safety Real-Life Stud

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*Presenting author: V. López Couso

Background: Allergy to Cupressaceae has exponentially grown over the past years and cupressaceae extracts have evolved, but they've always been very difficult to produce and contain a huge amount of carbohydrates and few proteins so the patients don't have the expected efficacy as with other pollen immunotherapy. In 2019 a molecular immunotherapy with only Cup a 1, major allergen of Cupressaceae, was released, as we know almost 100% of the patients sensitized to Cupressaceae recognize Cup a 1 above the rest. The aim of this study was to observe the safety of this novel molecular immunotherapy on a cluster schedule (4 weeks).

Method: We have done an observational retrospective study where we included patients allergic to cypress tree. The study was performed in 8 hospitals in Spain, they were asked to compile information of the patients treated with the major allergen, Cup a 1 of *Cupressus arizónica*. The requested data of the patients was age, sex, allergic disease and previous non allergic diseases; classification of rhinitis with ARIA and asthma with GEMA; prick test made before administering the immunotherapy, no programmed visits/calls or emails to the clinic or emergency room due to the immunotherapy or their pathology.

Results: We recruited 95 patients, 56.8% were men and the total study population had a mean age of 37 years old, 78.8% >18 years old. We registered 7 (7.4%) adverse reactions among the 95 patients, all of them local, but 71.4% delayed, all of them resolved with any medication. 85.7% were adults (>18 years old) and more frequent in men (57.1%); 71.4% were polysensitized to other allergenic sources. 57.1% had asthma, which were all adults. We have an incidence of 3.25% of non programmed visits due to the adverse reactions of the immunotherapy, 2.1% by phone and 1.1% at the office.

Conclusion: In conclusion, this the first study with Cup a 1, molecular immuntoherapy, where we have proofed the safety of it, no systemic reactions were reported and all the patients continued with the treatment, with good tolerance, it has an incidence of adverse reactions similar to other pollen immunotherapies, and we are treating patients with a controlled extract. There's a clinical trial ongoing to achieve safety and efficacy in a bigger sample.

Conflicts of Interest: The authors did not specify any links of interest.

000485 | Effectiveness of allergen immunotherapy (AIT) under real life conditions from a german retrospective cohort study in children, adolescents and adults with house dust mite (HDM) induced allergic rhinitis (AR) and asthma (AA)

R. Mösges[1]; H. Richter[2]; A. Sager[3]; T. Müller[4]

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*Presenting author: R. Mösges

Background: The objective of this investigation was to show the effectiveness of AIT in children, adolescents and adults suffering from AR and/or AA, based on real life data.

Method: Effectiveness of AIT was assessed using the German LRx prescription database of IQVIA for the HDM market. Patients with at least one AIT prescription for HDM in a 5 year timespan were identified, tracked, and compared to a control group with non-AIT patients who must have had at least 2 symptomatic prescriptions (Rx) £ 560 days apart. Three groups representing the major products were defined: subcutaneous AIT with depigmented, polymerized allergen extract (dSCIT), other subcutaneous AIT (oSCIT) and sublingual AIT (SLIT). Within these treatment groups, the age groups 5–11 years (dSCIT $N = 615$; oSCIT $N = 1091$; SLIT $N = 79$), 12–17 years (dSCIT $N = 404$; oSCIT $N = 985$; SLIT $N = 28$) and 18+ years (dSCIT $N = 1091$; oSCIT $N = 2852$; SLIT $N = 115$) were analysed.

Results: AIT treatment with HDM allergen extract was associated with lowering of AR medication intake compared to control, with a tendency to a greater reduction in the older age groups (for dSCIT −18.8% 5–11 years; −23.9% 12–17 years; −38.0% 18+ years). Equally in all age groups, it was found a significantly reduced likelihood for need of further rescue medication at all after AIT treatment. Although there was a tendency for a lower likelihood of first Rx of asthma medication after AIT in patients without asthma at baseline, no significance could be seen in most groups. AIT was associated with a considerable lowering of prescription of asthma medication in patients with asthma at baseline. This effect was highly significant in the SCIT groups for children 5–11 years (dSCIT −53.2%; oSCIT −44.3%) and adults (dSCIT −43.9%; oSCIT −29.0%) but due to low patient counts, no significant differences were found in adolescents (dSCIT −38.8%; oSCIT −31.8%) nor in the SLIT group.

Conclusion: This analysis of Rx data has shown that AIT with HDM allergen extracts is associated with AR improvement. All treatment forms of AIT are associated with lowering of AR medication intake, with a tendency to a lower reduction in younger patients, which may have to do with parental care. AIT also showed in some groups a tendency on preventing asthma development. Moreover, there was a considerable reduction in prescription of asthma medication for

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patients already suffering from asthma before AIT. The effect of SLIT on different age groups was not clear because of the low sample size.

Conflicts of Interest: RM has received grants and honoraria from Leti, HR is employed by IQvia, AS and TM are employed by Leti.

000270 | Safety and effectiveness of 300IR house dust mite sublingual tablet over 4 years of routine use: Results of a post-marketing observational drug-use study

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*Presenting author: Y. Okamoto

Background: Although house dust mite (HDM) sublingual immunotherapy tablet is expected to be highly effective, data in actual daily practice need to be accumulated. Here, we report the safety and effectiveness of the 300IR HDM tablet for up to 4 years in daily practice.

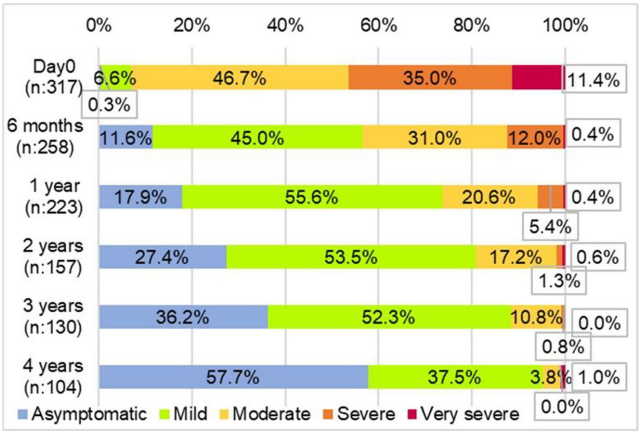
Method: As previously published[1], in this prospective, observational study, physicians evaluated HDM allergic rhinitis patients newly starting treatment with HDM tablet (gradually elevated from 100 to 300 IR) at different timepoints (6 months and after 1, 2, 3 and 4 years of treatment) and regularly collected their data until discontinuation or completion. The treatment period was not defined in this study and was left to the physician's discretion. Safety was assessed by adverse drug reactions recorded throughout the observation period and categorised according to MedDRA/J version 24.1. Effectiveness outcomes assessed descriptively included the changes from baseline in the proportion of patients in each severity class and in the mean rhinitis severity score (5-point scale) at each timepoint as well as the patient global impression of improvement.

Results: The safety and effectiveness set comprised 538 and 383 patients, respectively. Overall, 157 patients (29.2%) continued HDM immunotherapy over 4 years. Discontinuations due to adverse events mainly seen on the first months of treatment decreased over years. On the other hand, more than half of patients at each timepoint from 6 months onwards did not return to study site or stopped taking the 300IR HDM tablet as their symptoms improved. Adverse drug reactions reported in 156 patients (29.0%) were mostly local and mainly occurred within the first month of treatment. There were no reports of shock or anaphylaxis. In patients evaluable for effectiveness, the proportion of asymptomatic patients or with mild symptoms was 95.2% at 4 years ($n = 104$; Figure). The mean ± SD of rhinitis severity score change from baseline was −1.1 ± 0.8 points at 6 months and −2.1 ± 1.0 points at 4 years.

Conclusion: In real-world conditions, safety and sustained effectiveness of the 300IR HDM sublingual tablet was confirmed for up to 4 years of continuous use. Given that almost half of patients dropped out due to failure to attend hospital visits despite Japanese guideline recommendation on sustained treatment, we highlight the importance of patient education and adherence to gain optimal benefit.

Reference

1. Okamoto et al. Immunotherapy 2021;13:1333–43.



Conflicts of Interest: Tomohisa Hata and Yuta Asaka are employees of Shionogi & Co., LtdYoshitaka Okamoto serves in an advisory role for Torii Pharmaceutical Co., Ltd and Kirin Holdings Co., Ltd.; and has received honoraria from Torii Pharmaceutical Co., Ltd.

000374 | BSP163: Establishment of Replacement Batches for Recombinant Major Allergens Bet V 1 and Phl P 5A PH - EUR Reference Standards

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*Presenting author: M. Schott

Background: In 2012, the first European allergen reference standards have been established by the European Directorate for the Quality of Medicines and HealthCare (EDQM). The two Chemical Reference Substances (CRSs) contain specific amounts of recombinant (r)Bet v 1, the major allergen from birch pollen, and rPhl p 5a, a major allergen from Timothy grass. An upcoming change of the Ph. Eur. General Monograph on Allergen Products will make the use of these CRSs mandatory in combination with the respective standard ELISA systems for allergen quantification. Thus, it was decided to initiate the project BSP163 to establish replacement batches of the two CRS to meet the upcoming increased demand.

Method: Bulk preparations of both recombinant allergens had been provided to the EDQM in 2014, but their stability and current status were unknown. Therefore, suitability of the bulks had to be verified before new CRS batches could be produced from them. The necessary experiments were performed at the University of Salzburg and at the Paul-Ehrlich-Institut and included a.o. analyses via allergen-specific ELISAs and β-hexosaminidase release from humanised rat

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basophil leukaemia cells as well as amino acid analysis and control of protein identity by mass spectrometry.

Results: Initial analysis of the rBet v 1 and rPhl p 5a bulk preparations in the respective allergen-specific ELISAs showed that, despite the long storage, the recombinant proteins' performance was comparable to the current CRSs. Subsequent in-depth characterization confirmed the correct identity and folding of the recombinant allergens as well as suitable biological activity.

Conclusion: The first project step confirmed that both allergen bulk preparations were in satisfactory condition to proceed to the next step of BSP163, the production of the replacement CRS batches, to ensure the availability of the Ph. Eur. allergen reference standards.

Conflicts of Interest: The authors did not specify any links of interest.

000796 | Construction of peptide-based virus-like-particle vaccines for treating shrimp allergy

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Background: Allergen-specific immunotherapy (AIT) is the only curative strategy for allergic diseases whereby patients develop immunological tolerance to the sensitizing allergens. However, AIT with unmodified allergens can also trigger allergic reactions including anaphylaxis. The use of hypoallergenic peptides is one approach that improves the safety of AIT, and additional coupling of these peptides with carrier protein can enhance its immunogenicity. This study on shrimp allergy investigated the immunogenicity of peptide-based virus-like-particle (VLP) vaccines with hepatitis B virus core antigen (HBcAg).

Method: Eight B cell epitope-containing polypeptides (P1, P2, P3, P4, P5, P6, P7 and P8) derived from the major shellfish allergen tropomyosin of *Metapenaeus ensis* shrimp were designed and selected. Their IgE reactivity was tested by peptide enzyme-linked immunosorbent assay (ELISA). In parallel, HBcAg protein was expressed and purified in-house, then dialyzed to allow assembly into VLP. VLP size and structure were examined by size exclusion chromatography (SEC) and observed under transmission electron microscope (TEM) at 80 kV. Subsequently, BALB/c mice were immunized with peptide-conjugated HBcAg-VLP vaccines. The IgG2a antibody levels in pooled serum of different immunized mouse groups were measured by ELISA.

Results: Successful assembly of integral VLP was confirmed as being intact and spherical by SEC and TEM. The designed peptides were examined to have at least 3.5-fold lower IgE binding affinity than native tropomyosin. Two peptide-conjugated HBcAg-VLP (VLP-P1 and VLP-P2) induced at least 1.5-fold higher tropomyosin-specific IgG2a levels than native tropomyosin. On the other hand, conjugated- P1 and P2 VLP vaccines resulted in 7.5-fold and 25-fold higher IgG2a levels than unconjugated peptides, respectively.

Conclusion: Comparing to native allergen tropomyosin, B cell epitope-containing polypeptides are shown to have lower allergenicity, while conjugated VLP-P1 and VLP-P2 exhibit increased ability to induce IgG2a blocking antibodies. The substantially higher IgG2a levels produced by conjugated peptides comparing to their unconjugated counterparts strongly support the benefit of the HBcAg-VLP carrier in promoting type 1 T-helper lymphocyte response.

[This study was supported by the AXA Matching Fund (6904590)].

Conflicts of Interest: The authors did not specify any links of interest.

000300 | Subcutaneous immunotherapy with mannan-conjugated birch pollen allergoids – immunological data from 3 sequential trials

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Background: Allergen immunotherapies aim to change the immune system in order to alleviate allergy symptoms in the long term. These therapies usually last several years, but first effects can already be detected after 1–2 years. Here, we determine the immunologic effects of 10,000 mTU/mL mannan-conjugated birch pollen allergens (T502) administered as subcutaneous injections based on 3 consecutive studies.

Method: Immunological parameters (Bet v 1 specific IgE, IgG and IgG4) were analyzed before (baseline) and after treatment (2 weeks after the last injection) with either T502 or placebo in 2 double-blind, placebo-controlled (DBPC) trials and 1 subsequent open follow-up study with patients who had received placebo or T502 in the preceding DBPC study.

Results: In the first year of treatment, sIgG4 and sIgG increased significantly (4-fold and 2-fold) in the T502 group in comparison to baseline and also after treatment in comparison to placebo (4-fold and 2-fold). This was confirmed in the phase III DBPC trial with a 6-fold and 3-fold rise for sIgG4 and sIgG when compared to baseline and 5-fold and 3-fold when compared to placebo after treatment. Changes in sIgE were only marginal in both studies. A second year of treatment showed that, in analogy to the first year of treatment, placebo-patients also benefited from T502 treatment with an 8-fold increase for sIgG4 when compared to baseline. For patients who had received T502 in the first year, sIgG4 remained high at the beginning of the second year

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of treatment (2-fold in comparison to placebo) and increased further (4-fold) after treatment end. The sIgE/sIgG4 ratio was unchanged in placebo-patients in the first year, but decreased by 78% in the second year under active treatment. T502 reduced the ratio by 60% in the first year and by 72% in the second year, resulting in an overall reduction of 86%. Simultaneously, sIgE declined after 2 years of T502 treatment. The phase III DBPC trial showed also a significant reduction of −70% in following T502 treatment comparison to baseline and of −62% after treatment in comparison to placebo.

Conclusion: These studies show that T502 strongly increase the production of *bet v1* specific IgG and IgG4 already after 1 year with enhanced efficacy after 2 years, while sIgE levels start to decline after 2 years of treatment. This is supported by the Bet v 1 sIgE/sIgG4 ratio, which indicates beneficial long-term effects.

Conflicts of Interest: M. Casanovas, J. L. Subiza and E. Fernandez-Caldas are employees of Inmunotek S.L.

000333 | Current status of the therapy allergen ordinance in Germany – Practical implications for product selection

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Background: With the introduction of the Therapy Allergens Ordinance (TAO) in 2008 the previously unapproved therapeutic allergens, that were existing on the market next to registered preparations, needed to be checked for their risk-benefit ratio as a basic prerequisite for approval under pharmaceutical law. However, this process is even now – 14 years after its initiation – not finalised. Therefore, even today, patients are treated with preparations whose effectiveness has not yet been and may never be proven according to standards required by regulatory authorities.

Method: A systematic review of clinicaltrialsregister.eu was performed. It was searched for the indication, specification of main allergens, the relevant manufacturers and products.

Results: Until now only 2 products have obtained a marketing authorisation in the regulatory framework of the TAO. All other products are still under development or have been withdrawn from the market. Phase 2 studies indicated that the currently marketed dose is not optimal and consequently up to more than factor 5 higher dosages than the currently marketed dose were chosen for phase 3 studies. However, even with these increased dosages, the primary endpoints could not be reached in many studies or results were not published.

Conclusion: Careful product selection and balanced patient information is critical in AIT. Due to unproven superior efficacy compared to placebo according to current regulatory standards of not registered products it is recommended to prescribe only registered products for new patients, if these products are available for the respective allergen in the preferred application form.

Conflicts of Interest: The authors did not specify any links of interest.

000436 | Allergenic activity of a mixture of depigmented-polymerized extracts from platanus acerifolia and olea europaea pollen

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Background: The use of mixtures of allergenic extracts for immunotherapy is safe and effective in polyallergic patients. However, the combination of some allergens in a mixture could increase the allergenic potency and compromise the safety of the final product. The aim of this study was to analyze the allergenic activity of different mixtures of *Platanus acerifolia* and *Olea europaea* pollen depigmented-polymerized (Dpg-Pol) extracts to determine the safest concentration.

Method: Depigmented-polymerized mixtures of pollen of *P. acerifolia* and *O. europaea* extracts were prepared at 3 different proportions (1:1, 1:0.75 and 1:0.5). The allergenic activity of each mixture was analyzed and compared to the individual *P. acerifolia* and *O. europaea* Dpg-Pol extracts by ELISA inhibition assay using a pool of sera of 7 polyallergic patients. The acceptance criterion of the maintenance of allergenic potency in the mixtures was defined as a variation of less than 20% of the parameter "50% inhibition" (Quantity of extract able to inhibit 50% of IgE-allergen binding in the ELISA assay) compared to both, *P. acerifolia and O. europaea* individual extracts.

Results: The mixtures *P. acerifolia* – *O. europaea* 1:1 and *P. acerifolia* – *O. europaea* 1:0.75 increased the allergenic potency more than the 20% compared with the individual *P. acerifolia* extract whereas the mixture *Platanus-Olea* 1:0.5 kept the allergenic potency. No increase of allergenic potency was observed in any mixture related to *O. europaea* allergen extract.

Conclusion: The mixture *P. acerifolia* – *O. europaea* 1:0.5 was the optimal formulation in terms of *in vitro* safety profile because the allergenicity was preserved.

Conflicts of Interest: The authors did not specify any links of interest.

000192 | EAIT-CSU; extensive allergen immunotherapy protocol for management of chronic spontaneous urticaria

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Background: Chronic spontaneous urticaria (CSU) is widely held to be driven by autoantibodies rather than allergic mechanisms. In a recent study, we found that some of CSU patients showed sensitization to one or more allergens, as assessed by skin prick testing to inhalant allergens. Up till now, the effects of allergen immunotherapy

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(AIT) in CSU are not well defined nor clearly understood. Here, we describe our novel Extensive Allergen Immunotherapy protocol for the management of CSU (EAIT-CSU).

Method: We performed AIT in 43 CSU patients and assessed changes in disease activity and impact by the use of the Urticaria Activity Score (UAS7) and the Dermatology Quality of Life Index (DLQI), respectively. All of our patients had tested positive, by skin prick test, for one or more of 40 common inhalant allergens. Then AIT plan was tailored for each patient. The total number of positive allergens for each patient was distributed on a number of bottles (groups) evenly with a maximum of 8 allergens per bottle. Each patient received 1, 2, 3 or 4 groups of AIT subcutaneously every 2 months. AIT was started with dilutions 1: 1 Million. However, patients with high UAS7 score started AIT with further dilutions to avoid any adverse events. We called this "Extensive AIT protocol" because all the number of positive allergens were included in the AIT even if it reached 20 allergens or more. Patients received bi-weekly doses from each group of AIT, completing the build-up phase in around 1 year followed by a maintenance phase for 2 more years.

Results: There was a highly significant improvement in the severity of symptoms & the quality of life by the end of the first 12 months of AIT. This was demonstrated by UAS7 ($p = 0.001$) & DLQI ($p = 0.003$) scores. Regarding improvement of symptoms, comparisons have been made between the scores of UAS7 for the patients in months 2, 4, 6, 8, 10 & 12 of AIT with $p = 0.000, 0.000, 0.069, 0.215, 0.222$ & 0.202 respectively. Meanwhile, comparisons for the improvement of the quality of life were done between the scores of DLQI in months 2, 4, 6, 8, 10 & 12 of AIT with $p = 0.000, 0.000, 0.012, 0.429, 0.465$ & 0.431. This has revealed that the patients have experienced significant improvement in the first 4 months of AIT reaching a well-accepted controlled state of CSU with most of the scores reaching 0 or almost near 0, they kept improving but the improvement was not as significant as the months before because the scores were already low and the symptoms have already improved. There were very minimal adverse effects during treatment with AIT, which were avoided either by further dilutions or by antihistamines. At the beginning of AIT, the patients' response to antihistamines has become better and by time some patients were off antihistamines. Most of our patients who started the maintenance phase have become symptom free with UAS7 score 0. The most prevalent inhalant allergens were House dust mite mix, cockroach mix, Mesquite pollen, Lambs quarter, Mugwort, Timothy grass & Aspergillus mix.

Conclusion: Forming an Extensive AIT protocol that allows adding all the positive allergens no matter how many they are, is the cornerstone of success of AIT in treating the CSU symptoms sustainably even after stopping the AIT.

TABLE 1 EAIT-CSU, Extensive Allergen Immunotherapy Protocol for Management of Chronic Spontaneous Urticaria for a sample of patients, featuring allergen components, groups and starting dilutions for AIT.

Patient code	Allergen components in each AIT bottle (Group) *			
	Group (A) Allergens / Starting Dilution	Group (B) Allergens / Starting Dilution	Group (C) Allergens / Starting Dilution	Group (D) Allergens / Starting Dilution
1	1, 3, 4, 5, 6, 7, 16 / 1: 1 billion	9, 11, 20, 21, 29 / 1: 1 billion	-	-
3	1, 5, 7, 10, 11, 15, 20 / 1: 10 million	13, 16, 23, 24, 25, 28, 37 / 1: 10 million	-	-
4	1, 9, 11, 12, 18, 19 / 1: 1 million	14, 30, 31, 32, 37, 38 / 1: 1 million	33, 34, 35, 36 / 1: 100,000	-
7	1, 13, 16, 20, 21, 22, 37 / 1: 10 million	-	-	-
8	1, 7, 10, 11, 16, 20, 28, 31 / 1: 10 million	-	-	-
11	1, 3, 4, 5, 10 / 1: 1 million	16, 21, 22, 23, 37 / 1: 1 million	24, 25, 26, 29, 32, 38 / 1: 1 million	-
12	21, 31, 37, 38 / 1: 1 billion	33, 34, 35, 36, 2 / 1: 1 billion	-	-
13	1, 3, 5, 7, 8, 9, 23, 28 / 1: 10 trillion	10, 11, 12, 13, 17, 25, 29, 31 / 1: 1 trillion	18, 21, 22, 26, 27, 30, 32, 37, 38 / 1: 100 billion	2, 33, 34, 35, 36 / 1: 1 million
14	1, 5, 18, 19, 38, 40 / 100 trillion	2, 35, 36 / 1: 10 trillion	-	-
15	1, 3, 6, 7, 10, 11 / 1: 10 billion	13, 14, 15, 16, 17, 18 / 1: 1 trillion	19, 20, 21, 22, 24, 25 / 1: 100 billion	23, 26, 27, 31, 38, 40 / 1: 10 billion
16	1, 3, 4, 5, 7, 8, 15 / 1: 1 billion	16, 21, 22, 37, 38 / 1: 10 million	-	-
17	1, 6, 10, 11, 16, 21, 22, 31, 32 / 1: 100 million	-	-	-
19	1, 3, 6, 8, 9, 10, 11 / 1: 10 million	12, 13, 16, 17, 21, 22, 23 / 1: 10 million	25, 26, 28, 30, 31, 37, 38 / 1: 10 million	2, 33, 34, 36 / 1: 100,000
20	1, 3, 5, 6, 13, 16 / 1 billion	8, 20, 22, 25, 37, 38 / 1: 1 billion	-	-
22	1, 3, 4, 5, 6, 7, 10, 11 / 1: 1 billion	3, 6, 12, 14, 15, 17, 18 / 1: 1 billion	33, 34, 35, 36 / 1: 100,000	-
26	1, 13, 15, 18, 22, 30, 38 / 1: 100 million	3, 9, 10, 11, 25, 28, 29 / 1: 100 million	4, 7, 27, 31, 32 / 1: 100 million	33, 34, 35, 36 / 1: 100,000
34	5, 6, 7, 8, 10, 30 / 1: 1 billion	9, 11, 12, 26, 27, 28, 29, 31, 32 / 1: 1 billion	33, 34 / 1: 100,00	
38	1, 3, 4, 7, 10, 23, 25, 27, 28 / 1: 10 billion	-	-	-
42	1, 13, 19, 20, 22 / 1: 10 million	3, 4, 5, 12, 14, 23 / 1: 10 million	2, 33, 34 / 1: 100,000	-
43	1, 3, 4, 5, 9, 10, 30, 32 / 1: 1 billion	6, 8, 11, 12, 17, 19, 28 / 1: 1 billion	-	-

Table 1. EAIT-CSU; Extensive Allergen Immunotherapy Protocol for Management of Chronic Spontaneous Urticaria, featuring allergen components, groups and starting dilutions for AIT

* Allergen panel key

1 *Mite Mix*, 2 *Mixed Cockroach*, 3 *GS 11 Tree Mix*, 4 *Australian Pine (Beefwood)*, 5 *Mugwort (Sagebrush)*, 6 *Gum (Acacia)*, 7 *Alfalfa*, 8 *Palm Queen*, 9 *Perennial Rye grass*, 10 *Lambs Quarter*, 11 *Timothy grass*, 12 *Johnson grass*, 13 *Olive tree*, 14 *Ragweed Mix*, 15 *Bahia grass*, 16 *Mesquite*, 17 *Bermuda grass*, 18 *Birch Pollen*, 19 *Orange Pollen*, 20 *Mango Blossom*, 21 *Corn pollen*, 22 *Wheat Pollen*, 23 *Black willow*, 24 *Amaranth Pollen*, 25 *Grass Mix*, 26 *Eucalyptus Grobbulus*, 27 *Prairie Sage*, 28 *Walnut Pollen*, 29 *Hazelnut Pollen*, 30 *Sunflower Pollen*, 31 *Dandelion Pollen*, 32 *Daisy pollen*, 33 *GS New Stock Fungi Mix*, 34 *Alternaria*, 35 *GS Grain Smut Mix*, 36 *Aspergillus Fumigatus*, 37 *Feather C.D.G. mix*, 38 *Cattle Epithelium*, 39 *Dog Epithelium*, 40 *Cat Hair Mix*

Conflicts of Interest: The authors did not specify any links of interest.

000225 | Evaluation of the cytokine response induced by specific allergen immunotherapy in patients with hymenoptera venom allergy

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Background: Hymenoptera venom allergy may cause life-threatening allergic reactions. Specific allergen immunotherapy to hymenoptera venom (VIT) has proven to be efficacious in reducing the severity of anaphylactic reactions. The aim of the study was to investigate, in patients with wasp venom allergy, the changes in Th1, Th2 and T regulatory (Treg) cytokines following VIT treatment.

Method: Prospective study of 20 patients with an allergy to wasp venom: 18 male; Age, median (range): 58 (34–79) years. Patients were treated with subcutaneous VIT. Blood samples were collected before and 6 and 12 months after VIT treatment. In serum samples IL-4, IL-5, IL-10, IL-13 and IFN-ɣ levels were determined using human cytokine multiplex magnetic bead panels according to the manufacturer's instructions. The samples were analyzed using a Fortessa flow cytometer.

Results: Specific IgE levels (median and range) to Vespula spp and Polistes spp were 10.3 (1.67–100) and 10.3 (0.22–100) kUI/L,

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respectively. All patients suffered an anaphylactic reaction after a *Vespula velutina* sting and 7 patients (35%) required treatment with adrenaline. Following VIT, a significant increase in the level of IFN-ɣ was found 6 and 12 months after treatment ($p < 0.001$). This increase was also observed 12 months after treatment in the levels of IL-10 and IL5 ($p = 0.0001$ and 0.0002, respectively). No significant differences were observed in the levels of IL-13 after VIT. IL-4 levels were not detectable in the samples analyzed.

Conclusion: The results obtained in the present study suggest that VIT triggers a Th2 to Th1 shift and an induction of IL-10 secreting Treg cells. These events occur early and suggest a VIT tolerance induction in these patients.

Conflicts of Interest: MJ Cruz is a consultant for HAL Allergy.

000587 | Cat and dog specific immunotherapy impact on quality of life and self-reported satisfaction in a real-world setting

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*Presenting author: M. Colque-Bayona

Background: Although specific allergen immunotherapy (AIT) is effective in allergic rhinitis (AR) and asthma induced by cat and/or dog exposure, there is a lack of evidence regarding its impact on quality of life (QoL). The aim of this study was to assess the impact of cat and dog AIT on QoL in real-world conditions.

Method: A prospective, quasi-experimental longitudinal pilot study carried out with patients with AR and/or asthma due to cat and/or dog allergy. Patients were divided in two groups: an AIT-treated group receiving subcutaneous immunotherapy (SCIT) with cat or dog extracts and non-AIT control group of patients who refused AIT. We included a control patient for each 4 AIT-treated patients. To evaluate QoL, we used the validated versions in Spanish for the Allergic Rhinitis Quality of Life Questionnaire (ESPRINT-15) and the Asthma Quality of Life Questionnaire (AQLQ) at baseline and after one-year. Additionally, we analyzed: symptoms scores, medication, skin prick-test, total IgE, specific IgE to the whole cat and dog extract and to allergen components, IgG4, spirometry, rhinitis classification according to the Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines, Asthma Control Test (ACT) and visual analog scale (VAS) of satisfaction.

Results: 17 patients were included: 13 formed the AIT-treated group (69.2% received cat-AIT and 30.8% dog-AIT) and 4 formed the non-AIT control group. Baseline clinical data is presented in Table 1. After one-year, significant improvement in ocular and nasal symptoms score ($p = 0.001$ and $p = 0.002$ respectively) and ACT ($p = 0.011$) was found in the AIT-treated group, with no significant changes in the control group. In terms of QoL, AIT contributed significatively to the improvement of the ESPRINT-15 questionnaire ($p = 0.003$); as for QoL in asthma, no significant differences were recorded ($p = 0.139$) probably due to our small sample (Figure 1). Based on the minimum clinically important differences (MCID) for questionnaires responses, 69.2% of the patients had an increase >0.9 (MCID) in ESPRINT-15 and 70% had an increase of >0.5 (MCID) in AQLQ after one-year of AIT. No significant modifications in QoL were found in the control group. Patient-rated satisfaction for AIT was 7.8 in the VAS.

Conclusion: We were able to demonstrate the positive impact of dog and cat AIT on the RC QoL, a safety profile in a real-world setting together with a high satisfaction rate. Further studies should carry out to reinforce our findings.

TABLE 1 Baseline demographic, clinical characteristics and allergologic study.

	AIT-treated group (N=13)	Non-AIT control group (N=4)
Demographic characteristics		
Sex *(n, %)*		
Female	7 (53.8)	3(75)
Male	6 (46.2)	1(25)
Age (mean years ± SD)	32,3 ± 9,0	34,5 ± 15,3
Exposure to cat or dog *(n, %)*		
Permanent	7 (53.8)	3 (75)
Sporadic	6 (46.2)	1 (25)
Clinical characteristics		
Allergic comorbidities *(n, %)*		
Urticaria	3 (23.1)	0
Atopic dermatitis	3 (23.1)	0
Food allergies	1 (7.7)	0
Drug allergies	0	0
Sensitization to aeroallergens *(n, %)*		
Cat	13 (100)	3 (75)
Dog	8 (61.5)	3 (75)
Grasses	9 (69.2)	2 (50)
Reed grass	6 (46.2)	2 (50)
Olive tree	5 (38.5)	2 (50)
Shade plantain	3 (23.1)	1 (25)
Mite	6 (46.2)	1 (25)
Alternaria	1 (7.7)	0
Clinical allergy *(n, %)*		
Cat only	6 (46.1)	2 (50)
Rhinoconjunctivitis	2 (15.3)	2 (50)
RC and asthma	4 (30.7)	2 (50)
Dog only	4 (30.7)	2 (50)
Rhinoconjunctivitis	0	2 (50)
RC and asthma	4 (30.7)	1 (25)
Cat and dog allergy	3 (23.0)	0
RC only	1 (7.7)	-
RC and asthma	2 (15.3)	-
Rhinitis severity (ARIA) *(n, %)*		
Mild	3 (22.9)	1 (25)
Intermittent	2 (15.3)	0
Persistent	1(7.6)	1 (25)
Moderate/severe	8 (77)	3 (75)
Intermittent	4 (30.8)	1(25)
Persistent	6 (46.2)	2 (50)
Asthma Control Test (mean ± SD)	17.1 ± 5.1	19.6 ± 6.8
Symptoms score (mean ± SD)		
Ocular	19.5 ± 10.2	20.2±11.9
Nasal	20.8 ± 8.4	18.7±8.0
Allergologic study (mean ± SD)		
Skin Prick Test		
Cat	7.5 ± 2.5 mm^2	4.7 ± 3.7 mm^2
Dog	4.7 ± 3.2 mm^2	2.2 ± 1.5 mm^2
Total IgE	547,7 ± 562,9 kU/L	204,2 ±85,2 kU/L
Total Cat IgE	56,1 ± 43,8 kU/L	19,4 ±25,5 kU/L
Fel d1	51,9 ± 37,7 kU/L	17,7 ± 23,1 kU/L
Fel d2	2,6 ± 4,3 kU/L	0 kU/L
Total Dog IgE	75,5 ± 104,3 kU/L	9,1 ±12,6 kU/L
Can f1	20.7 ± 39,1 kU/L	0.005 kU/L
Can f2	19,0 ± 9,5 kU/L	0.005 kU/L
Can f3	11,9 ± 8,4 kU/L	0,08 ± 0,1 kU/L
Can f5	13,4 ± 26,6 kU/L	0.07 kU/L
IgG4	66,7 ± 25,1 mg/dL	45,6 ± 28,2 mg/dL
Spirometry		
FEV_1	3,6 ±1.0 L	3,0 ± 1,4 L
FVC	4,5 ± 0.9 L	3,6 ± 1.1 L
FEV_1/FVC	88.6± 9.1 %	92.0 ± 5.3 %
Treatment characteristics *(n, %)*		
Antihistamines	12 (92.3)	4 (100)
Nasal corticosteroids	1 (7.7)	2 (50)
Oral corticosteroids	0	0
Inhaled corticosteroids	0	1 (25)
Short-acting beta-agonists	6 (46.2)	2 (50)
ICS with long-acting beta agonists	6 (46.2)	2 (50)

Abbreviations: SD, standard deviation; RC, rhinoconjunctivitis; ARIA, Allergic Rhinitis and its Impact on Asthma; IgE, Immunoglobulin E; IgG4, Immunoglobulin G4;FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity; ICS, inhaled corticosteroids.

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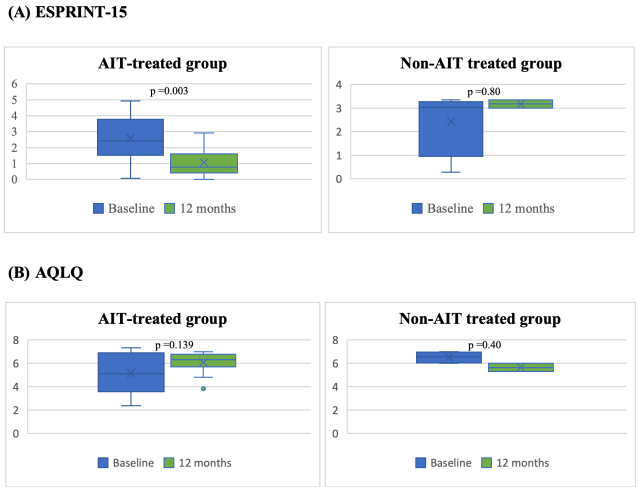

FIGURE 1 Results of Allergic Rhinitis Quality of Life Questionnaire (ESPRINT-15) in AIT-treated group and in non-AIT treated group (A) and Asthma Quality of Life Questionnaire (AQLQ) in AIT-treated group and in non-AIT treated group (B).

Conflicts of Interest: The authors did not specify any links of interest.

000845 | Allergoid implant for allergen immunotherapy: Stability and long-term in-vitro release

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Background: Allergen immunotherapy (AIT) is applied for the treatment of allergic diseases caused by IgE-mediated hypersensitivity to allergen sources such as pollen and house dust mites. AIT is routinely performed by application of allergen extracts or allergoids (chemically modified allergens) via the sublingual route or by subcutaneous injection. Both AIT forms are well tolerable and effective, but the overall efficacy is oftentimes reduced by a suboptimal level of adherence of the patient. A new AIT application route based on subcutaneous biodegradable depot implants with a sustained release of allergoids over several months, could improve AIT efficacy by continuously exposing the active ingredients to the immune system over the period of implant degradation with a minimum degree of patient participation. In this study, various implant formulations containing birch pollen allergoid were manufactured and characterized regarding allergoid distribution, stability and *in-vitro* release.
Method: Implants consisting of Poly-lactic-co-glycolic acid (PLGA) and allergoids were manufactured by hot melt extrusion (HME). Formulations were supplemented with trehalose or magnesium hydroxide. A suitable procedure to extract functional allergoids from implants was developed. SEC, DLS, FT-IR, IEF and IgG/IgE binding assays were performed to verify the stability of the extracted allergoids after extrusion. The long-term *in-vitro* release was evaluated over 30 weeks in PBS (pH 7.4) at 37°C.
Results: All manufactured implant batches showed a homogeneous allergoid distribution. The addition of trehalose increased allergoid stability during the manufacturing process while addition of magnesium hydroxide increased the *in-vitro* release rate. Analyses of extracted allergoids did not reveal major differences to allergoids that did not undergo the manufacturing process. The total protein release from implants over 30 weeks varied between 17.4% and 81.7% depending on the formulation.
Conclusion: This study proved the feasibility of manufacturing PLGA-based implants containing allergoids by HME. The allergoids maintained their physicochemical characteristics and IgG/IgE binding capacity during the manufacturing process. The long-term *in-vitro* release of allergoids from implants was demonstrated successfully. In conclusion, the presented study is a first step in the development of biodegradable subcutaneous implants which provide a convenient therapy option with the potential to increase the overall efficacy of AIT.
Conflicts of Interest: Employees of Allergopharma.

000244 | Anaphylaxis Caused by Allergen Immunotherapy Due to Co-Factors: A Case Report

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*Presenting author: O. Kolesnikova

Case Report: Subcutaneous pollen immunotherapy is a proven treatment. The main risk associated with AIT with commercial extracts of aeroallergens is the rare occurrence of anaphylaxis after injection. The purpose of this case report is to review a reported case of anaphylaxis, identify factors contributing to this event, and identify preventive measures that may reduce or eliminate future anaphylactic events. As with any treatment, the expected benefits associated with AIT must be taking into account against the potential risks. A 52-year-old woman had an episode of anaphylaxis during a maintenance dose of an ragweed allergen extract (during the ragweed and ate honey with a dietary supplement which contents echinacea.
LH: during the last 3 years she suffered from nasal congestion, mucous discharge from the nose every year, from the beginning of August until the snow season. She took antihistamines, nasal topical steroids without a significant effect. No signs of food allergy were noted. Skin prick tests showed sensitization to ragweed and AIT with ragweed extract was started in January. AIT was well tolerated by the patient, at the stage of increasing the dose, periodically non-intense local reactions (redness, itching and swelling up to 5 cm at the site of allergen injection), the reactions disappeared on their own. On the day of the next maintenance dose of ragweed extract (mid-August – the ragweed flowering season), the patient had no

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complaints. 15 min after the subcutaneous injection of the allergen, the patient felt unwell, spastic pains in the abdomen, nausea, urticaria, angioedema of the lips appeared. The patient received first a id – epinephrine, i/v GCS, antihistamines. 1.5 after the episode, blood was taken to determine tryptase, in order to identify the cause, the patient was recommended to conduct a multicomplex allergological study ALEX. Tryptase 15.47 µg/L (confirming anaphylaxis) ALEX test – monosensitization to the main ragweed allergen. Obviously, the described episode of anaphylaxis after the introduction of AIT was due to the patient's use of honey and echinacea on the eve of the allergen injection, as well as co-factors in the form of intense physical activity and a high concentration of pollen in the air. The patient was advised to avoid eating honey and dietary supplements with echinacea during the entire course of AIT, 6–8 h before, or within 3 h after intense physical activity. Always carry an adrenaline auto-injector with you.

Conclusion: Clinical evidence suggests that honey and herbal supplements in ragweed patients receiving AIT are the cause of anaphylaxis after allergen administration, and co-factors in the form of intense physical activity on the day of the next dose of allergen should be avoided

JM Case reports session: 18244

Щириця звичайна (амарант)	Ama r		≤ 0,10
Амброзія полинолиста	Amb a		4,52
	Amb a 1	Pectate Lyase	8,99
	Amb a 4	Plant Defensin	≤ 0,10
Полин звичайний	Art v		≤ 0,10
	Art v 1	Plant Defensin	≤ 0,10
	Art v 3	nsLTP	≤ 0,10
Коноплі звичайні (посівні)	Can s		≤ 0,10
	Can s 3	nsLTP	≤ 0,10
Лобода біла	Che a		≤ 0,10
	Che a 1	Ole e 1-Family	≤ 0,10
Переліска однорічна	Mer a 1	Profilin	≤ 0,10
Настінниця розлога	Par j		0,28
	Par j 2	nsLTP	≤ 0,10
Подорожник ланцетолистий	Pla l		≤ 0,10
	Pla l 1	Ole e 1-Family	≤ 0,10
Курай поташевий	Sal k		≤ 0,10
	Sal k 1	Pectin Methylesterase	≤ 0,10
Кропива	Urt d		≤ 0,10

Conflicts of Interest: The authors did not specify any links of interest.

000491 | Safety and tolerability of allergen immunotherapy in patients with respiratory allergy

G. A. Guida[1]; M. Bassotto[1]; M. Donesana[1]; T. Del Mastro[1]; G. Iaccarino[1]; A. Marseglia[1]; G. Testa[2]; M. Votto[1]; M. De Amici[3]; R. Castagnoli[1,2]; G. L. Marseglia[1,2]; A. Licari[1,2]; M. De filippo[1,2]

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*Presenting author: M. De filippo

Background: Allergen-specific immunotherapy (AIT) is the only disease-modifying therapy for allergic diseases, but its safety is still being questioned because of possible severe systemic reactions. This study aimed (1) to describe the demographic and clinical features of a pediatric population with allergic asthma (AA) and/or rhinitis (AR) undergoing AIT, (2) to determine the frequency and characteristics of local and systemic reactions due to AIT, and (3) to identify their correlation to risk factors, such as age, comorbidities, diagnosis, allergen composition, and AIT schedule.

Method: We analyzed the data of patients followed at the Pediatric Clinic in Pavia, Italy, for respiratory allergies and treated with AIT between 2010 and 2022. AIT was given in subcutaneous or conventional schedules. The standardized allergen extracts used were grass pollen, house dust mites, mold, ragweed, and latex. The Ethical Committee approved this study.

Results: 300 patients with AR (73%), AR and AA (21%), and AA (6%) were enrolled. The age range was 6–28 years. 35 (12%) patients developed AIT-related adverse events. Local swelling and skin erythema commonly occured in 3 (16%) patients of the SCIT group. Oral itching was reported by 12 (4%) subjects of the SLIT group. Both groups' local reactions were mild, well-tolerated, and self-limiting. Only one patient experienced diffuse urticaria in the SCIT group. Three (1%) patients in the SLIT group experienced systemic reactions, including urticaria/angioedema and asthma exacerbations. Three (1%) patients developed eosinophilic gastrointestinal disorders 3–6 months after SLIT initiation. The rate of adverse events was higher in patients treated with AIT for grass pollens than for other allergens ($p = 0.02$). No significant difference in the overall rate of adverse events was found between SCIT and SLIT groups (13.6% and 13.9%, respectively, $p = 0.25$; Figure 1).

Conclusion: AIT is a tolerated and safe therapy. Adverse effects are mostly mild and self-limiting. Patients undergoing SLIT be closely followed up for an extended period, and those with gastrointestinal symptoms should be carefully evaluated by gastroenterologists for the risk of developing gastrointestinal eosinophilic disorders.

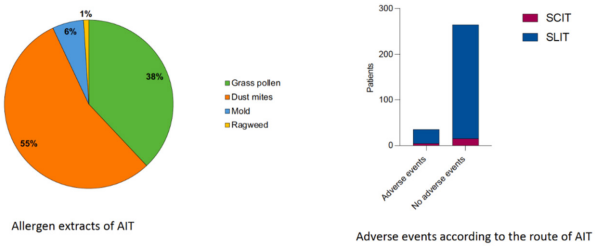

Figure 1Allergensextracts of AIT (left). Adverseeventsaccording to the route of AIT (right).

Conflicts of Interest: The authors did not specify any links of interest.

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001458 | Drago Application to Optimize the Use of Allergen Immunotherapy: Trends and Acceptance

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*Presenting author: L. Tanno

Background: Allergen immunotherapy (AIT) is the only therapy able to change the natural history of allergies, but its adherence is still not optimal. Launched in France in 2020, DRAGO[R] application (APP) is a free application to optimize the use of AIT through education modules, timing track and implementation of adherence based on games and avatar evolution. We aimed to first present the use trends and acceptance of this new tool by patients receiving AIT.
Method: Patients are offered to voluntarily use the application simultaneously to their AIT, indicated to respiratory allergies, after signing the consent form. Data generated are anonymized and its storage follows the French regulations. We evaluated demographic data and trends of use and sent out an online survey containing 12 multiple choice questions, in French, to evaluate the satisfaction of users of DRAGO[R]. We received responses to the survey for a period of 12 months in 2021.
Results: DRAGO[R] counted with 3 357 users after 26 months of launch, 1914 (57%) received perennial and 1 443 (43%) seasonal AITs, all through sublingual route. Mean age of users was 21 years, most were children up to 11 years (65%). Adolescents (12–17 years) accounted for 400 (12%) and adults for 867 (23%). 70% of patients used the APP between 6:00 PM to 2:00 AM, 12% of patients after 10:00 PM. We received 660 responses to our questionnaire, 50.7% from adults receiving AIT and using DRAGO[R] for more than 6 months. 76.6% declared using AIT and DRAGO[R] regularly. 60% of participants considered the APP "very useful" and 36% "useful".
Conclusion: Use of e-health is increasing worldwide to improve the care of patients. The DRAGO[R] APP is increasingly used in France and demonstrated to have good acceptance from patients receiving AIT. Further outcomes to prove efficacy on implemented adherence will be presented and the English version will be available for international use and validation of our results.
Conflicts of Interest: The authors did not specify any links of interest.

000430 | Stability, allergenicity, in vitro safety profile and immune response of a mixture of grass mix pollen- cat dander depigmented polymerized extracts

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*Presenting author: D. Calzada

Background: Allergen immunotherapy is safe and effective in polyallergic patients. However, in some cases, the use of several allergen extracts in a mixture is a controversial issue. The aim of this study was to demonstrate the stability, the *in vitro* safety profile, and the immune response of a mixture of grass pollen mix and cat dander (grass-cat mixture) depigmented-polymerized (Dpg-Pol) extracts.
Method: The grass-cat Dpg-Pol mixture was prepared by equal concentration of each allergen. Its stability was studied by evaluating the protein content at 1, 3, 6, 12 and 18 months by Bradford. Allergenicity was studied over 16 weeks and compared to the individual allergenic extracts by ELISA inhibition assays. To study the *in vitro* safety profile, basophil activation test was performed using peripheral blood samples from 9 allergic patients to both allergens and 5 healthy control donors. Results of the grass-cat mixture stimulation were compared with the individual allergen. To analyze the humoral response, two rabbits were immunized with the grass-cat Dpg-Pol mixture. Specific IgG antibodies produced were measured by western blot and direct ELISA. Furthermore, the functional implication of these IgG was tested by the capacity to block the binding of human IgE-grass pollen extract and IgE-cat dander extract by ELISA inhibition assays using sera from polyallergic patients.
Results: The protein content of the Dpg-Pol grass-cat mixture was maintained during the 18 months of study. The allergenicity of the Dpg-Pol mixtures was maintained during time of investigation and was comparable to the individual Dpg-Pol extracts. The median percentages of activated basophiles from allergic patients were similar between the stimulation with the Dpg-Pol mixture: 14.52% and the individual Dpg-Pol extracts (grass: 7.33%; cat dander: 30.19% and significantly lower than the mixture of native grass-cat mixture (90.94%). Regarding humoral response, Dpg-pol mixture induced specific IgG antibodies against grass pollen and cat dander in the animal model. The percentage of inhibition of IgE from sera from allergic patients to both allergens by the sera from immunized rabbits reached over 84%.
Conclusion: The *in vitro* studies demonstrated that the Dpg-Pol mixture of grass pollen and cat dander allergen extracts is stable, safe and induce a potent immunological response. This mixture is a promising treatment for polyallergic patients.
Conflicts of Interest: The authors did not specify any links of interest.

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000655 | SQ SCIT, evidence based treatment for allergic respiratory disease

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*Presenting author: J. N. Larsen

Background: Subcutaneous immunotherapy (SCIT) products are medicinal products derived from natural raw materials inherently variable in composition. To ensure consistency in both allergen composition and potency, the first registered SCIT product was based on standardised quality (SQ) standardization, which includes a three-step batch-release procedure, i.e. complexity analysis, major allergen determination and total allergenic activity. In addition, many aspects of the immunological mode of action of AIT have first been described in trials based on patients treated with SQ SCIT including serological responses, immune deviation, and induction of regulatory lymphocytes. SQ SCIT has been used for over 40 years to treat people with allergic respiratory disease and is still in widespread use. The objective of this review is to provide an overview of the clinical evidence for SQ SCIT.
Method: Literature search identified 122 publications describing clinical results from 79 trials with SQ SCIT.
Results: A total of 8574 patients were enrolled in 79 trials and studies. 24 trials were randomized, double-blind and placebo controlled. Most trials included patients with either allergic rhinitis with or without conjunctivitis (ARC; *N* = 44), allergic asthma (AA; *N* = 12) or ARC and/or AA (*N* = 15). Few trials included patients with other allergic conditions (*N* = 8). Most trials used a single species, eg. grass pollen (*N* = 15), birch pollen (*N* = 12), house dust mite (*N* = 30) or other (*N* = 6), whereas 16 trials used more than one species. Study populations in the trials were adults (*N* = 47), children (*N* = 17) and mixed (*N* = 15). Sustained efficacy after termination of treatment was evaluated in 8 trials with 3–7 years of follow-up after termination of 2–3 years of treatment. One trial addressed asthma prevention in children with allergic rhino-conjunctivitis.
Conclusion: SQ SCIT is standardised to ensure a consistent allergen composition and potency. In total, 79 SQ SCIT clinical trials and studies, including eight long-term trials, have documented a consistent efficacy and safety profile across different allergens. Increased knowledge about the rigorous standardisation process and available clinical evidence for SQ SCIT may support clinical decision-making.
Conflicts of Interest: All authors are full time employees of ALK-Abelló A/S.

ALLERGY DIAGNOSIS + SYSTEMS MEDICINE 1

001518 | Creating a French dataset for artificial intelligence-assisted allergy diagnosis using semantic attributes and allergen multiplex technology

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*Presenting author: J. Goret

Background: Allergen multiplex assays are increasingly used as a precision medicine approach in difficult-to-diagnose allergic patients. It requires extensive knowledge in molecular allergology and appears very time-consuming for interpretation. We hypothesized that a nationwide dataset able to support artificial intelligence-assisted allergy diagnosis may improve the management of allergic patients.
Method: The French Society of Allergology (SFA) and the Health Data Hub (HDH) partnered for the development of a retrospective dataset. Allergen multiplex collection was led by the specialized AllergoBioNet network of clinical laboratories. Board-certified allergists assessed allergy diagnosis, clinical history, and therapeutic management. Data scientists, epidemiologists and public health specialists from the Desbrest Institute of Epidemiology and Public Health (IDESP) and Trustii, encoded clinical items as semantic attributes and supervised the anonymization in compliance with European regulation 2016/679 (General Data Protection Regulation, GDPR) and French data protection laws.
Results: Data were collected from 15 university hospitals spanning the French territory. A wide panel of complex conditions was obtained, including food and airborne allergy and anaphylaxis in 4000 patients aged 0–80 years. In a subset of patients, images from processed allergen multiplexes were collected as raw data for IgE antibody quantitation. The dataset will be open following an international crowdsourced machine learning competition helding from April 1st to May 31st 2023.
Conclusion: We report on the methodology and establishment of the first nationwide dataset of allergen multiplex and associated diagnostic and therapeutic data representative of allergies encountered in a Western European country. This dataset paves the way for an open-source diagnostic prediction tool for the practicing allergist.

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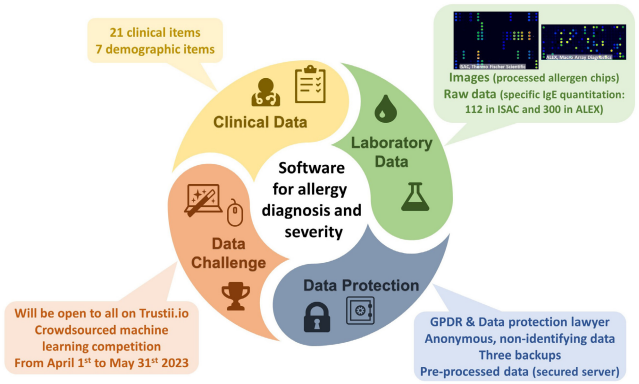

Flowchart of the Allergen Chip Challenge

Conflicts of Interest: The authors did not specify any links of interest.

001477 | Analytical and stability studies for basophil activation test for ivdr readiness

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Background: Basophil Activation Tests (BAT) have gained increasing importance in the field of allergy diagnostics due to higher accuracy and clinical relevance compared to other allergy tests. In order to provide adequate and useful data for clinical laboratory medicine, thorough assay validation studies are essential and a prerequisite for new IVDR. Hence, several analytical studies were performed such as within-laboratory precision, reproducibility and robustness of the assay protocol, as well as stability studies including kit transport, in use and sample stability.
Method: For all studies four healthy blood donor samples were stimulated with stimulation buffer or stimulation control anti-FcεRI mAb and fMLP. Reproducibility was based on three instrument/reagent lots combinations. The robustness studies included variations in temperature, incubation time for stimulation/staining and lysis as well as different volumes of the single kit reagents and blood samples. For stability studies the entire kit, kit components as well as fresh blood samples and processed blood samples with and without a novel stabilization agent were stored at different temperatures for defined timepoints depending on the study.
Results: The BAT showed an imprecision suitable for routine testing a within-laboratory precision of 1.9%–21.5% CV and a reproducibility of 0.9%–15.4% CV. Correct results were obtained for the robustness study applying protocol variations within the recommendations for each parameter (not shown). Results highlighted the robustness of the assay. The integrity of the kit during shipment was successfully confirmed at 37°C for two weeks. After opening the kit, kit components can be stored for up to 6 months at defined temperatures depending on the component. Unprocessed EDTA whole blood samples were stable for 48 h (storage at 2–8°C) and 24 h (storage at 28°C). Processed and fixed basophils remained stable for at least 5 days at 2–8°C and 48 h stored at 28°C.
Conclusion: All performance criteria for the BÜHLMANN Flow CAST® with respect to within laboratory precision and reproducibility were successfully assessed for all controls and multiple donors. In order to maintain high quality standards for the kit, in-use, storage and transport conditions need to be respected. Moreover, a novel stabilization agent in the kit allows the storage of fixed and activated basophils after kit performance for up to 5 days at 4°C.

Conflicts of Interest: The authors did not specify any links of interest.

001482 | Characterization of intrinsic atopic dermatitis revisited using multiplex allergy diagnostics

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Background: Atopic dermatitis (AD) with increased total serum IgE (tIgE), atopic comorbidities and/or specific sensitizations has been reported as the so-called „extrinsic AD" (EAD) in 75%–80% of patients, lack of these features as „intrinsic AD" (IAD). The respective portions and definitions of IAD vary within the literature. We aimed to re-evaluate IAD using multiplex allergy diagnostics.
Method: Specific sensitizations of AD patients from the CK-CARE ProRaD cohort Bonn, Germany ($n = 614$) were analyzed using multiplex assays (ISAC ImmunoCAP, Thermo Fisher). IAD was defined as age-dependent normal tIgE, absence of specific sensitizations and of atopic comorbidities (allergic rhinitis (AR)/ conjunctivitis, food allergy (FA), asthma). The associations of IAD with clinical and epidemiological features were analyzed using binary logistic regression.
Results: Only 6.7% ($n = 41$) featured IAD, 93.3% ($n = 573$) EAD. Patients with IAD had a less severe AD with a mean Eczema Area and Severity Index of 5.9 versus (vs.) 11.4 in EAD, furthermore a lower proneness to bacterial infections and a shorter disease course with a median age of onset at 6 years and disease duration 15.5 years compared to a median age of onset at age 2 and 26.6 disease years in EAD. Odds of IAD

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thus decreased in patients with longer disease duration and EASI > 7, furthermore with eosinophilia and parental atopy, especially maternal FA, maternal AR and paternal AR. Phenotypic traits associated with IAD were female gender and a lower number of atopic stigmata compared to EAD, especially palmar hyperlinearity, Herthoge sign, dirty neck, Dennie-Morgan fold and anterior neck fold.

Conclusion: We identified a much lower rate of IAD then previously reported using strict definitions and new multiplex allergy diagnostics. The less frequent parental atopy in IAD than in EAD suggests a weaker hereditary transmission of atopy compared to EAD. Traits associated with IAD such as lower levels of eosinophils, less severe AD and shorter disease duration point towards the development of specific sensitizations and EAD within an immunological march in severe and longstanding AD.

Conflicts of Interest: The authors did not specify any links of interest.

001420 | Cats: Only a pet or a sensitization vehicle too?

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Background: Cat dander is described as a very important indoor aeroallergen, because it is a typical pet in a lot of homes. According to these ideas our objectives are to describe a population living with cats, and how this coexistence affects to their respiratory symptoms, their severity and their in vivo and in vitro sensitization.

Method: Patients livings with cats and referring respiratory symptoms were selected. After a clinical report focussing in respiratory and cutaneous symptoms, we performed a skin prick test (SPT) with the main aeroallergens (mites, pollen, moulds and danders) in our city, and a blood test to evaluate total and specific IgE to the aeroallergen tested. Severity and clinical evolution were evaluated too.

Results: A total of 168 patients (84 males and 84 females; mean age 33.82 years) came to our Allergy Department from Jan 2022 to Dec 2022 presenting all inclusión criteria. All patients referred rhinitis symptoms, 113 (67.26%) asthma and 22 (13.09%) atopic eczema. Patients referred a mean of 11 cat-contact years (1–21 years). Eighty six patients (51.19%) presented positive SPT to Olea, 74 to grass pollen and 44 to cat dander. Medium total IgE was 267.51, and cat dander specific IgE was 11.19 KU/L. Twenty six patients (15.47%) referred a moderate to severe asthma and 18 (10.71%) a severe rhinitis

Conclusion: Cat coexistence patients present a high sensitization to cat dander, and they refer moderate to severe respiratory in a intermediate percentage of them. In vivo sensitization is not excesive to cat dander in our patients, but in vitro one is higher than to other aeroallergens.

Conflicts of Interest: The authors did not specify any links of interest.

001060 | Different phenotypes of wheat allergy – Expect the unexpected

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Case report: Wheat allergy (WA) is the 3rd most common food allergen in Germany and affects 0.4%–4% of the population depending on age and geographic region. However, the presentation of WA is not always clear to diagnose by hiding within a spectrum of other comorbidities. Here, we present the diagnostic decision tree of three cases of WA. All three patients had a history of allergic diseases predominantly respiratory. They complained about new symptoms around meal preparation and consumption.

Case 1 presented two anaphylactic shocks after a cold meal. Although the patient experienced an oral allergy syndrome once towards a wheat-based bread roll, no other indication of WA was given. A skin prick test and ImmunoCAP testing showed a reaction towards wheat flour and wheat component rTri a 19, respectively, a molecule often associated with wheat-dependent exercise-induced anaphylaxis (WDEIA). The patient is now symptom-free by avoiding wheat and spelt products.

Case 2 expressed symptoms of urticaria mostly, though not exclusively, after consumption of mammalian meat, and therefore an alpha-GAL allergy was suspected. However, no respective sensitization was detected. A more detailed protocol of his symptoms indicated gastrointestinal tract symptoms after consumption of wild rice and wheat products. ImmunoCAP testing showed a low IgE titer towards wheat, spelt and ray, but a high titer towards wheat component rTri a 19, indicating another case of idiopathic anaphylaxis to be a potential WDEIA.

Case 3 experienced new symptoms after consumption of wheat-based chips and whilst inhaling the condensation of cooking noodles. The patient has an extensive history of both respiratory and food allergies and was diagnosed with celiac disease at age 2. Due to the complexity of food-associated severe allergic symptoms, molecular allergy diagnostics exceeding the commercial panel indicated that the patient was predominantly sensitized towards respiratory wheat allergens. The subject's impaired enzymatic food digestion could be the basis for this combination of symptoms of WA.

All in all, these patient histories showcase the diversity of WA and the need for an increased awareness to this disease in allergic patients. Whilst current molecular allergy diagnostics for WA may suffice in some cases, a bigger panel of disease-associated individual allergens can provide a better diagnosis and personalized therapy in others (case 3), which should be aimed for in the future.

JM case reports session: 18243.

Conflicts of Interest: The authors did not specify any links of interest.

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000357 | The use of basophil activation test in the diagnosis of peanut allergy

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Background: Worldwide peanut allergy (PA) is one of the most common type of food allergy. Establishing a correct diagnosis in children with suspected PA is a key task, as it allows, on the one hand, to protect the patient from developing severe allergic reactions and, on the other hand, to reduce the need for elimination diets. The aim of the study was to analyze the use of basophil activation test (BAT) in diagnosis of PA.

Method: A total of 80 children were qualified for the study: the study group included 65 children peanut-sensitized and the control group – 15 children without allergic diseases. A questionnaire survey was conducted in all patients. sIgE for peanut extract and peanut allergens were obtained with Unicap, BAT with Ara h and Ara h 2 were performed. After obtaining the test results, patients were qualified for OFC with peanut. The obtained data were statistically analyzed.

Results: Results were analyzed in the following groups: peanut sensitized, but tolerant (PS) children ($n = 23$); non-peanut sensitized, non-PS ($n = 15$); peanut allergic (PA) children ($n = 42$), nonpeanut allergic (non-PA) children ($n = 38$). In PA group positive BAT result was found in 31 (73.81%) children, in PS group in 2 (8.70%) children and in non-PS group in no child ($p < 0.01$). The negative result was statistically significantly more frequent in PS ($n = 16$; 69.56%), non-PA ($n = 28$; 73.68%) and control ($n = 12$; 80%) group than in PA ($n = 5$; 11.90%) group ($p < 0.01$). There was statistically significantly higher basophil activation in the PA group compared to the PS and non-PA groups after both Ara h and Ara h 2 stimulation ($p < 0.01$). Combined analysis of history and sIgE or PTS with peanut extract, accurately confirmed or excluded PA in 43 (66.1%) patients. The inclusion of Ara h 2 sIgE evaluation as a further diagnostic step increased the accuracy of the diagnosis by an additional 10 patients while reducing the need for OFC by approximately half. Additional BAT assessment enabled accurate differentiation of PA from non-PA patients in a total of 57 (87.7%) children, reducing the number of OFCs needed by two-thirds.

Conclusion: The use of additional methods, such as BAT, can increase the accuracy of peanut allergy diagnosis and reduce the number of OFCs needed to establish the diagnosis by two-thirds.

Conflicts of Interest: The authors did not specify any links of interest.

000433 | Perioperative hypersensitivity: An eight-year review in a tertiary adult institution

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Background: Identifying culprit drugs in perioperative hypersensitivity (POH) reactions is important to avoid re-exposure to allergens. We review the clinical characteristics and causative agents of the POH adult cases over an 8-year period.

Method: We conducted a retrospective medical records review of patients referred to our outpatient Allergy clinic for POH reactions between 1 January 2014 and 31 December 2022. Patients underwent comprehensive evaluation with skin testing and drug challenges (when appropriate). Diagnosis of the implicated drugs was reached if skin testing and/or drug challenge was positive.

Results: Of 60 patients referred, 41 (68.3%) were female and the median age at the index event was 47.5 years (interquartile range, 27.75–59.25). 41 (68.3%) had reactions of grade I and II based on Ring and Messmer classification; 19 (31.7%) had reactions of grade III and IV. Procedure was aborted in 21.7% (13/60). Tryptase was available in only 11 (18.3%) cases, most (81.8%, 9/11) of which showed an elevation. None had underlying mast cell activation syndromes or mastocytosis. 55 patients completed allergological evaluation and at least 1 causative agent was identified in 33 (60%). 45.5% (25/55) had positive skin tests; 44% (11/25) of these cases had perioperative anaphylaxis. Out of the skin test negative patients, 22/30 (73.3%) underwent drug provocation to cephalosporins, local anaesthetic agents, non-steroidal anti-inflammatory agents (NSAIDs), metronidazole and vancomycin. 5 (8.3%) patients tested positive to 2 or more agents. The causative allergens identified were neuromuscular blocking agents (NMBA; $n = 8$, 13.3%), cephalosporins ($n = 7$, 11.7%), chlorhexidine ($n = 4$, 6.7%), morphine ($n = 4$, 6.7%), local anaesthetic agents ($n = 4$, 6.7%), NSAIDs ($n = 2$, 3.3%), fentanyl ($n = 2$, 3.3%), and others ($n = 8.3$%; Table 1). 6 (10%) out of 60 cases subsequently went on to receive anaesthesia. Of these 6, 1 had a positive skin test to NMBA and received an alternative NMBA without reactions; the remaining who had tested negative to anaesthetic agents, received the same drugs with no recurrence of hypersensitivity reactions.

Conclusion: NMBA is the most common culprit in POH in our study population. Further studies looking at use of other in-vitro test including basophil activation tests and specific Immunoglobulin (Ig)E may improve the diagnostic utility of identifying a causative agent.

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Table 1. Clinical characterstics of patients with perioperative hypersensitivity reactions in relation to phase of general anaesthesia during which the reaction occurred

Parameter	No. (%)			
	All (n=60)	Induction (n=21)	Maintenance (n=5)	Recovery (n=34)
Gender				
Males	19 (31.6%)	8 (38.1%)	2 (40.0%)	9 (26.5%)
Females	41 (68.3%)	13 (61.9%)	3 (60.0%)	25 (73.5%)
Median age at index event (years)	47.5 (16 – 87)	29 (16 – 69)	39 (20 – 58)	55.5 (22 – 87)
Medical History				
Previous general anaesthesia use	22 (36.7%)	10 (47.6%)	2 (40.0%)	10 (29.4%)
Hypertension	14 (23.3%)	5 (23.8%)	1 (20.0%)	8 (23.5%)
Asthma or Chronic Obstructive Pulmonary Disease	10 (16.7%)	1 (1.8%)	0 (0.0%)	0 (26.6%)
Clinical Manifestations				
Respiratory	13 (21.7%)	11 (52.4%)	0 (0.0%)	2 (5.9%)
Cardiovascular	17 (28.3%)	14 (66.7%)	1 (20.0%)	2 (5.9%)
Mucocutaneous	54 (90.0%)	15 (71.4%)	5 (100%)	34 (100.0%)
Ring & Messmer Classification				
Grade 1	40 (66.7%)	5 (23.8%)	4 (80.0%)	31 (91.2%)
Grade 2	1 (1.7%)	1 (4.8%)	0 (0.0%)	0 (0.0%)
Grade 3	17 (28.3%)	13 (61.2%)	1 (20.0%)	3 (8.8%)
Grade 4	2 (3.3%)	2 (9.5%)	0 (0.0%)	0 (0.0%)
Causative agent				
Neuromuscular blocking agents (NMBA)*	8 (13.3%)	6 (28.6%)	1 (20.0%)	1 (2.9%)
Cephalosporins‡	7 (11.7%)	5 (23.8%)	0 (0.0%)	2 (5.9%)
Chlorhexidine	4 (6.7%)	2 (9.5%)	0 (0.0%)	2 (5.9%)
Morphine	4 (6.7%)	0 (0.0%)	1 (20.0%)	3 (8.8%)
Local anaesthetic agents†	4 (6.7%)	0 (0.0%)	0 (0.0%)	4 (11.8%)
Non-steroidal anti-inflammatory drugs	2 (3.3%)	0 (0.0%)	0 (0.0%)	2 (5.9%)
Fentanyl	2 (3.3%)	0 (0.0%)	0 (0.0%)	2 (5.9%)
Ephedrine	1 (1.7%)	0 (0.0%)	0 (0.0%)	1 (2.9%)
Gentamicin	1 (1.7%)	0 (0.0%)	0 (0.0%)	1 (2.9%)
Iohexol	1 (1.7%)	1 (4.8%)	0 (0.0%)	0 (0.0%)
Midazolam	1 (1.7%)	0 (0.0%)	0 (0.0%)	1 (2.9%)
Vancomycin	1 (1.7%)	1 (4.8%)	0 (0.0%)	0 (0.0%)
Povidone iodine	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Not identified	27 (45.0%)	7 (33.3%)	3 (60.0%)	17 (50.0%)
Complete operation despite POH reaction	47 (78.3%)	8 (38.1%)	5 (100.0%)	34 (100.0%)

*NMBA: Atracurium (5), Rocuronium (1), Succinylcholine (2)
‡Cephalosporins: Cefazolin (6), Ceftriaxone (1)
†Local anaesthetic agents: Lignocaine (3), Bupivacaine (1)

Conflicts of Interest: The authors did not specify any links of interest.

001047 | Monosensitization to alternaria significantly prevails and is followed by malassezia and aspergillus

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Background: Epidemiological data of sensitization to various groups of allergens obtained for big samples of population living in different biogeographical areas is scarce. This is especially true for fungal sensitization, which became understood better due to application of component-resolved diagnostics of allergy. Thus, the aim of our study was to analyze specifics of sensitization to fungi of different groups in Ukrainian population.

Method: Sensitization to fungi was determined using dataset of 20033 patients, tested by Alex2 test in years 2020–2022. Sensitivity to *Alternaria alternata* (Alt a 1 and Alt a 6), *Aspergillus fumigatus* (Asp f 1, Asp f 3, Asp f 4, Asp f 6), *Cladosporium herbarum* (extract Cla h and to Cla h 8), *Malassezia sympodialis* (Mala s 5, Mala s 6, Mala s 11), to *Penicillium chrysogenum* (Pen ch) and *Saccharomyces cerevisiae* extracts was established.

Results: There were fungi-sensitized 3353 patients, which constitute 16.74% of entire sample. Among them 2 clear groups of individuals were detected. One of them, more numerous, was represented by people, monosensitized to *Alternaria* (2130 patients or 63.53% of fungi-sensitive patients). Among them 22 were monosensitized to Alt a 6, 26 were co-sensitized to Alt a 1 and Alt a 6 and rest (2108 or 62.87% were sensitive to Alt a 1 only. In contrast, 694 or 20.70% were not sensitive to *Alternaria* but to various allergens of other fungi. Rest of patients (529 or 15.78%) were sensitive to both *Alternaria* and other fungal allergens, 4 of these were sensitized to at least 1 allergen of every fungi tested. In two last subgroups sensitization to *Penicillium* was the rarest one with only 42 Pen ch-positive patients (1.25% of all fungi-sensitive). *Saccharomyces* were the second with 104 (3.10%) Sac c-sensitive patients. The most significant sensitization (631 patient or 18.82%) in polysensitive group was seen for *Malassezia*. *Aspergillus* was the next (425 patients, 12.68%). It was followed by *Cladosporium* (418 patients, 12.47%).

Conclusion: *Alternaria* was a leading factor of fungal sensitization, causing monosensitivity in 2/3 of patients, reactive to fungal allergens. In polysensitized individuals *Malassezia* was the most significant factor, followed by *Aspergillus* and *Cladosporium*. This data should be considered while diagnosing lung and skin disorders along with allergy.

Conflicts of Interest: The authors did not specify any links of interest.

000173 | Recombinant hybrid proteins from house dust mites (HDM) as a tool for allergy molecular diagnosis

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Background: Recombinant allergens are tools for diagnosis of allergy. We have constructed recombinant hybrid proteins that include several allergens from HDM. We sought to determine the usefulness of combining six hybrid proteins containing B-cell epitopes of allergens of *Dermatophagoides pteronyssinus* and *Blomia tropicalis* in molecular diagnosis

Method: Hybrid allergens, containing segments of *B. tropicalis* y/o *D. peronyssinus* such as **DPx4** (Der p 1, Der p 2, Der p 7 and Der p 10), **MAVAC-BD-2** (Blo t 5, Blo t 8, Blo t 10, Der p 1, Der p 2, Der p 7, and Der p 8); **PF14c** (Blo t 5, Blo t 10, Blo t 12 and Blo t 13, **PF10** (De p 1, Der p 2 and Der 7), **PF11** (Blo t 1, Blo t 5, Blo t 10, and Blo t 12) **and BP-2** (a fusion of the complete sequences of Blo t 5 and Der p 2), were expressed in *Escherichia coli*. Forty-six sera from allergic asthmatic (AA) and eighteen from non-allergic subjects were selected for IgE reactivity by ELISA. All de subjects provided informed consent to participate in this study. Positive IgE values were defined as the mean of optical density plus three

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standard deviations of a control group. Mann–Whitney U test for comparisons of continuous variables and Fisher's test for multiple comparisons were used.

Results: In the AA group, positive IgE reactivity was DPx4 47.8%, MAVAC-BD-2 45.6%, PF14c 52.1%, PF10 19.6%, PF11 23.9% and BP-2 71.7%. This value of 71.7% increased to 89.1% when including the reactivity to DPx4, MAVAC-BD-2 and PF14c. Taken together the frequency of IgE reactivity to the four molecules (Hybrid4) in AA was significantly higher than that of non-allergic subjects ($p < 0.0001$). In addition, the mean of IgE levels to Hybrid4 in AA were significantly higher than those in non- allergic ($p < 0.0001$).

Conclusion: Our results suggest that a test based on a battery of hybrid recombinant proteins could identify most of HDM allergy in patients with allergic asthma.

Conflicts of Interest: The authors did not specify any links of interest.

000728 | The development in confirmed asthma and allergy diagnoses at allergy center auh through 10 years

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Background: Numerous recent studies have found increasing prevalence of atopic diseases in several countries worldwide. It is well established that atopic diseases can prove a significant burden on both the individual and the societal level. It is therefore of great importance that health care systems can tackle this substantial burden. Hence, if generally increasing atopic disease trends are seen in the general population, it is highly relevant to examine whether these increases are reflected in the health care sector.

Method: Data on all confirmed diagnoses made at Allergy Center, Aarhus University Hospital, Aarhus, Denmark, during the period 2012–2022, were drawn from the patient administrative system. For an overview, the data was compiled into 17 diagnosis categories. To further study trends in individual atopic disease diagnoses, the data was compiled into 6 diagnosis groups, focusing on asthma, allergic rhinitis, food, insect venom, and drug allergy and a miscellaneous group. A linear regression was made for the total number of all diagnoses during the period. Point comparisons were made for the 6 diagnosis groups in 2012, 2021 and 2022.

Results: We found increasing total numbers of patients diagnosed at Allergy Center AUH from 2012 to 2022, with the linear regression showing an increase of 108 additional diagnoses made per year. The total number went from 1.017 patients in 2012 to 2.286 in 2021, and a projected 2.528 by the end of 2022. In allergic rhinitis, asthma, food allergy and insect venom allergy, we found an absolute increase during this period. Furthermore, we found these four diagnosis groups to constitute a larger percentage of all diagnoses in 2021 and 2022, compared to 2012. Asthma constituted the largest diagnosis group, and had the largest absolute increase, from 472 patients (46% of all diagnoses) in 2012, to 1.258 (55%) in 2021 and a projected 1.439 (57%) by the end of 2022. In drug allergy, we found an absolute decrease during this period, and relative decreases in the point comparisons.

Conclusion: The increasing total number of patients diagnosed with allergy and asthma at Allergy Center AUH matches the findings of global increases in the prevalence of atopic diseases. Distribution of the different diagnosis groups changed during the observation period. This may be owing to new investigation and treatment options.

Conflicts of Interest: The authors did not specify any links of interest.

001342 | Maltose-binding protein IgE sensitization cannot be neglected by manufacturers of recombinant allergen component assays

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Background: Maltose-binding protein (MBP) is a part of the maltose/maltodextrin system of *E. coli*. As humans carry *E. coli* in their intestine, humans are exposed to MBP and produce immunoglobulins against MBP. While no clinical relevance is known regarding MBP sensitization, IgE directed against MBP can cause false-positive results in recombinant allergen component IgE assays, in which MBP is used as a fusion protein. As the prevalence of IgE MBP sensitization in humans has not been documented adequately, the question is whether this sensitization can be neglected. In this study the prevalence of MBP IgE sensitization was determined by analysing serum samples and verified by a literature survey.

Method: Specific IgE (sIgE) against MBP analysis was performed in stored serum samples used for allergy routine analysis. Samples ($n = 122$) were selected based on results of s IgE against latex allergen components either by the multiplex allergy assays ISAC 112i Chip or EUROLINE DPA-Dx R&D Latex panel. sIgE against MBP was quantified using the MBP singleplex ImmunoCAP assay and multiplex EUROLINE Latex panel. Literature survey consisted of a systematic review in PUBMED and reference lists of selected studies. Studies were included if MBP IgE sensitisation was determined under specified conditions. Prevalence was calculated based on the applied assay and decision cut-off.

Results: Using standard cut-off of ≥0.35 kIU/L, analysis of selected samples resulted in a prevalence of 2% by ImmunoCAP ($n = 91$) and 12% by EUROLINE ($n = 122$). If the cut-off for ImmunoCAP was adjusted to ≥0.10 kIU/L (based on limit of quantitation), prevalence was 13% by ImmunoCAP. In the literature, 17 studies exploring MBP sensitisation were identified covering 641 samples ($n = 319$ by ImmunoCAP and $n = 322$ by other assays). Overall prevalence with regularly applied cut-offs was 3% (0% by ImmunoCAP and 6% by other assays).

Conclusion: MBP sensitisation is present in up to 13% of analysed samples and higher than previously reported. While the exact

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prevalence remains controversial, it is a fact that MBP sensitisation exists. Therefore, false-positive results for IgE against relevant allergen components due to IgE MBP sensitization cannot be neglected. Moreover, the specification of which allergen components do contain MBP as a fusion protein, is essential and should be documented. Currently, such a specification is not offered by all manufacturers, despite European in vitro Diagnostic Regulations.

Conflicts of Interest: The authors did not specify any links of interest.

001274 | Prevalence of seven common food allergies and latex allergy in Austria and sensitivity of the multiplex test ALEX2

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Background: Prevalence of food allergy in Austria is not known. Therefore, we initiated a preliminary study to determine the prevalence of seven common food allergies: peanut, cashew, walnut, cow's milk, hen's egg, hazelnut, fish, and of latex allergy. To assess the sensitivity of the ALEX^2 multiplex assay (MacroArray Diagnostics, Vienna, Austria), results were compared with ImmunoCAP (Thermo Fisher, Waltham, USA) findings. We also investigated the severity of food- and latex-related allergic symptoms.

Method: In total 147,743 patients were screened for food and latex allergy. Finally, 212 food and latex allergic patients were found with the respective sensitization and corresponding personal history. Prevalence was assessed and compared between children and adults. To determine the sensitivity of ALEX^2, 212 ALEX^2 were performed, and results were compared with CAP findings. In patients with doubtful symptoms, sera were screened for CCDs and profilins. Finally, severity of symptoms in each allergen group was analyzed.

Results: Prevalence of the investigated allergies was low: walnut 0.01% (children: 0.2%, adults: 0.006%), latex 0.02% (children: 0%, adults: 0.03%), hen's egg 0.01% (children: 0.1%; adults: 0.003%), cashew 0.01% (children: 0.3%, adults: 0.007%), hazelnut 0.03% (children: 0.5%, adults: 0.01%), cow's milk 0.02% (children: 0.5%; adults: 0.003%), peanut 0.06% (children: 0.7%, adults: 0.02%) and fish 0.02% (children: 0%, adults: 0.02%). In our cohort only 5 patients (0.02%) suffered from severe food-related allergic reactions. In 16 patients (10 of our latex-, 3 of our cashew- and 3 of our walnut cohort), CCD inhibition led to negative test results. These sera were excluded from further investigation. 30 patients showed isolated sensitization to latex profilin Hev b 8 and did not suffer from any relevant adverse reactions upon contact with latex but reported typical profilin-related symptoms. Using ImmunoCAP as a reference, sensitivity of ALEX^2 was very high for peanut (100% in 45 patients), cashew (100% in 19 patients), hen's egg (100% in 12 patients), and fish (100% in 19 patients). Lower sensitivity was observed in latex (95% in 22 patients), walnut (92% in 12 patients), hazelnut (79% in 19 patients), and cow's milk (62% in 21 patients).

Conclusion: Prevalence of confirmed food allergy with systemic symptoms was low in Austria. Overall sensitivity of ALEX^2 was high (90.6%) for the investigated allergens but was lower compared to extract-based sIgE testing. However, especially in latex sensitization, most patients with diagnosed latex allergy and questionable symptoms had positive results due to CCDs and profilin. IgE-mediated food allergy is a relevant health problem representing a great burden for affected patients leading to a pronounced decrease in quality of life, therefore accurate diagnostic methods are crucial to discriminate between relevant allergy and clinically irrelevant (cross-) sensitization.

Conflicts of Interest: Jungwirth E has nothing to disclose in relation to this article. Arzt-Gradwohl L has nothing to disclose in relation to this article. Schadelbauer E reports fees from Eli Lilly, outside submitted work. Sturm G J reports grants from ALK-Abelló, personal fees from ALK-Abelló, personal fees from Allergopharma, personal fees from Novartis, personal fees from Mylan, personal fees from Stallergenes, personal fees from Bencard, outside the submitted work. Cerpes U reports fees from Mylan, Sanofi, Admiral outside the submitted work. Laipold K has nothing to disclose in relation to this article.

001428 | Automated gating strategies for basophil activation test: A comparison to manual data analysis

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Background: The basophil activation test (BAT) is a valuable tool in allergy diagnostics with several advantages compared to other tests: Sensitivities and specificities are high, while the test is non-invasive and doesn't impose harm on the patient. Additionally, several allergens can be tested in parallel, facilitating the identification of the substances causing the allergic reaction. The underlying principle of BAT is the *ex vivo* stimulation of live blood cells with allergens, which – in case of hypersensitization – causes degranulation of basophils. For data acquisition and read-out, a flow cytometer and corresponding software is used. Data analysis contains two basic steps: First, identification of basophils in the complex mixture of white blood cells, and second, defining a threshold of activated versus non-activated basophils based on control samples. This so-called gating strategy is usually performed manually, which can be time-consuming, error-prone, and potentially biased.

Method: In this study, we compare different approaches to automated gating. Basophils are identified as a population of SSC^{low}/CCR3^{pos} cells based on three methods: k-means clustering, minima/maxima-oriented delimitation, and machine-learning. Using a dataset of almost 900 samples – half of these stimulated, half unstimulated – we contrast the automated gating methods with manual data analysis.

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Results: In general, manual and automated gating show a high consistency in identification of basophils. The thresholding of activated basophils is usually performed on an unstimulated control sample and set to 2.0%–2.5% background activation. In manual data analysis, this can be tedious, and it is sometimes difficult to set the threshold precisely to the accepted range. Computationally, it is a very simple operation performed within seconds even for large datasets.
Conclusion: Automated analysis of BAT could not only vastly accelerate data analysis, but also make results more comparable and consistent between different operators or laboratories.
Conflicts of Interest: All authors are employees of BÜHLMANN Laboratories AG.

001586 | Hereditary angioedema type I presented as tonsillitis like-symptoms with normal C4 level

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Case report: Hereditary Angioedema (HAE) is a disease characterized by dysfunction or deficiency of C1 esterase inhibitor (C1-INH). The function of C1-INH in kinin-generating pathways will be lost in affected individuals, leading to excess bradykinin, manifested through angioedema. The heterogenous unpredicted clinical course was identified in multiple cases of HAE. Therefore, we reported a case with a unique presentation clinically and biochemically. We describe a young patient in third decade of life, presented with recurrent tonsilitis like-symptoms, seven times per year, consisting of (sore throat, congested throat with grade III tonsils, and dysphagia). Multiple times throat culture and initial laboratory studies were sent demonstrating inconclusive non-confirmatory results for the presence of infection. Moreover, various courses of antibiotics started empirically with no significant immediate improvement in each episode, reflecting an underlying hidden process. Symptoms were overlapped with preorbital and facial edema, starting one year after recurrent tonsilitis-like symptoms. Tonsillectomy was carried on with resolving of throat symptoms, however, facial angioedema continued to recur with no response to anti-histamine. No concurrent use of Angiotensin-converting enzyme (ACE) inhibitors or non-steroidal anti-inflammatory drugs (NSAIDs) was reported. No suggestive family history. Autoimmune workup came negative, C4 level was normal, nevertheless, C1-INH and C1 esterase function were both low with normal C1q level. Whole exome sequencing showed negative results. For that, C1 esterase inhibitor replacement was offered to the patient for recurrent episodes. In conclusion, a diagnosis of hereditary angioedema type 1 was established with an unusual initial presentation of recurrent tonsilitis-like symptoms and normal C4. Enlighten the need for further understanding of disease manifestations.
JM case reports session: 18244.
Conflicts of Interest: The authors did not specify any links of interest.

001144 | Allergic reactions to vaccine components in children

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Background: Allergic reactions to vaccine components are rare but are a common clinical problem due to a large number of applied doses. Reactions are most often due to vaccine components rather than the microbial components themselves. They are usually caused by residual protein components in the manufacturing process, such as egg protein, gelatine, yeast protein or latex. The aim of this study is to objectively assess the frequency of allergic reactions to vaccine components in children with suspected IgE-mediated vaccine allergy.
Method: We retrospectively analyzed the medical records of 68 patients aged from 4 to 18 years with suspected allergic reactions to vaccine components. All patients underwent standardised diagnostic tests (skin prick, intradermal tests, in vitro testing to vaccine components) between January 2019 and October 2022 at the Srebrnjak Children's Hospital Zagreb, Croatia, Reference Centre for allergic diseases in children.
Results: Out of 68 patients (median age 7.3 years) who were referred for vaccination in the Reference Centreonly 3% tested positive, and 13% of patients with a history of possible IgE-mediated vaccine allergy were positive for one of the vaccine components. In patients who had a history of suspected allergic reaction to vaccine components, the reaction was associated with the DTaP-IVP-Hib-Hep B vaccine in 27% of cases, MMR vaccine in 20%, DTaP in 13%, Polio in 13%, TeT vaccine in 13%, and Pneumococcal vaccine in 7% of cases. The majority of the reactions to vaccine components were mild and localised at the site of application.
Conclusion: Allergic reactions to vaccine components are rare and mild. It is necessary to carry out complete allergic testing to confirm or rule out an allergic reaction to the vaccine components. In patients with a history suggestive of IgE-mediated vaccine allergy, it is important to choose the appropriate test to determine if vaccination can be performed safely and to develop a plan for future immunizations.
Conflicts of Interest: The authors did not specify any links of interest.

001259 | Development of a semi-automatic system for the detection of allergy skin tests

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Background: IgE has an association constant () on the high affinity receptor FceRI equal to M. FceRI is expressed on the surface of mast

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cells, eosinophils and basophils. It is possible to define two pools of IgE: free IgE (circulating in the plasma) and bound IgE (bound to the surface of mast cells in tissues). ImmunoCAP allows the measurement of free IgE, while the skin prick test, given the, is the first level test in allergy diagnostics that allows the assessment of bound IgE. It is performed by applying a drop of the allergen on the patient's forearm, followed by crossing with a sterile lancet, allowing the allergen to penetrate the epidermis. The test is considered positive if a wheal with a diameter equal to or greater than 3 mm is generated. In allergy practice, the wheals generated are detected with an arbitrary visual scale or quantification with a dermographic pen. Although commonly used, these methods are semi-quantitative, slow and operator dependent. We therefore aimed at developing a semi-automated method for the detection and more accurate quantification of wheals generated by the skin prick test, through image acquisition and subsequent quantification.

Method: We performed skin prick tests for inhalant allergens (*Gramineae*, *Parietaria*, Olive, Cypress, *D. farinae*, *D. Pteronyssimus*, *E. maynei*, Cat, Dog, Alternaria) in patients with respiratory allergy, and acquired the wheals generated using a digital camera. To create this semi-automated system, we used Matlab (a tool for statistical analysis and numerical calculation) and generated a graphical interface, with which the operator can precisely quantify the wheals by measuring the two diameters of the photographed wheal. The surface of the wheal is then calculated: the radius of the circumference taken into consideration is given by the mean of the halves of the two selected diameters. Although the two diameters differ slightly, the surface of the wheal calculated will, in this way, be more accurate.

Results: Using this new semi-automated practice, not only did we create a more precise way to quantify the wheals with greater accuracy and practicality, but also a tool to keep a digital record of the data, for both the doctor and the patient.

Conclusion: This system allows to keep the record of the dimensions of the wheals, on various analyses carried out, and have an additional digital tool for monitoring the progress of sensitization in the individual patient.

Conflicts of Interest: The authors did not specify any links of interest.

000307 | Factors influencing remission in chronic spontaneous urticaria and chronic inducible urticaria; real life data

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Background: Chronic inducible urticaria (CIndU) constitute 25% of chronic urticaria (CU) and has different characters from chronic spontaneous urticaria (CSU). Here, we aimed to discuss the clinical features of CIndU by comparing with CSU.

Method: We prospectively evaluated the data of patients with CU (*n*: 152). All patients were questioned about triggers associated with exacerbation of CU, and challenge tests were performed for symptomatic dermographism, delayed pressure, cold, water, and exercise. Response to treatment with antihistamines (AH) and/or LTRAs was determined by Urticaria Control Test (UCT). Patients who were undertreatment with omalizumab and with no medication were excluded.

Results: Patients with CSU (*n*: 78) and CIndU (*n*: 74) were compared with respect to clinical and laboratory characteristics of the patients. Symptomatic dermographism was the most common type of CIndU (62.1%) followed by colinergic (13.5%), pressure (12.1%), cold (8%), and solar types (4%). Mean age of CSU group were older than CIndU (40.98 ± 16.41 vs. 34.89 ± 12.63, $p = 0.02$). Almost 2/3 of the groups were female (CSU 73.4%, CIndU 71.6%), and under control (UCT score^3 12; CSU 28.6% and CIndU 25.7%). Ratio of abnormal d-dimer (>500 μg/L) and mean of CRP (mg/L) values were significantly higher in CSU patients than CIndU ($p = 0.02$ and $p = 0.02$) whereas there was no difference in means of sedimentation, neutrophil/lymphocyte, lymphocyte/monocyte, total IgE, and mean platelet volume. Ratio of overweight (24.9 < BMI < 30) was significantly higher in CSU ($p = 0.04$). In comparison between CSU and CIndU whom were under remission, there was no difference in means of age, BMI, and laboratory values, as well as ratio of overweight and abnormal d-dimer values. However, the ratio of overweight, abnormal d-dimer and mean CRP values were higher in CSU than CIndU ($p = 0.01$, $p = 0.02$ and $p = 0.02$).

Conclusion: In this study, two thirds of both CSU and CIndU were not controlled under treatment. The ratio of old, overweight, abnormal d-dimer and high CRP values were more frequent in CSU group than CIndU. There was no difference between the two groups in remission, whereas the ratio of patients with overweight, abnormal d-dimer and mean CRP values were higher in CSU than CIndU. This study shows that there are multiple clinically- relevant variables which might predict time to natural remission.

Conflicts of Interest: The authors did not specify any links of interest.

000066 | House dust mite molecular patterns of sensitization in Georgian patients by Alex 2

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Background: House dust mites (HDM) are considered the main household allergens that cause allergic rhinitis and asthma, with an increasing incidence every year. Allergy to HDM affects 1%–2% of the world's population, equivalent to 65–130 million people (Colloff M. J. 2009). Sensitization to HDM varies by geographic area and is important in clinical practice (Calderón M. et al, 2015). We aimed to characterize the molecular components of HDM sensitization of allergic patients in Georgia for planning effective management and adequate specific immunotherapy.

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Method: Molecular patterns of sensitization to HDM were analyzed in 22 patients with asthma/allergic rhinitis (aged 4–65 years). Sera were tested by Alex 2, ELISA based in vitro multiplex allergy test allowing measurement of specific IgE allergen extracts and molecular allergens

Results: Co-sensitization to allergens Der f 2 and Der p 2 was the most frequent (77%) among the entire group. The second most common molecule was Der p 23 (64%). 54% of patients were simultaneously sensitized to Der f 1, Der f 2, Der p1, and Der p 2, and most of them (92%) were found to be sensitized to Der p 23. All patients had high and very high levels of specific IgE concentrations. One patient was sensitized to Der p 10 and 4 patients to – Der p 20, cross-reactive to tropomyosin and arginine kinase. One 23 years. Old female with HDM allergic rhinitis, sensitized to Der p 20, manifested severe tongue angioedema and dyspnea after consumption of shrimps.

Conclusion: The Alex 2 multiplex allergy test is an important tool to analyze the whole spectrum of polysensitization to HDMs and make the right choice for the effective treatment of patients with asthma and allergic rhinitis. In HDM patients it allows to reveal major allergens, and cross-reactivity, associated with the possible risk of seafood allergy.

Conflicts of Interest: The authors did not specify any links of interest.

000354 | The role of nasal provocation test in determining between allergic and non-allergic rhinitis

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Background: The nasal allergen-provocation test (NPT) helps to identify clinical relevance of the inhalant allergens and to detect local allergic rhinitis (AR). In this study we aimed to find the frequency of the local AR in adult patients with presumably allergic rhinitis symptoms when skin prick tests (SPT) and specific IgE (sIgE) are negative and confirm clinical relevancy of some allergens when the discrepancy of the positive results of SPT and sIgE were found.

Method: In 2019 – 2022, 103 NPTs using acoustic rhinomanometry were performed in adult patients (mean age 35.5 ± 10.7 years) with chronic rhinitis at Vilnius University Hospital Santaros Clinics. All patients had previous allergological work-up performed including SPT and sIgE testing. Inmunotek (Spain) allergen extracts were used for SPT and Diater (Spain) – for NPT. According to the symptoms and allergy testing results, 61 (59.22%) NPT were performed with house dust mites, 12 (11.65%) with dog, 10 (9.71%) with cat, 6 (5.83%) with timothy grass, 2 (1.94%) mugwort, 12 (11.65%) birch.

Results: In 67 (65.05%) patients SPT and sIgE were negative. The NPT was positive in 3 (4.5%) of the 67 patients with negative allergy tests: 2 to house dust mite and 1 with dog allergens. No positive NPT were found with seasonal pollen allergens. Based on the results of NPT, local AR was diagnosed in 4.5% ($n = 3$) patients. In 10 (9.71%) patients, the SPT and sIgE test results did not match. Seven (6.80%) patients had positive SPT results to the tested allergen, but sIgE was negative and NPT was negative. In 2 (1.94%) patients, SPT showed sensitization to the tested allergen, sIgE were negative and NPT was positive. One (0.97%) patient had negative SPT, sIgE positive and NPT positive. Also, 2 (1.94%) patients had positive SPT and sIgE, but NPT was negative, showing that this allergen is clinically insignificant for these patients.

Conclusion: According to our study local allergic rhinitis in adult population is very rare. There is a tendency that perennial allergens cause local allergic rhinitis more often than seasonal allergens. In adult patients with symptoms resembling allergic rhinitis, diagnosis is more likely to be non-allergic rhinitis if skin prick tests and specific IgE are negative. It could be due to differences in composition between skin prick test extracts and nasal allergen-provocation test extracts. All 3 tests can be performed to determine the cause of rhinitis.

Conflicts of Interest: The authors did not specify any links of interest.

000887 | Malassezia vs cladosporium: Common airborne allergen is far less sensitizing than the skin agent is

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Background: Sensitivity to fungi has become evident at a better level just in recent years following the development of appropriate molecular systems testing patients for IgE-mediated response to fungal allergens.

Method: Data of 87 sensitive individuals, living in Vinnytsia city of the Central Ukraine were studied using Alex^2 test system. Patients were aged from 1 to 66 years with children population prevailing. Sensitivity to allergenic components Alt a 1 and Alt a 6 of *Alternaria alternata; to* Asp f 1, Asp f 3, Asp f 4, Asp f 6 of *Aspergillus fumigatus; to* extract Cla h and molecular component Cla h 8 of *Cladosporium; to* Mala s 5, Mala s 6, Mala s 11 of *Malassezia*, to *Penicillium chrysogenum* (Pen ch) and *Saccharomyces cerevisiae* (Sac c) extracts was investigated.

Results: It was established that 20 patients or 23.0% of those tested were sensitive to fungal allergens. Among them, the highest level of sensitivity was observed to *Alternaria*. There were 15 patients or 75% of the sensitive individuals, responding to Alt a 1 and Alt a 6 allergens. In turn, 14 of them were sensitive to the major component of *Alternaria* protein Alt a 1. One of these people also had sensitivity to the minor allergen Alt a 6. One more patient was sensitive to Alt a 6 allergen only. Sensitivity to each *Aspergillus* and *Malassezia* was seen in 6 patients (30% of sensitized). Among those sensitive to *Aspergillus* 4 were co-sensitized to *Alternaria*. Among

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people, sensitive to *Malassezia* 1 was co-sensitized to *Alternaria*, *Aspergillus* and *Cladoporium*, another – to *Alternaria and Aspergillus*; two more were sensitive to *Alternaria* only and 2 were not sensitive to any other fungi. Despite the fact that *Cladosporium* is the most abundant airborne spore type, sensitization to it was characteristic of only 2 patients or 10% of the studied sample. As it has been already mentioned, one of these patients was co-sensitized to *Alternaria*, *Aspergillus* and *Malassezia*. Another one was co-sensitive to *Alternaria* only. Only 1 person or 5% of sensitized people responded to *Penicillium* extract. This person was not sensitive to any other fungal allergen available for analysis. There were nobody sensitive to Sac c.

Conclusion: *Alternaria* was determined as the most important fungal allergen. *Aspergillus* and *Malassezia* were the second. While treating skin and pulmonary disorders, caused by these fungi, IgE-mediated sensitivity should be considered for the proper curation of patients.

Conflicts of Interest: The authors did not specify any links of interest.

001014 | NSLTP-syndrome in Ukraine can have high allergen specific IgE levels to kiwi

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*Presenting author: V. Rodinkova

Introduction: While nsLTP-syndrome, with allergy caused by food and respiratory allergens, often occurs in the Mediterranean region, recently this syndrome has been seen in North Atlantic regions and countries of Northern Europe. Very distinct nsLTP-sensitisation has also been seen in Ukraine recently.

Methods: Diagnosis of nsLTP-syndrome was made on a basis of history and Alex^2 test done in Western Ukraine, a region not heavily impacted by the current war.

Results: A 27 year old male patient had episodes of urticaria (1–2 per month) after consuming peanuts, apples, strawberries and especially kiwi also reporting associated lip swelling and stomach pain. Results of Alex^2 showed sensitization to nsLTP molecules only (12 from 17 available for testing) and to sunflower extract (Hel a, 0.34 kU/L). The highest level of IgE (7.91 kU/L) was recorded to Act d 10 of kiwi, followed by sensitisation to peanut (Ara h 9, 4.31 kU/L), celery (Api g 2, 3.96 kU/L) and to combined allergens of strawberry Fra a 1+3 PR-10+LTP (3.65 kU/L) along with food allergens including Zea m 14 of maize (3.1 kU/L) and Cor a 8 of hazelnut (3.03 kU/L). Aeroallergen sensitization included Pla a 3 (2.56 kU/L) of the plane tree, the first from 2 pollen allergens which was in the 7th position by the IgE level and Can s 3 (0.34 kU/L) of cannabis. Pru p 3 (1.89 kU/L), the classical sensitizer for nsLTP-syndrome, was the 10th most common allergen specific IgE for this subject. Other allergens the patient was sensitive to included Mal d 3 (2.54 kU/L) of apple, Vit v 1 (2.08 kU/L) of grape and Jug r 3 (1.32 kU/L) of walnut. Interestingly, sensitization to Tri a 14 of maize was seen but not to Tri a 14 of wheat.

Conclusion: These findings suggest that geography of the nsLTP-syndrome is extending. nsLTP-syndrome might not always be caused by a Pru p 3, but also by other food allergens with a kiwi as a possible primary sensitizer. Environmental modification may be a factor promoting nsLTP-syndrome as the Ukraine climate is warming becoming more like the climate of the Mediterranean region.

JM case reports session: 18244.

Conflicts of Interest: The authors did not specify any links of interest.

001150 | Analysis of diagnostic parameters of immunoblotting of different manufacturers for determining sensitization to domestic allergens in patients with respiratory allergic diseases

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Background: The purpose of the study was to compare the diagnostic parameters of different systems of serological investigation using the immunoblot method to determine sensitization to allergens of the mite and epidermal groups in patients with respiratory allergic diseases – allergic rhinitis and bronchial asthma.

Method: During the study, 88 patients with allergic rhinitis and/or atopic asthma were examined by three different methods of specific allergic diagnosis (invivo and invitro). Inclusion criteria were a diagnosis of allergic rhinitis (both intermittent and persistent) and/or atopic asthma. The prick test was carried out according to the classical testing method in accordance with regulatory documents with commercial extracts of allergens. Western blot to determine IgE levels was performed using the RIDA AllergyScreen (R-BiopharmAG, Darmstadt, Germany) and Euroline (Euroimmun) test systems.

Results: The results of the two systems for determining specific IgE to allergens of the mite and epidermal groups using the Rida AllergyScreen and Euroline methods do not always agree very well with each other due to significant systematic differences in indicators. According to the results of the curve of detection of specific IgE by the AllergyScreen method for determining sensitization to the allergen D. farinae has excellent diagnostic significance (AUC = 0.930), detection of specific IgE by the Euroline method to determine the sensitivity of connections with the allergen D. farinae has good diagnostic significance (AUC = 0.724). In both cases, asymptotic significance is confirmed by the lack of agreement of the null hypothesis (in which the true area is 0.5) and the reliability of the AUC area values. According to the results of the curve of detection of specific IgE by the AllergyScreen method for determining sensitization to cat allergen has excellent diagnostic value (AUC = 1.0), detection of specific IgE by the Euroline method for determining sensitization to cat

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allergen has excellent diagnostic value (AUC = 1.0). In both cases, the asymptotic significance is confirmed by the disagreement of the null hypothesis (in which the true area is equal to 0.5) and the reliability of the AUC area values.

Conclusion: Further analysis of consistency and diagnostic parameters of methods for other groups of allergens is necessary to generalize all research results.

Conflicts of Interest: The authors did not specify any links of interest.

001375 | Experimental and theoretical approaches to understand the technical cut-off in the basophil activation test

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Background: Allergic diseases are common in industrialized countries with rising cases and severities worldwide. Current diagnostic tests provide unsatisfactory results and often lead to ambiguous conclusion or even misdiagnosis. Due to its high specificity, the basophil activation test (BAT) has gained increasing importance in the field of allergy diagnosis. Unlike other immunoassay techniques such as ELISA, where the readout is a bulk signal, BAT is a single-cell technology where individual basophils are counted and classified into activated or non-activated. The question often arises how many basophil cells need to be analyzed to obtain a statistically significant result. We have experimentally determined the technical cut-off of the BAT and made theoretical statistical considerations of how accurate the interpretation of results is related to the number of basophils analyzed, the allergen-specific cut-off, and to the basophil specific activation.

Method: The technical cut-off study was experimentally determined by a reference interval study according to CLSI C28-A3 guidelines by analysing the variance of measured negative samples of 120 normal adult donors. The theoretical results are based on a chi-suare test statistic and have been obtained with R, version 4.1.2. The computations described here aim at providing a framework for reliable/robust interpretation of results in samples with fewer than 500 basophils.

Results: The reference interval was determined for different BAT protocol options: A: a standard lyse-and-wash protocol using 96 well plates and B: a new lyse-no-wash protocol using deep well plates. For healthy individuals, a reference interval of 0.8 – 4.6% for option A and 0.9%–4.2% for B was found. A technical cut-off of 5% activated basophils has been established, where results ≥5% CD63pos indicate basophil activation if at least 500 basophils can be acquired. For samples with lower basophils count, the results can still be evaluated if certain thresholds are met (see table), with an uninterpretable grey zone, whose width is inversely correlated with the basophil number.

Conclusion: To obtain reliable results in BAT testing, at least 500 basophils need to be analysed in general. If less than 500 basophilic cells are acquired (for example in case of basopenia), a threshold depending on the basophil count, allergen specific cut-off and obtained basophil activation level can be considered to prevent unnecessarily high number of non-interpretable assays.

	Allergen specific cut-off					
	5%		10%		15%	
Basophil count	Negative if <	Positive if >	Negative if <	Positive if >	Negative if <	Positive if >
150 – 199	2.80%	8.80%	6.70%	14.80%	10.80%	20.40%
200 – 249	3.00%	8.20%	7.00%	14.00%	11.30%	19.60%
250 – 299	3.20%	7.80%	7.30%	13.60%	11.70%	19.10%
300 – 349	3.30%	7.50%	7.50%	13.20%	11.90%	18.70%
350 – 399	3.40%	7.30%	7.70%	13.00%	12.10%	18.40%
400 – 449	3.50%	7.10%	7.80%	12.70%	12.30%	18.20%
450 – 499	3.60%	7.00%	7.90%	12.60%	12.40%	18.00%

Conflicts of Interest: All authors are employees of BÜHLMANN Laboratories AG.

001534 | The role of mold fungi of the alternaria alternata family in the development of allergic diseases in children

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Background: Molds of the genus Alternaria alternata are the main source of fungal allergens, and Alt a1 is one of the main sensitizing allergens detected in patients with allergic rhinitis, bronchial asthma and, in some cases, atopic dermatitis.

Method: A retrospective analysis of 692 case histories of children who were consulted by allergists of LLC "South Allergological Center", Odessa, Ukraine in the period from 2020 to 2022 was carried out. Stratification was carried out depending on the presence of sensibilization to the allergen Alt a1 ($n = 80$).

Results: In 80 patients aged 1–18 years, sensibilization to Alt a1 allergen was detected, which accounted for 11.6% of the total number of examined patients. The average age of children was 9.9 ± 0.6 years, 17.5% ($n = 14$) were children from 1 to 6 years old, 43.8% ($n = 35$) – from 7 to 11 y.o. and 38, 8% ($n = 31$) – from 11 to 18 y.o. 6.3% ($n = 5$) of patients had sensibilization to Alt a1, 33.8% ($n = 27$) – combination Alt a1 with house dust mite allergens, and 60.0% ($n = 48$) patients had polysensibilization to more than 3 groups of allergens. The allergic rhinitis was leading diagnos in 36.3% ($n = 29$) of patients, bronchial asthma was observed in 22.5% ($n = 18$) of patients, combination of atopic dermatitis and rhinitis – in 17.5% ($n = 14$) of patients, and the combination of rhinitis with bronchial asthma – in 23.8% ($n = 19$) of patients. The mean values of total IgE and sAlt a1 IgE were 723.4 ± 351.9 kU/L and 8.73 ± 2.7 kU/L, respectively.

Conclusion: sensitization to the allergen Alt a1 is quite often detected among children of primary school age (7–11 y.o.) combined

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with sensitization to other groups of allergens and is more often clinically manifested by allergic rhinitis.

Conflicts of Interest: The authors did not specify any links of interest.

001574 | Analysis of sensitization to different groups of pollen allergens and allergic diseases in patients of the southern region of Ukraine

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Background: Analyze the features of sensitization to different groups of pollen allergens and allergic diseases in patients of Southern region of Ukraine.

Method: 46 people, 18–65 y.o., living in the south of Ukraine (Odesa, Kherson, and Mykolaiv regions) were accepted to study. Participants were divided into three groups depending on age: group I – 18–29 y.o. ($n = 15$), group II – 30–50 y.o. ($n = 20$), group III – 51–65 y.o. ($n = 11$).

Results: The reaction on three groups of allergens (trees, grasses, weeds) was detected in 8.7% of patients, sensitization to two groups of allergens was noted in 34.8%; a combination of tree and weed pollen – 17.4%; reactions to grass and weed pollen were observed in 13.0%, reactions to tree and grass pollen – 4.3%. When assessing the sensitization profile of patients in all groups, the reaction to weeds (ragweed, wormwood) prevails: in group I – 93.1%, in group II – 92.1%, and in group III – 85.6%. The reaction to tree pollen was the highest in group III – 24.2% ($p<0.05$), among patients in group I – 17.5% and group II – 14.9%. Sensitization to grasses: in group I – in 3.8%, in group II – in 1.4%, in group III – in 1.2%. Polysensitization: in group I in 32.1%, in group II – 22.1%, in group III – 15.6%. Among the clinical manifestations in patients of the southern region of Ukraine, the combination of rhinitis and conjunctivitis is most often noted in the study group – 84.6%, in the I group – 88.6%, in the II group – 83.2%, in the III group – 78, 8%. The frequency of bronchial obstruction in group I – was 6.2%, in group II – was 11.0%, and in group III – 12.1%.

Conclusion: Among the causative allergens in our region, weeds predominate – 90.3% of sensitization in the examined group. There is no significant difference in different age groups ($p > 0.05$). Among the clinical manifestations, the combination of rhinitis and conjunctivitis is most often noted – 84.6%, which coincides with international data.

Conflicts of Interest: The authors did not specify any links of interest.

ALLIED HEALTH AND PRIMARY CARE

000613 | Real-world adherence to anaphylaxis guidelines among different age groups in emergency departments: A Taiwan tertiary hospital experience from 2001 to 2020

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Background: Anaphylaxis is a life-threatening clinical emergency. Anaphylaxis guidelines recommend prompt intramuscular injection of epinephrine, referral to an allergist, and patient education on avoidance of triggers and recognition of symptoms. Little is known about adherence to guidelines in the management of anaphylaxis among patients of different age groups in emergency departments (EDs). This study aimed to investigate real-world adherence to anaphylaxis guidelines among elders, adults, and children in EDs.

Method: This study retrospectively reviewed electronic medical records of all consecutive patients with anaphylaxis presented to two EDs of Chang Gung Memorial Hospital, the largest tertiary hospital in Taiwan, from January 1, 2001, to December 31, 2020. Patients met the National Institute of Allergy and Infectious Diseases/Food Allergy and Anaphylaxis Network criteria for anaphylaxis were enrolled and grouped by age: elders (≥65 years), adults (18–64 years), and children (<18 years).

Results: A total of 766 patients (113 elders, 495 adults, and 158 children) were presented to our EDs with anaphylaxis over a 20-year period. Epinephrine (intramuscular, subcutaneous or intravenous) was administered in 391 (51.0%) of 766 anaphylaxis patients (45.1% elders, 51.5% adults, and 55.7% children; $p = 0.320$). Specifically, intramuscular epinephrine was administered in 30.1% of elders, 37.8% of adults, and 46.8% of children ($p = 0.01$). When stratified by severity, intramuscular epinephrine was more frequently administered in elders with severe anaphylaxis than moderate anaphylaxis (37.3% vs. 13.9%; $p = 0.01$), while such difference was not found in adults and children. Upon discharge from EDs, 15.3% of patients received documented allergist referral (2.6% elders, 6.7% adults, and 51.9% children; $p < 0.001$). Approximately 12.3% of patients received education on avoidance of triggers (8.0% elders, 11.1% adults, and 19.0% children; $p = 0.01$). Approximately 16.1% of patients received education on recognition of anaphylaxis symptoms (13.3% elders, 14.7% adults, and 22.2% children; $p = 0.06$).

Conclusion: This real-world study demonstrates suboptimal adherence to anaphylaxis guidelines in EDs, particularly among elderly patients aged 65 years and above. Physician-targeted interventions are needed to close the gap between guidelines and clinical practice in the management of anaphylaxis.

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Conflicts of Interest: The authors did not specify any links of interest.

001505 | The effects of the endocrine disruptors on asthma: Bisphenol A and Phthalates

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Background: G protein-coupled estrogen receptor 1 is a functional receptor involved in various organ systems, including reproductive, metabolic, and immune pathways. Recent clinical reports show an increased incidence and severity of asthma in women, suggesting the possible impact of estrogen on airway inflammation. Phthalates are considered estrogenic disruptors, and recent researches suggested that they may have a link to the severity of asthma. We aim to validate the influence of endocrine disruptors on asthma and the correlation between environmental disruptors and various clinical measurements of asthma, depending on the menopausal status.
Method: A cross-sectional case-control retrospective cohort study was performed in female asthmatic patients who visited allergy clinic in SMG-SNU Boramae Medical Center between January and December in 2014. Medical information and survey questionnaire were collected in participants including age, height, state of menstruation, asthma control test score, and the results of spirometry. The urinary concentrations of four endocrine disruptors were analyzed on their first visit: Bisphenol-A(BPA), Mono(2-ethyl-5-hydroxyhexyl) phthalate(MEHHP), Mono(2-ethyl-5-oxohexyl) phthalate (MEOHP), and Mono-n-butyl phthalate(MnBP).
Results: A total of 35 female participants enrolled in the study, including 20 asthmatic patients and 15 healthy controls. The average concentrations of urinary endocrine disruptors in patient and control group did not demonstrate significant differences. Twenty asthmatic patients were divided into two groups according to their menstrual state. Using the Spearman's rank correlation test in premenopausal asthmatic patients ($n = 7$), we found negative correlations between urinary concentration of MnBP and ACT score, as well as postBD FEF25–75% (p-value = 0.007 and 0.04, respectively). In contrast, it did not show any correlation with ACT or post BD FEF25–75% (p-value = 1.00 and 0.74, respectively) in postmenopausal group ($n = 13$).
Conclusion: Endocrine disruptors affect small airway function decline and ACT score in premenopausal asthmatic patients, indicating the role of estrogen in T2 inflammation which may provide explanation between low ACT scores in patients with relatively stable FEV1 or FVC scores.

TABLE 1 The correlations between endocrine disruptors and clinical measurements of premenopausal asthma patients.

	BPA/Cr (ug/g)		MEHHP/Cr (ug/g)		MEOHP/Cr (ug/g)		MnBP/Cr (ug/g)	
	ρ	p-value	ρ	p-value	ρ	p-value	ρ	p-value
Asthma control test	-0.56	0.19	-0.44	0.33	-0.75	0.054	-0.89	**0.007**
QLQAKA	-0.54	0.22	0.14	0.76	0.32	0.48	0.07	0.88
preBD FEV1 (%pred)	0.67	0.10	0.18	0.70	-0.23	0.61	-0.31	0.50
postBD FEV1 (%pred)	0.71	0.07	0.29	0.54	-0.14	0.76	-0.18	0.70
preBD FVC (%pred)	0.22	0.64	0.20	0.67	-0.29	0.53	-0.31	0.50
postBD FVC (%pred)	0.64	0.12	0.36	0.43	-0.07	0.88	0.07	0.88
preBD FEV1/FVC (%)	-0.43	0.34	-0.04	0.94	0.11	0.82	-0.18	0.70
postBD FEV1/FVC (%)	-0.52	0.23	-0.34	0.45	-0.40	0.38	-0.70	0.08
preBD FEF25-75% (%pred)	-0.50	0.39	-0.30	0.62	-0.30	0.62	-0.70	0.19
postBD FEF25-75% (%pred)	-0.80	0.10	-0.40	0.51	-0.40	0.51	-0.90	**0.04**
Eosinophil count	-0.43	0.40	0.43	0.40	0.43	0.40	0.09	0.87
Total IgE	0.30	0.62	0.30	0.62	0.30	0.62	0.30	0.62

Conflicts of Interest: The authors did not specify any links of interest.

000203 | Description of drug allergy alert system in a Spanish university hospital: Correlation with drug distribution/consumption in the general population

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Background: The drug allergy alerts (DAA) reduces the frequency of adverse drug events, although it is subject to collateral effects, since 80%–90% of alerts are not real. We reviewed how the DAA is used at University Hospital Fundación Alcorcón (HUFA).
Method: Data were obtained from the drug allergy alert forms (2011–2020). In order to determine whether drugs reported in the DAA were related to the consumption of drugs in primary care (PC), we used the dataset of PC prescriptions for the city of Alcorcón (number of prescriptions filled) for the year 2016. To determine whether the types of drugs contained in the HUFA DAA are correlated with the diagnostic profile for drug allergy in our allergy unit, we used the dataset of drug allergy diagnosis in 2016. To assess the importance of drug allergy alerts for different age groups and in both sexes, we calculated the incidence rates of DAA for each drug or group of drugs among the population of the city of Alcorcón in 2016. Data from the national statistics institute.
Results: We collected 15,535 alerts (2011–2020). The highest numbers of alerts were for NSAIDs (36.55%) and penicillins (26.91%). A clear increase in DAA was observed for patients aged >60 years (more in women than in men and for patients aged >15 years). The incidence rate curves of the NSAID and penicillin groups for the different age groups were very similar to the total DAA curve. General

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clinical departments activated DAA more frequently than the specialized areas (except for the Allergy Department). We observed a correlation between the number of allergy alerts for each drug or pharmacologic group, the number of prescriptions of each drug in primary care during 2016 (rho = 0.41; $p = 0.016$), and the number of confirmed drug allergy diagnosis after the allergy work-up in the Outpatient Allergy Clinic of HUFA during the same year (2016; rho = 0.68; $p < 0.0001$).

Conclusion: The DAA at our institution broadly reflects the distribution of the main drugs causing allergy (although many of the alerts could be false positives) as well as the consumption of drugs in the general population.

Conflicts of Interest: The authors did not specify any links of interest.

000942 | A motivation-enhancing web app

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Background: In the ILIT.NU trial during three grass pollen seasons, participants are asked daily to report medication use and to score symptoms in an online questionnaire. High attrition rates have been identifed in previous ILIT trials affecting generalizability, validity and reliability. To increase retention in the ILIT.NU trial, a motivation-enhancing intervention is developed.

Method: To clarify that components as motivation and severity of allergy among other can interact and influence whether the intervention is successful, the framework for complex interventions is used as design. To understand how to motivate participants to retention and reporting, the Self Determination Theory is used. To ensure an intervention relevant for participants, patients are involved in the research process.

Results: Results from two online workshops including ten patients and a subsequent evaluation suggested that an app configurable to personal preferences needs to be developed. Improvements included (a) only complete the entire questionnaire on days with symptoms, (b) integration of grass pollen counts and forecasts, (c) showing personal response rate, (d) access to own data via a graph, (e) advice against grass pollen allergy, (f) status of the study, g) individually choosing the time of response, (h) contact information.

Conclusion: The webapp was tested in a feasibility study during grass pollen season 2022. If the test shows feasible results, it may be evaluated and tested as a Study Within a Trial during grass pollen season 2023. The participants will be randomised 1:1 across treatment groups to either the webapp or the standard reporting method.

Conflicts of Interest: The authors did not specify any links of interest.

ASTHMA 1

000250 | Risk factors of NSAID-exacerbated respiratory disease: A population-based study

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*Presenting author: A. Helevä

Background: Asthma with non-steroidal anti-inflammatory drug (NSAID) exacerbated respiratory disease (NERD) is associated with uncontrolled or severe asthma. NERD patients are more prone to severe allergic reactions and anaphylaxis than patients with non-NERD-asthma. Asthma exacerbations lead to hospitalizations twice as often with NERD patients than with asthma patients without NERD. Patients with NERD are prone to recurrent nasal polyposis, which requires frequent endoscopic sinus surgeries. Despite all this, the early risk factors of NERD are not fully understood. The aim in our study was to identify risk factors of NERD among patients with adult-onset asthma.

Method: We used data from 1350 population-based asthmatics (Adult Asthma in Finland) with adult-onset asthma (age range 31–93 years) from Finnish national registers. The ethical committee of Tampere University Hospital gave assent to the study, and all subjects gave their written consent to the study. NERD was defined as self-reported wheeze or other typical respiratory symptoms after ingestion of NSAID (such as acetyl salicylic acid). Thirty-five covariates covering several domains (personal characteristics, life-style, early life factors, asthma characteristics and multimorbidities) were selected based on literature and were studied in association with NERD using logistic regressions.

Results: The study population included 153 (11.3%) asthmatics with NERD. Thirty-five covariates were entered in the univariate logistic regression analysis, in which twenty-three variables were associated with NERD ($p < 0.05$). These variables included female sex, body mass index (BMI), nasal polyps, having more than 3 siblings, variables regarding asthma difficulty, variables regarding exposure to tobacco smoke, variables regarding allergic conditions, variables regarding

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infection history, and variables regarding orthopedic disorders. These variables were entered in a multivariate logistic regression model. In multivariate analysis, allergic respiratory symptoms, female sex, osteoarthritis, difficult asthma, feverish flu(s) in the last year, and BMI were significantly associated with asthma with NERD ($p < 0.05$).

Conclusion: According to our study, risk factors of NERD in part are associated with BMI, exposure to tobacco smoke, childhood environment, allergy, orthopedic disorders, and recurrent airway infections, and their early recognition might thus be important to manage burden of NERD.

Conflicts of Interest: STS reports consultancies for ALK-Abelló, AstraZeneca, ERT, GSK, Novartis, Sanofi, and Roche Products outside the submitted work, as well as grant of GSK outside the submitted work. JB reports personal fees from Cipla, Menarini, Mylan, Novartis, Purina, Sanofi-Aventis, Teva, Uriach, other from KYomed-Innov, other from Mask-air-SAS, outside the submitted work. JK reports personal fees from GlaxoSmithKline, MSD, Novartis, Sanofi, AstraZeneca, Boehringer Ingelheim, Chiesi, and Orion Pharma, outside the submitted work. All other authors declare no conflicts of interest.

000253 | Use of leukotriene-receptor antagonists during pregnancy and risk of neuropsychiatric events in offspring

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Background: Leukotriene-receptor antagonists (LTRA) are a class of medications used for treating allergic airway diseases including asthma and allergic rhinitis. The U.S. Food and Drug Administration has monitored postmarketing data about the potential harm of neuropsychiatric events (NEs) with montelukast, the originator remedy of LTRA. However, evidence regarding the risk of NEs associated with LTRA in children have been conflicting. To the best of our knowledge, none studies report *in utero* effect of LTRA exposure on risk of NEs in offspring.

Method: We used data from the entire National Health Insurance Research Database to identify pregnant women and their offspring during 2009 and 2019 in Taiwan. Exposure was defined as having any dispensed prescription for LTRA during pregnancy. Propensity score matching was applied to control for the systematic differences at baseline between LTRA users and non-users. Main outcomes are primary diagnoses of attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), or Tourette syndrome in offspring. Cox proportional hazards models were constructed to estimate the associations between prenatal LTRA exposure and NEs among offspring with covariate adjustment.

Results: A total of 576,157 mother-offspring pairs (1995 LTRA exposed children and 574,162 non-exposed children) was identified in the original study population. After propensity score matching, 1988 LTRA exposed children and 19,880 non-exposed children were included in the subsequent analyses. No significant associations were found between prenatal LTRA exposure and ADHD, ASD and Tourette syndrome among offspring (adjusted hazard ratio (AHR) = 1.10; 95% confidence interval (CI): 0.85–1.42 for ADHD; AHR = 1.25; 95% CI: 0.82–1.89 for ASD; and AHR = 0.98; 95% CI: 0.49–1.93 for Tourette syndrome). In addition to overall LTRA exposure, duration of LTRA use (1–4 weeks vs. more than 4 weeks), and cumulative dose of LTRA (1–170 mg vs. more than 170 mg), separately, was not significantly associated with ADHD, ASD and Tourette syndrome among offspring.

Conclusion: The use of LTRA during pregnancy does not pose significant risks of NEs in offspring. Clinicians prescribing LTRA to pregnant women with asthma or allergic rhinitis may be reassured by our findings of no increased risk of NEs, specifically ADHD, ASD and Tourette syndrome, in offspring.

Conflicts of Interest: The authors did not specify any links of interest.

000305 | The inflammasome inhibitor OLT1177 improves experimental allergic asthma in mice

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Background: A chronic inflammation of the airways is the basis for most asthma symptoms. A central mediator in regulating this inflammation is the inflammasome by activating proinflammatory cytokines, which eventually boost allergic inflammation. In our study we investigated the therapeutic potential of the inflammasome inhibitor OLT1177 on experimental allergic airway inflammation in mice.

Method: Three different models of experimental allergic asthma (EAA) were used, HDM model, OVA model, and a poly(I:C)-triggered exacerbation of the OVA model. Three different routes of application were used, intra-peritoneal, oral via enriched diet, and oropharyngeal aspiration.

Results: After treatment with OLT1177 by intra-peritoneal treatment or oral via feeding we observed reduced inflammasome expression, caspase-1 activation and lower levels of activated IL-1β. Allergic airway inflammation, mucus hyperproduction, and airway hyperresponsiveness (AHR) was significantly diminished in all three murine asthma models. Oropharyngeal aspiration of OLT1177 had no effect on EAA.

Conclusion: Thus, we conclude that both, intra-peritoneal and oral delivery of OLT1177, have the therapeutic potential to treat EAA in mice by inhibiting the inflammasome *in vivo* and therefore.

Conflicts of Interest: This study was mainly supported by the German Center for Lung Research (DZL). The study was also supported by Olatec Therapeutics LLC and the Interleukin Foundation.

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000381 | T regulatory and TH17 cells in atopic dermatitis and allergic asthma

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Background: There is evidence that T regulatory (Treg) and Th17 cells are involved in the regulation of immune response related to atopic diseases. Atopic dermatitis and allergic asthma are the most common atopic diseases worldwide. The aim of this study was to investigate Th17/Treg cells ratio, IL-17A and TGF-β1 levels in patients with atopic dermatitis and allergic asthma in comparison to healthy individuals, and to evaluate relationship between these markers and signs of clinical manifestation of atopic disease.

Method: In total, 40 subjects with atopy (20 with mild to moderate atopic dermatitis (AD) and 20 with mild to moderate allergic asthma (AA)) and 15 healthy subjects were involved in the study. Blood eosinophil count was determined by standard methods. Lung function of asthmatic subjects was evaluated by spirometry. Flow cytometric analysis was used to determine the proportions of Treg and Th17 cells in peripheral blood. IL-17A, TGF-β1 and total IgE levels in serum were assessed by ELISA.

Results: Subjects with AD and AA had significantly higher blood eosinophil count compared to the controls (0.41 ± 0.16 and 0.37 ± 0.04 vs. 0.04 ± 0.01 $\times 10^9$ L), higher Treg/Th17 cells ratio (0.55 ± 0.08 and 0.45 ± 0.07 vs. 0.23 ± 0.03%) and lower TGF-β1 levels (8.83 ± 0.86 and 9.70 ± 0.66 vs. 12.64 ± 0.75 pg/mL; respectively, $p < 0.05$). A tendency was observed that total IgE is higher in AD and AA groups than in controls (593.65 ± 341.20 and 891.18 ± 339.31 vs. 12.90 ± 5.75 kU/L, $p < 0.08$). Higher IL-17A levels were detected in subjects with AD compared to healthy subjects (11.38 ± 0.35 vs. 9.59 ± 0.27 pg/mL, $p < 0.05$); whereas any significant difference between AD and AA groups was not observed. Negative correlation was found between eosinophil count and Th17/Treg ratio ($r = -0.66$, $p < 0.01$), and TGF-β1 levels ($r = -0.68$, $p < 0.01$) in subject with atopic diseases. In addition, Th17/Treg ratio correlated positively with forced expiratory volume (FEV1%) in AA subjects ($r = 0.51$, $p < 0.05$), a negative correlation was found between Th17/Treg ratio and SCORAD index ($r = -0.56$, $p < 0.05$) in subjects with AD.

Conclusion: Study results showed that Treg and Th17 cells may play an important role in the pathogenesis of atopic dermatitis and allergic asthma. Considering relationship with clinical features these immune markers may be helpful in monitoring the course of atopic disease.

Conflicts of Interest: The authors did not specify any links of interest.

000427 | The role of P300 in the pathogenesis of allergic asthma

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Background: Asthma is one of the most common chronic inflammatory airway diseases with various phenotypes affecting both pediatrics and adults worldwide. Several studies have shown that asthma and its symptoms can be modulated through epigenetic modifications. Histone acetylation is a pivotal epigenetic modification that affects gene transcription and is regulated by histone acetyltransferases (HATs). p300 (also known as EP300 or KAT3B), one of the crucial HATs, is indispensable for various cellular functions including cell proliferation and inflammatory gene expression. Despite extensive research indicating that p300 plays pivotal roles in many physiological processes, its roles in allergic asthma are poorly understood. In this study, we confirm the role and function of p300 in the development of asthma.

Method: $p300^{fl/fl}$ (hereafter $p300^{+/+}$) and $p300^{fl/fl}$;R26-CreERT2 (hereafter $p300^{\Delta/\Delta}$) mice were sensitized and challenged with ovalbumin (OVA) for allergic asthma induction. We investigated HAT activity and p300 expression. We next compared bronchial hyperreactivity, bronchoalveolar lavage fluid composition, lung histology, and immune responses of T-helper type 2 cell and regulatory T cell (Treg) in $p300^{+/+}$ and $p300^{\Delta/\Delta}$ mice. We also performed a functional study of Treg from splenocytes of $p300^{+/+}$ and $p300^{\Delta/\Delta}$ mice through Treg differentiation and suppression assay *in vitro*.

Results: HAT and p300 levels were elevated by asthma induction. Airway hyperresponsiveness and inflammatory cell counts in bronchoalveolar lavage fluid were significantly increased in $p300^{+/+}$ and $p300^{\Delta/\Delta}$ mice after OVA treatment. However, $p300^{\Delta/\Delta}$ mice exhibited more amplified airway hyperresponsiveness and higher inflammatory cell numbers than $p300^{+/+}$ mice. Additionally, OVA-specific IgE level, type 2 cytokine production, and severity of inflammation in lung tissue were elevated in OVA-treated $p300^{\Delta/\Delta}$ mice compared to $p300^{+/+}$ mice. However, Treg-related gene expression and Treg population were significantly lowered in OVA-treated $p300^{\Delta/\Delta}$ mice than in $p300^{+/+}$ mice. Treg functional study showed that p300 deletion reduced the ability of Treg suppression and differentiation. Moreover, p300 inhibitor treatment also lessened the Treg functions.

Conclusion: p300 plays a protective role in the pathogenesis of allergic asthma by controlling Treg functions. Our findings can provide a theoretical basis for p300 and aid the development of a new approach to the management and treatment of asthma.

Conflicts of Interest: The authors did not specify any links of interest.

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000055 | CSN5 is a circulating marker for asthma exacerbation

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Background: The COP9 signalosome (CSN) have essential roles in cell proliferation, signal transduction modulation, gene transcription, angiogenesis, and microenvironmental homeostasis. However, the exact role of CSN subunit 5 (CSN5) in bronchial asthma remains unclear.

Method: The potential link between CSN5 and bronchial asthma was investigated in mice sensitized and challenged with ovalbumin and in mice sensitized with saline and challenged with air (control mice). The mice were treated with dexamethasone or a PD-L1 inhibitor. Samples from HMVEC-L cells treated with *Dermatophagoides pteronyssinus* (*Derp1*) and CSN5 small interfering RNA in an asthmatic mouse model were collected to determine the expression of IKKβ, IκBα, NF-κB, PD-L1 and CSN5. Furthermore, plasma CSN5 levels in asthma patients (stable and exacerbated states) were analyzed.

Results: Plasma CSN5 levels were higher in patients with exacerbated asthma than in healthy controls or patients with stable asthma. The CSN5 level was correlated with lung function in patients with asthma. CSN5 silencing in HMVEC-L cells reduced the NF-κB protein level at 4 h and PD-L1 level at 4, 8, and 24 h after *Derp1* treatment. Goblet cell hyperplasia, lung fibrosis, and the levels of p-IKKβ, p-IκBα, NF-κB, CSN5, PD-L1, IL13, and INFγ proteins increased at 33 and 80 days in OVA-sensitized/challenged mice compared with control mice, but these changes were reduced by PD-L1 inhibitor treatment.

Conclusion: The results indicate that CSN5 interacts with PD-L1 in asthma and may be a potential target for asthma treatment.

Conflicts of Interest: The authors did not specify any links of interest.

000407 | Early response to dupilumab in patients with and without previous biologic treatment

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Background: Dupilumab is a monoclonal antibody that has demonstrated efficacy in asthma. Our aim was to compare early response to dupilumab in patients with and without previous treatment with other biologic drugs.

Method: We report the results of an observational, prospective, and multicentre study performed under conditions of routine clinical practice in 8 centres in Murcia, Spain. Patients were reviewed at one and three months after starting Dupilumab. Asthma control (ACT), quality of life (miniAQLQ), lung function (FEV1% and FVC%), and FeNO were recorded. In patients with nasal polyposis, the 22-item Sinonasal Outcome Test (SNOT-22) was also measured. Exacerbations, oral corticoid intake, and blood eosinophils were registered at 3 months. The statistical analysis was performed using the Wilcoxon signed-rank test.

Results: We present a series of 25 patients undergoing treatment with dupilumab for severe, uncontrolled asthma. 14 patients were not previously treated with a biological drug, 5 were previously treated with omalizumab, 5 with mepolizumab, and 1 with benralizumab. These other treatments were withdrawn due to a lack of efficacy. Thirteen patients were women, the mean age was 53.7 and the mean BMI was 26.6. Seventeen patients started suffering from asthma after 18 years of age. 15 patients were atopic and 15 had nasal polyps. In naïve patients, Dupilumab improved significantly ACT, AQLQ, FEV1%, FVC%, FeNO, and SNOT22, both at 1 and 3 months. In patients with previous biologic drugs, Dupilumab improved ACT, FEV1%, FVC%, FeNO, and SNOT22. Statistical significance was only reached in ACT at one month, and FeNO at one and three months (Table 1). No patients had exacerbations during the 3 months period, and although the median dose of Prednisone was decreased, the differences did not achieve statistical significance. Eosinophils showed a decrease in the naïve group and a slight increase in the other group, both without significance. Finally, no statistically significant differences were found between patients with or without previous biologic treatment in any variable.

Conclusion: Dupilumab rapidly improved (1 and 3 months) ACT, lung function, FeNO, and SNOT22 in both patients with and without previous biologic treatment, with more statistical significance in patients naïve. AQLQ only improved in this group. No exacerbations were recorded during the 3-month follow-up period.

Table 1

	No previous biologic drug N 14					Previous biologic drug N 11					P Previous/ No previous 3 months
	Basal	1 month	p	3 months	p	Basal	1 month	p	3 months	p	
Exacerbations	3	-	-	0	**0.0016**	3	-	-	0	**0.0152**	0.7564 NS
Oral corticoids	12.5	-	-	7.5	0.1655 NS	10	-	-	7.5	0.0918 NS	0.8550 NS
ACT	14	20.5	**0.0059**	21	**0.0031**	11	18	**0.0340**	23	0.1148 NS	0.6104 NS
AQLQ	3.765	4.5	**0.0029**	5.07	**0.0076**	3.665	3.4	0.0630 NS	3.46	0.3452 NS	0.1122 NS
FEV1%	71	85	**0.0033**	83	**0.0051**	73	87	0.1230 NS	86	0.0908 NS	1.0000 NS
FVC%	81	95	**0.0093**	92	**0.0077**	84	92.5	0.3270 NS	89	0.1718 NS	0.4416 NS
FeNO	38	22,5	**0.0464**	11.5	**0.0117**	42	33,5	**0.0464**	29	**0.0431**	0.7140 NS
SNOT22	59	28.5	**0.0117**	16	**0.0180**	58	43.5	0.0656 NS	39	0.1088 NS	0.0527 NS
Eosinophils	625	-	-	455	0.1361 NS	200	-	-	240	0.6733 NS	0.3252 NS

The results are reported as median.

Conflicts of Interest: The authors did not specify any links of interest.

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000419 | Airway and airspace lesions in eosinophilic granulomatosis with polyangiitis

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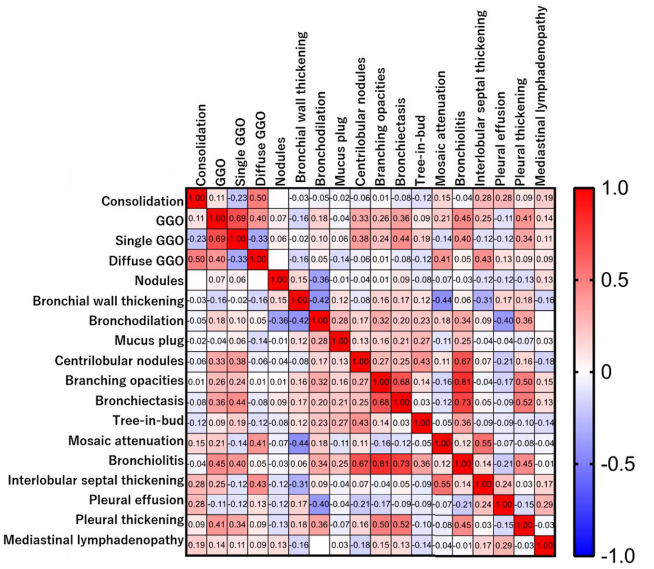
Background: We attempted to clarify the radiographic findings of airway and airspace lesions in patients with eosinophilic granulomatosis polyangiitis (EGPA) and their association with clinical characteristics and laboratory data.

Method: The patients diagnosed as EGPA at Tokai University Hospital between 2008 and 2021 were retrospectively analyzed. EGPA diagnosis was based on the American College of Rheumatology (ACR) classification criteria, Lanham's criteria, and the 2022 ACR/European Alliance of Associations for Rheumatology classification criteria. Images of chest computed tomography performed at diagnosis were reviewed by three pulmonologists and classified into central or peripheral airway pattern and/or airspace pattern.

Results: Fifty-five patients (27 males, 57 ± 16 years at the onset) were examined, of whom 28 (51%) were MPO-ANCA positive and 53 patients (96%) showed chest lesions. Fifty-one patients (93%) presented with central airway lesions such as bronchiectasis, bronchial wall thickening and mucous plugs, 28 patients (51%) with peripheral airway lesions such as bronchocentric nodular lesions, branching shadows, and bronchioloectasis, whereas 33 patients (60%) demonstrated airspace lesions such as ground-glass opacities (GGO), infiltrates, and nodules. Localized GGO was correlated with the presence of peripheral airway lesions, whereas infiltrating shadows and diffuse GGO showed little correlation with peripheral airway lesions. Bronchiectasis and mucus plugs tended to correlate with peripheral airway lesions. ANCA antibody titers tended to be higher in the cases with central airway lesions.

Conclusion: Chest radiographic findings in the cases of EGPA are variable, however, some of them are correlated with each other, suggesting their development based on common pathological condition.



Conflicts of Interest: The authors did not specify any links of interest.

000386 | Farm-dust mediated upregulation of activated B-cells in asthmatic and healthy children

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Background: Asthma is the most common chronic disease in childhood. Children living on European farms are partly protected from asthma, referred to as the asthma protective farm effect. Stimulation with farm-dust affects several immune cells and parts of the innate immune system in their immune modulating capacity. This study aims to identify the molecular biological mechanisms underlying asthma protective capacity of farm environments by focusing on B-cells.

Method: Peripheral blood mononuclear cells (PBMCs) of school-age allergic asthmatics (AA) and healthy children (HC) were analysed upon *in vitro* farm-dust stimulation (24 h) by mass cytometry (CyTOF; 10HC/10AA). Cell populations were gated manually based on lineage marker expression (B-cells: $CD3^+CD19^+CD69^+$; activated B-cells: $CD3^+CD19^+CD69^+CD25^+$; non-activated B-cells: $CD3^+CD19^+CD69^+CD25^-$). Differences in cell frequencies were studied using a random effect linear regression model on *log*-transformed frequency. Marker expression comparison was analysed using an Anova test for functional data.

Results: Unstimulated PBMCs of HC and AA revealed no significant difference in B-cell numbers (mean ± SD; HC: 2.59 ± 0.73%,

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AA: 3.93 ± 2.04%). Further differentiation into activated and non-activated B-cells also demonstrated no significant difference in cell numbers. Upon *in vitro* farm-dust stimulation, B-cells were significantly increased in both HC (5.24 ± 2.06%, $p < 0.01$) and AA (6.24 ± 2.74%, $p < 0.01$) compared to unstimulated cells. Although total B-cell number was increased, further differentiation revealed that only activated B-cells were significantly increased ($p < 0.01$), whereas non-activated B-cells were significantly decreased ($p < 0.01$) in HC and AA. Moreover, the previously primarily Treg-associated markers Foxp3 and Helios were significantly upregulated ($p < 0.01$), as well as GZMB. Also, the transcription factors Gata3 and ROR rather known for Th2/Th17 cells were significantly increased in AA compared to HC in farm-dust stimulated B-cells.

Conclusion: Upon *in vitro* farm-dust stimulation, activated B-cells were significantly upregulated, whereas non-activated B-cells were significantly downregulated in both HC and AA. This may point to a potential counter-regulatory role for activated B-cells. Whether this first indication of upregulation of the newly identified markers in B-cells following farm-dust stimulation (Foxp3, GZMB, Gata3/ROR) in AA may truly indicate B-cell plasticity requires further in depth studies.

Conflicts of Interest: DFGEKFS.

000691 | Effect of preconceptional paternal E-nicotine on F1 development in drosophila melanogaster

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*Presenting author: G. Dogan

Background: The detrimental consequences of tobacco smoking during pregnancy on the respiratory health of offspring are well-known. Recently, paternal preconceptional smoking has been associated with an increased risk for asthma in his children. However, information on how parental use of e-cigarettes affects offspring health is scarce. Our previous work in *D. melanogaster* demonstrated that preconceptional maternal use of e-nicotine reduces body size and weight and induces severe airway remodelling in the adult F1 offspring. Here, we aimed to establish a model in the fruit fly to investigate how paternal e-nicotine use before conception influences viability and growth of the F1-generation.

Method: Young male *Drosophila melanogaster* were exposed to e-nicotine (1, 2.5, 5 and 10-mM nicotine) eight times once per hour using a self-constructed exposure system (3.7 V, 1.9 A). To detect the flies' climbing behavior against gravity, a negative geotaxis assay was performed. Immediately after the last exposure, e-nicotine or water exposed males were mated overnight with non-exposed females. Thereafter, females were placed on new grapefruit agar (GA) plates and eggs were collected in the following 2h to produce synchronized embryos. After counting, eggs were transferred into the media for developing embryos. The resulting F1-generation was analyzed for viability and growth.

Results: The groups exposed to 5- or 10-mM of e-nicotine demonstrated a dose-dependent decrease in their climbing behavior, where only 32% and 3% of the flies in each group, respectively, could cross a distance of 7 cm in 10 s. In addition, 22% of the flies exposed to 10-mM nicotine had died after 24 h. Since the climbing behavior of paternal flies did not differ between groups exposed to water-, 1-mM and 2.5-mM e-nicotine, a concentration of 5-mM of nicotine was selected for our further experiments. Paternal e-nicotine treatment did not affect fecundity, but significantly reduced the lengths of F1 1st instar larvae ($p < 0.001$).

Conclusion: Our findings indicate that similar to maternal exposure, paternal e-nicotine exposure affects the early development of F1 *D. melanogaster*. In a next step, weights and lengths of adult female and male flies as well as lengths of terminal cells in airway arborization of F1 larvae will be examined.

Conflicts of Interest: The authors did not specify any links of interest.

000200 | Automating online participant selection for clinical trials in allergen immunotherapy

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*Presenting author: H. J. Hoffmann

Background: Allergy affects 20% of western populations and the only curative treatment is allergen immunotherapy. For clinical trials, defined patient groups must be recruited. Before online screening became ubiquitous, nearly every second included patient was a screening failure. In an international multicenter clinical trial of intralymphatic immunotherapy for grass pollen induced rhino-conjunctivitis in Denmark, Sweden and Switzerland (EudraCT 2020-001060-28, BASEC Nr. 2021-02301), we designed an online registration process that should enable us to effectively and correctly exclude patients that were not eligible to the trial according to the predefined exclusion criteria.

Method: We incorporated two dichotomous inclusion and 19 exclusion criteria in a REDCap-linked online screening tool that allowed us to only screen patients that passed the objective criteria. In the recruitment consultation, we could then focus on the six more subjective exclusion criteria. The algorithm was validated by determining whether inclusion and exclusion criteria were applied correctly.

Results: Of the 2210 registered patients in the Danish cohort, 2102 (95%) records were complete. Of these, 925 (44%) did not pass the online selection process, while 1177 (56%) passed. Of the latter,

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664 (32%) were not called in for assessment, while 512 (26%) were seen by a study doctor. Thirty-six (1.7%) of the fully registered patients were excluded at a clinic visit. In Sweden, 43 of 112 patients (38%) did not pass online screening, while 69 (62%) passed online screening. Thereof, 28 (25%) were not seen by a physician, 41 (37%) patients were screened in a consultation, and three (2.7%) patients were excluded upon consultation with a study doctor. In Switzerland, 412 patients registered online, 64 (16%) were seen by a doctor and 60 (15%) patients were allocated to treatment. Four patients (1%) were excluded upon consultation with a study doctor. Seven percent of patients considered to be eligible by the online screening were excluded, the main reason was significant competing allergy that would interfere with the patient reported outcomes used in the primary effect parameter. 43% were excluded with the automated tool in Scandinavia. No data from Switzerland was available for this analysis.

Conclusion: Automated sorting saves time for patients and health care workers as it reduces the number of ineligible patients seen in consultation sevenfold compared with seeing all interested patients.

Conflicts of Interest: The authors did not specify any links of interest.

000274 | Potential allergenic properties of erysiphe palczewskii & erysiphe convolvuli – In vitro studies

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Background: Currently, the diagnosis of allergic diseases is based on skin tests and/or determination of IgE in patient's serum. Unfortunately, they do not always allow determining the cause of allergy, which may be related to sensitization of the organism to allergens of other fungi, including plant parasites that are commonly found in the environment but never analyzed for allergenic properties – phytopathogenic microscopic fungi. The aim of this in vitro research was to evaluate the influence of crude extracts of Erysiphe palczewskii and Erysiphe convolvuli on the development of proinflammatory reactions developed in course of allergies.

Method: The effect of extracts on cell viability was evaluated both by MTT assay and flow cytometry after staining with propidium iodide and FITC-conjugated annexin. The ability of the extracts to induce the production of reactive oxygen species (ROS) in cells was also assessed with flow cytometry (staining with dihydrorhodamine 123). The production of cytokines involved in inflammatory reactions was assessed using commercial ELISA tests. The immunofluorescence method was used to determine the presence of the cell integrity marker (E-cadherin). All studies were performed with alveolar epithelial cells (A549 cell line) and bronchial epithelial cells (BEAS-2B cell line).

Results: Both A549 and BEAS-2B cells are characterized by increased sensitivity to the action of Erysiphe palczewskii (50–400 μg protein/mL) and Erysiphe convolvuli (6.25–400 μg protein/mL) extracts. Both of studied fungal extracts significantly decreased the number of viable cells, which resulted in an increase in the number of cells in the phase of early and late apoptosis (Erysiphe convolvuli, Erysiphe palczewskii) as well as necrosis (Erysiphe palczewskii only). The Erysiphe palczewskii extract at the dose of 25 μg protein/mL induced the production of ROS in both cell lines. An increase of 30%–50% in the number of ROS producing cells was observed upon contact of the A549 cells with the Erysiphe convolvuli extract. A significant increase in the concentration of GM-CSF, IL-1, and TNF-α and disturbance in E-cadherin synthesis were noted in the tested cell lines, regardless of the type of extract.

Conclusion: The obtained results emphasize the potential of Erysiphe palczewskii and Erysiphe convolvuli to induce proinflammatory status in the cells of the upper and lower respiratory tract that is known to participate in development of allergy reactions.

Conflicts of Interest: The authors did not specify any links of interest.

000280 | Study of the effectiveness of the connect 360 program for the control of our asthmatic benralizumab treated patients

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Background: Connect 360 offers a free support program (PSP) to help patients treated with benralizumab with nurse support, injection training, pen disposal, and medication reminders. The impact of these services on patient adherence to benralizumab associated with asthma has not been evaluated. To quantify the relationship between participation in a PSP and la clinical improve in patients with benralizumab treatment.

Method: A longitudinal retrospective study was conducted using data from our hospital database, of patients who started benralizumab between the years 2019–2021 and started in the CONNECT program in 2021. The sample included patients ≥18 years of age with a diagnosis of asthma. Patients undergoing treatment with benralizumab in our hospital's database since 2019 were offered the possibility of participating in the Connect program throughout the year 2021. The characteristics of these patients were assessed before and after their participation in the Program. All patients must meet the necessary requirements to receive benralizumab. Patients who had been treated with benralizumab for at least 6 months before entering the PSP were analyzed to compare the evolution after entering the program. Emergency care was assessed, as well as the need for oral corticosteroids per year before and after participating in CONNECT.

Results: A total of 35 patients were included in the study. During the follow-up period, the number of annual corticosteroid cycles went from an average of 0.87 to 0.71 ($p = 0.009$), the number of emergencies per year went from 0.58 to 0.25 ($p = 0.018$).

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Conclusion: The inclusion of patients in the PSP was associated with a reduction in systemic corticosteroids and a lower number of emergency visits.

Conflicts of Interest: The authors did not specify any links of interest.

000369 | Effect of inhalation formulation on bronchial obstruction in teen-aged asthmatics

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Background: Despite of their nearly similar aerodynamic particle size in the formulation, fluticasone propionate/formoterol (FP/FORM) has a higher pulmonary deposition of delivered dose than fluticasone furoate/vilanterol (FF/VI). We aimed to evaluate the effect of inhalation formulation on asthmatic teen-aged children with prolonged bronchial obstruction.

Method: 44 asthmatics aged 12–17 years with need of regular anti-asthmatic medication for at least 3 months and FEV1/FVC < −1.65 SD started FP/FORM or FF/VI for two months. Lung function was measured with spirometry and symptoms assessed with both Asthma Control Test (ACT) and two questions related to exercise-induced symptoms and dyspnea.

Results: Baseline characteristics are shown in Table 1. After two months of treatment no significant differences were seen in change of Asthma Control Test or the part of Asthma Control Test related to dyspnea, or FEV1/FVC at visit 2 between the groups (Table 1). Median FEV1 SD improved significantly in the entire study sample during the treatment (−1.50 vs. −1.19, $p = 0.002$). However, median FEV1 improved significantly only in FF/VI group (−1.05 to −0.48, $p = 0.007$).

Conclusion: Intervention with the combination of inhaled corticosteroid and long-acting beta-agonist improved lung function in FEV1 without a significant difference in symptoms. Pulmonary deposition of delivered dose may be of lesser significance than the aerodynamic particle size.

Table 1.

	FP/FORM (n=22)	FF/VI (n=22)	p-value
Gender (male)	15 (68%)	11 (50%)	0,220
Age (years)	14; 12,16	15; 12,17	0,395
Atopic eczema	9 (41%)	15 (68%)	0,069
Allergic rhinitis	16 (73%)	16 (73%)	1,000
ACT at visit 1	22; 11,25	23,5; 17,25	0,396
ACT at visit 2	22,5; 16,25	23; 17,25	0,418
Δ ACT	0; -4,8	0; -7,7	0,876
Dyspnea at visit 1 (ACT)	4; 1,5	4,5; 3,5	0,774
Dyspnea at visit 2 (ACT)	4; 1,5	4; 3,5	0,884
Δ dyspnea (ACT)	0; -3,3	0; -1,2	0,611
Exercise-induced symptoms at visit 1	18 (82%)	16 (73%)	0,472
Exercise-induced symptoms at visit 2	14 (64%)	13 (59%)	0,757
Dyspnea at visit 1	15 (68%)	13 (59%)	0,755
Dyspnea at visit 2	12 (55%)	14 (64%)	0,540
FEV1 SD at visit 1	-1,67; -3,85, 0,74	-1,05, -2,83, -0,08	**0,037**
FEV1 SD at visit 2	-1,51; -2,85; 1,02	-0,48; -2,14; 0,92	**0,008**
FEV1/FVC SD at visit 1	-2,31; -3,40; -1,68	-2,43; -4,15; -1,73	0,511
FEV1/FVC SD at visit 2	-2,17; -2,95; -1,09	-2,27; -4,07; -0,97	0,688
FEV1/FVC <-1,65SD at visit 2	18/21 (86%)	18/22 (82%)	1,000

Data are shown as n (%) or median and range. The Chi-square Test, the Mann Whitney U Test and Wilcoxon Test were used for statistics.
ACT; Asthma Control Test, FEV1; forced expiratory volume in 1 sec, FEV1/FVC; FEV1/forced vital capacity

Conflicts of Interest: The authors did not specify any links of interest.

000431 | Mold immunotherapy; real world evidence with a cluster schedule

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Background: *Alternaria alternata* it's the most prevalent fungui among sensitized patients, it's recognized as a risk factor to develop asthma and or rhinoconjunctivitis. Allergen immunotherapy is initiated with step-up weekly doses, which could take up to two months to achieve maintenance, our objective is to observe the safety profile of a cluster schedule with molecular immunotherapy with Alt a 1, major allergen of *Alternaria alternata*.

Method: This was a retrospective real world experience study where we recruited patients from 4 different hospitals in Seville, Spain, they received immunotherapy with Alt a 1, major allergen of *Alternaria alternata*, initiating with cluster schedule (2 weeks), and we registered the adverse reactions due to the immunotherapy and related to the demographic data.

Results: We recruited 115 patients, with a mean age of 12 years old and 71.3% were men, there was an incidence of 0.52 local reactions each 100 injections and 0 systemic reactions. These reactions were more frequent in adults and patients without asthma.

Conclusion: This provides a new cluster schedule with a good tolerability and implies less visits to the consultant, reduce economic impact and provides information about pediatric population.

Conflicts of Interest: The authors did not specify any links of interest.

001327 | The effect of an educational program for children with asthma on airway inflammation: Before and during the COVID-19 pandemic

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Background: Since 1978, Camp Wheez has been a free annual day camp every August for children with asthma. During the COVID-19 pandemic, Camp Wheez 2021 and 2022 was adapted to follow safety guidelines for summer camps put forth by the Centers for Disease Control and Prevention. The primary aim of this study is to compare the effect our educational program had on airway inflammation as measured by fractional exhaled nitric oxide (FENO) during Camp Wheez in the years before (2018 and 2019) and during (2021 and 2022) the COVID-19 pandemic. The secondary aim of this study

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is to describe our experience of having an educational asthma program for children during the COVID-19 pandemic.

Method: A total of 125 children with asthma were enrolled in Camp Wheez in years 2018–2019 (before COVID-19 pandemic) and 2021–2022 (during COVID-19 pandemic). Written consent was obtained for each participant. Children were educated on the early signs of asthma, identifying triggers and the use of controller medication. The curriculum was provided by the Asthma Camp Consortium by the AAAAI. The NIOX Vero was used as a 6 to 10 second, single breath, quantitative measurement. We measured FeNO on the first day and last day of camp.

Results: In the Camp Wheez years before the COVID-19 pandemic, 2018 and 2019, the average FENO was 38.6 ppb on the first day of camp and 34.9 ppb on the last day of camp, which is a significant improvement in FENO ($p = 0.015$). In the Camp Wheez years during the COVID-19 pandemic, 2021 and 2022, the average FENO was 26.2 ppb on the first day of camp and 24.1 ppb on the last day of camp, which demonstrated a nonsignificant difference ($p = 0.39$). During COVID-19 pandemic years, no campers nor counselors developed symptoms nor tested positive for COVID-19 infection.

Conclusion: Overall, campers had a lower average FENO during Camp Wheez in the COVID-19 pandemic years as compared to the years prior. Potentially this could be attributed to improved asthma medication compliance and enhanced hygiene measures. During the pandemic years, our goal was to create a fun yet pandemic-appropriate camp for our pediatric asthmatic patients. While we did not see a statistically significant difference in FENO during camp, the feedback and gratitude we received from both parents and campers make continuing Camp Wheez a worthy annual effort.

Conflicts of Interest: The authors did not specify any links of interest.

BASIC IMMUNOLOGY 1

000408 | Validation of cluster analysis of sputum cytokine profiles in asthmatic patients reveals underlying molecular pathways and impact of environmental triggers

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Background: Asthma is a heterogeneous disease in which several pheno- and endotypes can be distinguished based on allergic status, inflammatory pattern, severity, age of onset or the presence/absence of a T-helper 2 profile. The aim was to validate the underlying phenotype/endotype and cytokine pattern in the airways of asthma patients based on sputum mRNA levels of IL-17F, IL-5, IL-10, IL-22 and IL-6. To further investigate the underlying molecular pathways related to each cluster, bulk RNA sequencing on sputum samples was performed.

Method: Asthmatics ($n = 103$) were classified in different clusters based on high sputum mRNA levels of IL-17F, IL-5, IL-10, IL-22 and IL-6, defined as high when above the 90th percentile in healthy controls ($n = 34$). Remaining RNA was used for RNA sequencing. DAMPs were measured in sputum supernatants. A retrospective analysis in patients files searching for environmental exposures was performed.

Results: Within asthma patients with usable mRNA ($n = 71$), all but one patient (IL-17-F-high/normal IL-5), could be classified into the 5 previously defined clusters: 'IL-17F-/IL-5-high' ($n = 23$), 'IL-5- and/or IL-10-high' ($n = 21$), 'IL-6-high' ($n = 1$), 'IL-22-high' ($n = 3$), 'cytokine-pattern-low' ($n = 22$). The 'IL-17F-/IL-5-high' cluster showed activation of NF-kB signalling and pattern recognition receptor pathway and communication between innate/neutrophilic and adaptive immune cells. While the 'cytokine-pattern-low' cluster was associated with nuclear receptor signalling and regulators of energy homeostasis. Within 'IL-22 high' cluster, increased exposure to cleaning products was observed, in which surfactant protein-D was significantly elevated compared to patients without this exposure. In patients exposed to cleaning products a role of aryl hydrocarbon receptor (AhR) signalling was observed.

Conclusion: We validated the patient clustering based on sputum mRNA levels of IL-17F, IL-5, IL-10, IL-22 and IL-6 in a newly recruited cohort of asthma patients. In depth RNA-seq analysis revealed pathways related to neutrophilic inflammation in the 'IL-17F-/IL-5-high' cluster and upregulation of the nuclear receptor signalling in 'cytokine-pattern-low' cluster. Exposure to cleaning products seemed to be associated with AhR signalling in asthma patients.

Conflicts of Interest: The authors did not specify any links of interest.

000103 | Functional analysis of phospholipase A2 mouse model of anaphylaxis

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Background: In Japan, approximately 10–20 deaths from Hymenoptera stings are reported each year, most of which are the result of anaphylactic shock caused by Hymenoptera venom. Hymenoptera are classified into wasps, paper wasps, and honeybees, and their venom contains many types of allergens. Major allergens of wasps and yellow jackets include the enzyme phospholipase A1 and the protein antigen 5, while those in honeybees include phospholipase A2 (PLA2) and the peptide melittin. To perform immunological analysis of the mechanism underlying allergen immunotherapy for honeybee venom allergy and the development of new treatments, it is necessary to create a mouse model of honeybee venom anaphylaxis. In this study, we created a PLA2 mouse model of anaphylaxis and analyzed its function.

Method: Balb/c mice were subcutaneously sensitized four times (Days 0, 7, 14, 21) with PLA2 (30 μg/mouse) and aluminum hydroxide gel adjuvant (2 mg/mouse; PLA2 mouse model of anaphylaxis). As a control group, physiological saline was administered instead of

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PLA2. Blood was collected on Day 28 and serum PLA2-specific IgE antibodies were analyzed by enzyme-linked immuno-sorbent assay (ELISA). On Day 35, rectal temperature was measured before and 15 min after subcutaneous challenge with PLA2 (100 µg/mouse), and blood histamine concentration was analyzed by ELISA after cardiac blood sampling. In addition, to analyze the Th1/Th2 balance on Day 35, the collected splenocytes were stimulated with PLA2 (1, 10, 100 µg/mL), and the expression of IFN-γ, IL-2, IL-4, IL-5, IL- 13 mRNA was measured by real-time PCR.

Results: In the PLA2 mouse model of anaphylaxis, a significant increase in serum PLA2-specific IgE antibody was observed compared with the control group (optical density: 0.08 ± 0.02 vs. 0.25 ± 0.07, $p < 0.05$). There was a significant decrease in body temperature (36.6 ± 0.6°C vs. 35.3 ± 1.0°C, $p < 0.05$) and an increase in histamine levels (3.84 ± 2.27 ng/mL vs. 8.55 ± 1.53 ng/mL, $p < 0.05$) in the model mice compared with the controls. In addition, PLA2-specific IL-4, IL-5, and IL-13 mRNA were upregulated in the splenocytes of model mice compared with the controls.

Conclusion: Using the PLA2 mouse model of anaphylaxis established in this study, we would like to continue performing immunological analysis of the response mechanism underlying allergen immunotherapy and conduct basic research aimed at developing new treatments.

Conflicts of Interest: The authors did not specify any links of interest.

000162 | A long-term evaluation in grass and tree pollen allergic adults and children/adolescents using MCT (microcrystalline tyrosine) associated allergoids – first interim results from the tapas study

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Background: The primary objective of TAPAS (Tyrosine Allergoid Paediatric and Adult Study) is to demonstrate non-inferiority of clinical effectiveness in children compared to adults by exploring long-term treatment effects using subcutaneously administered glutaraldehyde-modified and microcrystalline tyrosine-associated allergoids (MATA) following a perennial posology.

Method: Patients aged 5 years and older with a history of allergic rhinitis, conjunctivitis and/or mild to moderate bronchial asthma, caused by grass and/or birch, alder and hazel pollen were eligible for inclusion in the study prior starting allergen immunotherapy (AIT). The study design consists of a treatment phase (3 years) and a follow-up period (2 years). Daily symptom scores and medication usage are collected over 4 weeks via an ediary during all respective pollen seasons. Furthermore, at start and during the study (always outside the pollen season), patients retrospectively reported about severity and frequency of their allergic symptoms during the previous pollen season.

Results: All planned 320 patients were recruited. For the first analysis, data from 40 children/adolescents and 135 adults were used. The primary endpoint, the combined symptom and medication score (CSMS), collected over 2 consecutive pollen seasons showed no significant difference between adults and children/adolescents. When comparing the CSMS between the 1st and the 2nd pollen season under treatment, there was a significant reduction by −37% ($p = 0.03$) for the paediatric cohort (adults: −13%, $p = 0.06$). Further, a significant decrease in rhinitis and conjunctivitis symptoms after the first year of treatment compared to baseline could be shown for children/adolescents (−33%, $p < 0.001$; −30%, $p = 0.001$) and adults (−33%, $p < 0.001$; −40%, $p < 0.001$). Overall, adverse drug reactions were reported in 17.5% of the paediatric cohort and in 11.8% of adults. With regard to all reported events, fewer systemic reactions tended to be observed in children/adolescents (5.9%) than in adults (29.6%).

Conclusion: This first analysis from the TAPAS study provides meaningful product-specific insights especially for the paediatric population and supports the current practice of using identical dosing regimens in children and adults. Non-inferiority was demonstrated between children and adults. In fact, children/adolescents showed a trend of even better responses. Furthermore, the data support the excellent safety profile of subcutaneous AIT with MATA.

Conflicts of Interest: The authors did not specify any links of interest.

000344 | Terminalia chebula RETZ. Extract ameliorates the symptoms of atopic dermatitis by regulating anti-inflammatory factors in vivo and suppressing STAT1/3 and NF-κB signaling in vitro

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Background: Terminalia chebula (TC) is a traditional medicinal plant used for treating various diseases in humans. However, pharmacological mechanisms underlying the effects of TC in atopic treatment remain unelucidated.

Method: For the in vivo study, AD was induced by Dermatophagoides farinae extract (Dfe) in NC/Nga mice. After 14 days of oral administration, the effects of TC were analyzed by assessing morphological changes visually; measuring serum levels of inflammatory chemokines/cytokines, IgE, histamine, MDC, TARC, RANTES, and TSLP using ELISA kits; and counting infiltrated mast cells. For in

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vitro analyses, we used IFNγ/TNF-α-stimulated human keratinocyte cell lines to study the mechanism of action. The production of chemokines/cytokines in the IFNγ/TNF-α-stimulated HaCaT cells was measured using ELISA and a bead array kit. The signaling pathways were analyzed by western blotting, and the expression of the transcriptional factors using RT-PCR and luciferase assay.

Results: Administration of TC significantly alleviated AD-like symptoms *in vivo* and decreased the ear thickness, dermatitis score, keratinization, and mast cell infiltration. It also resulted in decreased serum levels of IgE, histamine, and inflammation-related mediators MDC, TARC, RANTES, and TSLP compared with those in the Dfe treatment group. Moreover, TC downregulated the expression of the inflammatory chemokines RANTES and MDC in IFNγ/TNF-α-stimulated HaCaT cells. TC inhibited phosphorylated STAT1/3 and NK-κB subunits and nuclear translocation of NF-κB. It also suppressed the transcription of IFNγ, MCP-1, IL-6, and IL-8 in the IFNγ/TNF-α-stimulated HaCaT cells. TC and its constituents strongly inhibited the nuclear translocation of NF-κB, STAT1, and STAT3 and decreased the expression of inflammatory cytokines at the mRNA level.

Conclusion: Overall, TC extract alleviated AD-like symptoms by regulating anti-inflammatory factors *in vivo* and suppressing STAT1/3 and NF-κB signaling *in vitro*. These results suggest that TC extract and its components may be potential therapeutic drugs for AD.

Conflicts of Interest: The authors did not specify any links of interest.

000780 | Hesperidin ameliorates asthma by regulating the barrier function of epithelial cells

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Background: Asthma is a disease that causes inflammation and damage to the airways and is a hypersensitivity response to specific allergens such as fungus and pollen. Hesperidin is a flavonoid component found mainly in citrus fruits with antioxidant and anti-inflammatory properties. The effects of hesperidin on allergic diseases including asthma are unclear. Therefore, we aimed to determine the anti-allergic effects of hesperidin in mice having asthma induced by *Aspergillus* protease (AP) and ovalbumin (OVA).

Method: Mice with asthma induced by an mixture of AP and OVA were orally administered hesperidin for 13 days; next, the airway hyper-responsiveness (AHR) was evaluated. The levels of interleukin (IL) -4, IL-5, and IL-13 from bronchoalveolar lavage fluid (BALF) and total immunoglobulin E (IgE) from serum were measured by ELISA. Inflammatory cells including lymphocytes, neutrophils, eosinophils, and macrophages were counted in the BALF. Changes in reactive oxygen species (ROS) and intracellular junctions were confirmed by immunostaining of lung tissue.

Results: The AHR was significantly increased by methacholine treatment in the AP + OVA group compared to the normal group, but these changes were improved by the hesperidin treatment. The secretion levels of total IgE were suppressed by the hesperidin treatment in the serum of the AP + OVA group. Moreover, the hesperidin treatment decreased the secretion of inflammatory cytokines such as IL-4, IL-5, and IL-13 and the number of immune cells in the BALF of the AP + OVA group. In addition, the hesperidin-treated AP + OVA group showed improvement in cases increase ROS production and destruction of intracellular junctions.

Conclusion: These results suggest that hesperidin could potentially be used as a treatment to improve symptoms of asthma.

Conflicts of Interest: The authors did not specify any links of interest.

000275 | Alpha-melanocyte stimulating hormone modulates the functional activity of human peripheral blood eosinophils

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Background: Derived from the precursor molecule proopiomelanocortin (POMC) of the pituitary gland, the tridecapeptide alpha-Melanocyte stimulating hormone (α-MSH) not only mediates melanin production in pigmentation, but possesses a broad spectrum of immunoregulatory functions on immune cells. Concerning functional properties on basophil granulocytes it has previously been shown that α-MSH elicits an immunomodulatory effect via the melanocortin 1 receptor (MC-1R) through inhibition of secretion of proallergic cytokines in a variety of allergic diseases. However, in cutaneous disorders such as atopic dermatitis but also concerning the airways in allergic asthma and allergic rhinitis, eosinophil granulocytes are present in all affected tissues. They play a major role in inflammatory processes by means of degranulation, DNA-trapping, secretion of inflammatory cytokines, growth factors and reactive oxygenated species (ROS) amongst others. In the peripheral blood, higher counts of eosinophils are associated with disease severity as an indicator for their importance. The role of α-MSH in the context of eosinophil granulocytes and their activation have not yet been studied, therefore analyzing its potential in eosinophil mediated diseases such as atopic dermatitis deserves investigation. We hypothesize that α-MSH influences not only basophil function but also eosinophil function.

Method: Human eosinophils were isolated from peripheral blood and purified to over 98% purity by immunomagnetic negative selection. Functional effects of α-MSH were assessed through flow cytometry and apoptosis experiments.

Results: α-MSH significantly decreased surface expression of eosinophilic activation marker CD69. Moreover, α-MSH demonstrated a significant enhancement in late apoptotic eosinophil counts.

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Conclusion: These findings suggest that α-MSH displays an immunosuppressive function on eosinophils, therefore making them an attractive new target for the effective and specific treatment of patients with allergic rhinitis and atopic dermatitis.

Conflicts of Interest: The authors did not specify any links of interest.

000322 | Lacticaseibacillus rhamnosus GG cell components exert protective effects against cow's milk allergy

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Background: Evidence suggest that the probiotic *L. rhamnosus* GG (LGG) could facilitate immune tolerance acquisition in children with cow milk allergy (CMA). The mechanisms are not completely defined. It has been suggested that selected LGG components could modulate immune response. We aimed at evaluating the effects of LGG capsular polysaccharide (CPS) and of DNA sequence containing non methylated CpG motifs (ID35) on human enterocytes and on peripheral blood mononuclear cells (PBMCs) from children affected by IgE-mediated CMA.

Method: Human enterocytes (the Caco-2 cells), at 15-days post confluence, were stimulated with CPS (100 μg/mL) or ID35 (10 μg/mL) for 48 h. The effects on epithelial integrity (Trans-Epithelial Electric Resistance, TEER; and tight junction proteins expression), mucus production (mucin 2, MUC2) and enterocytes differentation (lactase) were assessed by Real Time PCR. PBMCs from CMA children ($n = 4$, all Caucasian, male, mean age 3.5, range 1–5 years) were stimulated with beta-lactoglobulin (BLG, 200 μg/mL) in the presence or in absence of CPS (100 μg/mL) or ID35 (10 μg/mL) for 48 h. Th2 cytokines (IL-4 and IL-13) and IL-10 production was assessed by ELISA; regulatory T cells (Tregs) activation was assessed by flow cytometry.

Results: The stimulation with ID35 promoted the integrity of the intestinal barrier, as demonstrated by the significant increase of TEER and of occludin and zonula occludens-1 expression in human enterocytes. Instead, the stimulation with CPS elicited an increase of MUC2 and lactase expression in human enterocytes. PBMCs stimulation with BLG resulted in a significant increase of IL-4 and IL-13 production. Stimulation with CPS and ID35 inhibited this increase. No modulation of IL-10 production and of Tregs activation was observed in PBMCs incubated with BLG. CPS and ID35 were able to elicit a significant increase of IL-10 production and of Tregs activation in PBMCs from children with IgE-mediated CMA.

Conclusion: Our data suggest a postbiotic activity elicited by LGG against CMA. This activity derives by the immunomodulatory action elicited by the CPS and the ID35 LGG components promoting tolerogenic effects.

Conflicts of Interest: The authors did not specify any links of interest.

000041 | Recombinase activating gene defects, phenotypic diversity

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Background: Mutations in recombinase activating genes 1 and 2 (RAG1/2) are associated with various clinical manifestations from asymptomatic to severe combined immunodeficiency (SCID). This study aims to present our series of patients with RAG mutations.

Method: This retrospective cross-sectional study was conducted in two centers. The patients who were followed for immunodeficiency with RAG mutations were included. Demographic data were obtained from the clinical records. The clinical status of the patients, treatment modalities, mutation types, laboratory findings, and survival rates were analyzed

Results: A total of 27 patients were included in the study with a mean age of 10.46 ± 13.87. There were 12 male and 15 female patients. The mean age at the time of diagnosis was 5.29 ± 10.74 years. The time between the onset of symptoms and diagnosis was 3.91 ± 8.39 years. RAG 1 mutation was observed in 18 (66%) patients and RAG 2 mutation was observed in 8 (29.7%). One patient whom clinically and immunologically has Omenn syndrome phenotype is waiting for genetic analysis. Twenty-six patients (96.1%) received IVIG treatment. Thirteen patients (48.1%) received bone marrow transplantation. In 18 patients BMT was indicated, 13 of them received BMT, one of them is in the conditioning for BMT and 4 of the patients waiting for an available donor. The BMT decision was due to Omenn syndrome in 9 patients, and severe combined immunodeficiency (SCID) for 9 patients. During the follow-up period, 7 (25.9%) patients died.

Conclusion: The clinical course of RAG mutation shows great variation. The same mutation in different patients may cause different clinical pictures. The present study is one of the largest series about the RAG mutations in the literature. Multicenter studies are needed to improve the knowledge for diagnosing and treating RAG-related immunodeficiencies.

Conflicts of Interest: The authors did not specify any links of interest.

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000717 | The level of advanced glycation end products in serum of patients with reactive arthritis

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Background: Reactive arthritis (ReA) is inflammatory arthritis that can affect large joints such as the knees, ankles, and spine and smaller joints such as toes, fingers, and heels. Reactive arthritis occurs in reaction to an infection by certain bacteria. Most often, these bacteria are in the genitals (Chlamydia trachomatis) or the bowel (Campylobacter, Salmonella, Shigella, and Yersinia). In addition, chronic inflammation might result in the production of advanced glycation end products (AGEs) that can lead to tissue damage through alterations of tissue protein structure and function.

The aim of the study was to evaluate the level of AGEs in patients with reactive arthritis (ReA C. trachomatis and ReA C. trachomatis + EBV).

Method: A cohort of 103 patients recruited with ReA (55 patients ReA C. trachomatis and 48 patients ReA C. trachomatis + EBV) was examined, including 42 females and 61 males, with a mean age of 29.4 ± 6.7 years. The control group comprised 51 healthy donors control (HDC) of appropriate age and gender All patients were performed anamnestic, clinical, general laboratory, biochemical, and immunological testing.

Results: The activity of the inflammatory process according to the DAREA index was 1.31 times higher in patients with ReA C. trachomatis + EBV (13.6 ± 1.45, $p < 0.05$) compared with the group of patients with ReA with C. trachomatis (9.71 ± 1.23). Apart from the joint syndrome in patients with ReA C. trachomatis + EBV, mild fever was observed in 53.5% of patients, and lymphadenopathy in 34.9%. In blood serum, a significant increase in the concentration of AGEs was observed at 4.07 times (215.6 ± 14.4 μg/mL; $p < 0.0001$) in patients with ReA C. chlamydia and in 6.60 times (341.1 ± 41.4 μg/mL; $p < 0.0001$) in patients with ReA C. trachomatis + EBV compared to HDC (52.1 ± 10.3 μg/mL). In patients with ReA C. trachomatis + EBV, the concentration of AGEs in the blood was higher by 1.62 times compared to patients with ReA only with C. trachomatis ($p < 0.01$). Thus, it is possible to conclude about significant changes in the level of AGEs in patients with arthritic disorders.

Conclusion: The increased concentration of AGE by 1.6 times in patients with ReA C. trachomatis + EBV, compared to patients with ReA C. trachomatis, may indicate a more intense inflammatory process with the probability of chronicity and formation complications.

Conflicts of Interest: The authors did not specify any links of interest.

000148 | Evaluation of the TGF-β isoforms in asthmatic patients

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Background: Asthma is a chronic disease of the respiratory tract, in which various cytokines are responsible for inflammation and remodelling. In the context of understanding the heterogenous pathogenesis and development of asthma and allergic diseases, researchers have been focusing on the transforming growth factor beta (TGF-β), in which the most studied isoform so far is the TGF-β1. The TGF-β is evidently one of the main cytokines involved in mediating inflammation and remodelling processes in bronchial airways. The main objective of the study was to evaluate the all TGF-β isoforms (TGF-β 1–3) serum levels in patients with bronchial asthma in comparison to healthy subjects. The secondary objective was to find the correlations between each isoform of TGF-β.

Method: 41 patients with asthma and 28 healthy volunteers were recruited. A complete medical examination, a personal survey and blood tests were taken. The spirometry was performed according to the ERS and ATS guidelines. The isoforms of TGF-β1, TGF-β2, TGF-β3 were determined by ELISA (Elabscience® ELISA kits). A statistical analysis using t-Student test, *U* Mann-Whitney test, Fisher test and Pearson's correlation test was done.

Results: In all subjects, healthy controls and patients, the highest serum level was observed for TGF-β1 isoform (1114.53 ± 828.57 pg/mL), the lowest for TGF-β3 (84.41 ± 53.32 pg/mL). There were statistically significant differences in TGF-β1 ($p = 0.037$) and TGF-β2 ($p = 0.034$) serum levels and insignificant difference in TGF-β3 serum level between asthmatics and controls ($p = 0.08$). The statistically significant correlation between TGF-β1 and TGF-β2 serum levels was observed in all the subjects (healthy and asthmatics; $p < 0.000$) and in patients ($p < 0.000$). We do not observe such correlation for healthy volunteers group ($p = 0.07$).

Conclusion: TGF-β serum levels were much more higher in patients with asthma in the comparison to healthy subjects, especially TGF-β1 and TGF-β2 isoforms seem to play a significant role in the pathogenesis of asthma. TGF-β3 seems to have a marginal significance in the asthma pathogenesis. The TGF-β1 and TGF-β2 isoforms significantly correlate. Suggesting these two cytokines may act simultaneously in the processes of inflammation and fibrosis in the airways.

Conflicts of Interest: The authors did not specify any links of interest.

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BIOMARKERS

000196 | Epidermal type 2 cytokines and lipid profiles at two months are strong biomarkers to predict the development of atopic dermatitis in infants

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Background: Atopic dermatitis (AD) is associated with immune dysregulation and epidermal barrier dysfunction, which significantly impairs quality of life. It is important to develop biomarkers that can identify infants at risk of developing AD for effective primary prevention before clinical skin manifestations appear.
Method: In a birth cohort study, we enrolled 161 Korean pregnant women and serially followed 74 infants in a risk group and 37 in a control group to observe AD development for 24 months. At ages of 2 months, skin tape strips (STS) were collected from the nonlesional area of the forearm. STS were subjected to lipidomic analyses by the LC-MS/MS and cytokines determination by Meso Scale Discovery U-Plex assay. We divided the infants into two groups with low or high levels of lipid profiles and cytokines according to cutoff points determined by Youden index and the receiver operating characteristic curve.
Results: Overall, 22/74 (29.7%) and 5/37 (13 5%) infants developed AD in the high risk group and the control group, respectively. In the univariable logistic regression analysis, clinical factors were not predictive of AD development. High levels of thymic stromal lymphopoietin (TSLP) and interleukin-13 (IL-13) at 2 months were 4.3 and 8.3 times more likely to develop AD by age 24 months (95% confidence interval [CI], 1.7–10.6 and 3.0–22.9, respectively). When lipid biomarkers (both high sphingomyelin with long-chain monounsaturated fatty acid [26:1] and low protein-bound ceramides with C22-sphingosine as a sphingoid base with long-chain fatty acid [C30] levels) were added to TSLP and IL-13 expression, odds ratios (95% CI) for future AD development reached 28.2 (95% CI, 5.7–139.5) and 51.3 (95% CI, 10.4–252.6), respectively.
Conclusion: Epidermal type 2 cytokines and lipid profiles at as early as age 2 months serve as strong biomarkers to identify infants at risk of developing AD in the future.
Conflicts of Interest: EB reports research grants with LEO Pharma and Sanofi Genzyme. EG reports 456 research grants with Sanofi Genzyme. DYML reports consulting with Boehringer- 457 Ingelheim, Evommune, Genetech, LEO Pharma, and Incyte; reports research grant with 458 Sanofi Genzyme. All other authors have nothing to report.

001335 | Analysis of differentially expressed microRNAs and their target genes in lung tissue from asthmatic individuals

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Background: Asthma is a chronic inflammatory disease of the airways with a complex pathophysiology, and it is one of the most prevalent chronic diseases. There is a broad spectrum of disease severity among individuals with asthma. Moreover, asthma includes several disease variants and can be stratified into phenotypes and endotypes, thus facilitating responsiveness to treatment, specify the pathogenic mechanisms, and anticipate risks. Reliable biomarkers to identify severe asthma patients and treat them properly, are needed. For this matter, microRNAs (miRNAs) can be a useful tool. The main aim of this study was to analyse the expression of miRNAs and their target genes in lung tissue.
Method: This study was performed with lung biopsy samples of sixteen asthmatic patients and twenty non-asthmatic individuals (control subjects). First, RNA was obtained and then was used to analyse the expression of seven miRNAs, previously analysed in serum, and seven target genes by reverse transcription and semi quantitative real time PCR (RT-qPCR). Statistical analysis included unpaired comparative tests (Student's *t* test and Mann-Whitney) and Spearman's (for non-parametric data) or Pearson's (for parametric data) correlation. Pathway enrichment analysis of deregulated miRNAs, for target gene selection, was performed using DIANA-miRPath v3.0 bioinformatic tool.
Results: Of the seven miRNAs analysed, three, hsa-miR-26a-1-3p, hsa-miR-376a-3p and hsa-miR-769-5p, were found differentially expressed in lung biopsies from asthmatic patients and non-asthmatic individuals. Expression levels of these three miRNAs were higher in asthmatic patients. Furthermore, *in silico* pathway analysis showed that these three miRNAs regulate signaling pathways that be related with asthma pathogenesis, from which some target genes were selected for study (*CDK6*, *CCND1*, *IGFBP3*, *COL3A1*, *COL6A2*, *COL1A1*, *COL6A3*). Of these, *IGFBP3* were identified as differentially expressed in lung biopsy samples from asthmatic patients and non-asthmatic individuals, showing greater expression in asthmatic patients.
Conclusion: In this study, we observed a significant altered expression of three miRNAs (hsa-miR-26a-1-3p, hsa-miR-376a-3p and hsa-miR-769-5p) and we conclude that could be used as markers to differentiate asthmatic patients and control subjects, and probably play a role in immune regulation of asthma pathogenesis.
Conflicts of Interest: The authors did not specify any links of interest.

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000457 | Use of recombinant ARA H 2 peanut allergen component for specific IgE detection

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*Presenting author: N. Ready

Background: Peanut allergy is one of the most common IgE-mediated food allergies, estimated to affect 0.2%–2.5% of children in developed countries. IgE-mediated allergic reactions to *Arachis hypogaea 2* (Ara h 2)-specific IgE presents a serious anaphylactic risk for sensitized individuals and is one of the most researched serological markers for the diagnosis of peanut allergy. Among the peanut component proteins, IgE antibodies to Ara h 2 have been identified as the major driver of clinically relevant allergy (sensitization found in 40%–90% of patients with clinical peanut allergy), and to a lesser extent Ara h 1, Ara h 3, Ara h 6, and Ara h 9. In this study, we measure the allergen-specific IgE profiles of suspected Ara h 2-allergic individuals using recombinant Ara h 2 component (rAra h 2) and compared to the whole-peanut extract.

Method: Commercially available rAra h 2 protein was purified from *Pichia pastoris* culture by HPLC gel filtration and conjugated to biotin. Serum samples were collected from 13 subjects with a clinical history of nut allergy or known specific IgE reactivity to whole peanut. Samples were tested for IgE to Ara h 2 allergen using the IMMULITE® 2000 3gAllergy™ Specific IgE assay. Specific IgE concentration values of ≥0.10 kU/L were considered positive. Precision and linearity evaluations were also performed.

Results: Out of the 13 samples examined, all demonstrated IgE sensitivity to both Ara h 2 and peanut whole extracts. In comparison to patient samples with nut allergy, the total agreement for rAra h 2 was 100%. Repeatability and within-lab precision at all levels tested were less than 10% over a 20-day study. Regression analysis was performed following linearity assessment and resulted in a slope 95% CI of 0.9251–1.0492 (range 0.3–24 kU/L).

Conclusion: Recombinant Ara h 2 peanut component demonstrates good agreement to whole-peanut extract in detection of specific IgE in peanut-positive patients. Precision and linearity assessments of rAra h 2 demonstrate high performance attributes in the IMMULITE 2000 3 g Allergy Specific IgE assay.

Conflicts of Interest: The authors did not specify any links of interest.

000466 | Efficacy and safety after one-year treatment with polymerized allergen immunotherapy mixture; real-world study

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Background: Allergen immunotherapy it's the only curative treatment for allergic diseases, and gives polysensitized patients a solution for they multiple allergies. New modified extracts without aluminum and other substances allows us to do faster build up protocols in a safer way and safe time a cost to the patient and to the hospitals. The aim of this study is to proof the safety of this new extracts and confirm via the real practice available biomarkers, the efficacy of the treatment in a short period of time.

Method: This is a retrospective real life study were we studied the evolution of the patients treated with polymerized allergen immunotherapy mixture to olive tree and grasses and olive tree and *Salsola kali*; we analysed the safety of a fast schedule in one day and the safety along the year treatment; we did skin prick test and blood test to total IgE and IgG4 and specific IgE and IgG4 at time 0 and time 1 (after 1 year), we also did a quality of life questionnaire (RQLQ) at time 0 and time 1.

Results: We recruited 30 patients, 50% men, with a mean age of the study population of 32.7 years old, all of them had rhinitis and 80% also had allergic asthma. The incidence of adverse reactions was 0.5 each 100 injections; this represent 2 adverse reactions during the study one was sleepiness after 4 months of receiving the immunotherapy, and the other one was an asthma exacerbation at the second dose, all of them recovered. Skin prick test after a year had decrease 35.7% for *Phleum pratense*; 28.5% for *Olea europaea* and 20% for *Salsola kali*. IgE has decrease 7.6% for *Phleum pratense*; 61.25% *Olea europaea* for and 27.1% for *Salsola kali*. IgG4 increased 34% *Phleum pratense* for; 85.2% *Olea europaea* for and 50% for *Salsola kali*. RQLQ diminished in time 1 for patients treated with *Phleum pratense* + *Olea europaea* 54.6% and those treated with *Olea europaea* + *Salsola kali* diminished 38%.

Conclusion: We present a real life study which demonstrate safety of a one day step up protocol and utility of the blood and skin prick test to follow up our patients treatment, also endorse the importance of doing a quality of life questionnaire for a more stretch follow up. Although it's a small cohort the results are very promising to treat in a fast and safe way, polysensitized patients.

Conflicts of Interest: The authors did not specify any links of interest.

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001450 | Characteristic analysis of asthmatic airflow using computed tomography images incorporating computational fluid dynamics

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Background: Asthma is a heterogeneous disease with a variety of different phenotypes and endotypes. Pulmonary function testing (PFT) has been an essential tool for the diagnosis and management of asthma. In particular, spirometric parameters can provide information on fixed airflow obstruction (FAO) usually associated with difficulty in treatment, an accelerated decline in lung function, and excess morbidity. Therefore, FAO is known as one of the underlying mechanisms attributed to severe asthma. Quantitative computed tomography (QCT) and its post-processing become a useful tool to derive more detailed airway structure, parenchymal function, as well as computational flow features.

Method: In this study, we aimed to demonstrate structural and functional differences between asthma with FAO and asthma without FAO. Two sets of the QCT images at inspiration and expiration of asthmatic patients without FAO (group A, $N = 40$) and with FAO (group B, $N = 12$) were employed. Structural and functional QCT-derived variables of airways were extracted, including hydraulic diameter (D_h) and airway wall thickness (WT) for structural analysis and functional small airway disease percentage (fSAD%) and emphysema percentage (Emph%) to assess lung function. A one-dimensional (1D) computational fluid dynamics (CFD) model considering airway deformation was applied to compare the pressure distribution and hysteresis curve between the two groups.

Results: For QCT-derived structures, the airway wall in small regions was thicker in group B during inspiration. The 1D CFD-derived pressures showed strong correlations with the PFT-based metrics, while QCT-derived structural variables were not correlated. The computational pressure indicated that the narrowed airways of Group B caused a greater pressure drop and workload during breathing.

Conclusion: In conclusion, asthmatics with and without FAO showed different lung functions, airway structures, and pressure distribution in small airways which may improve our understanding of the irreversible airway obstructive mechanism and aid in the development of future therapies for this type of disease.

Conflicts of Interest: The authors did not specify any links of interest.

001007 | Assessment of systemic inflammation and asthma control in asthma patients with elevated BMI

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Background: Systemic inflammation may impact asthma in patients who have concurrent overweight and obese (Ob) status.

Method: 72 patients with asthma with overweight and Ob status (Group 1) were compared to 43 patients with non-overweight or Ob asthma (Group 2). All patients had uncontrolled moderate persistent asthma. 20 healthy subjects served as the control group. Clinical assessment included general clinical blood tests, lipid spectrum, the level of eosinophil cationic protein (ECP), and the level of C-reactive protein. The composition of the body was assessed by impedance measurement, assessing the percentage ratio of fat and lean body mass index. Asthma assessments included peak flow and questionnaires including the Asthma Control Test (ACT), and a physical activity assessment test.

Results: 100% of the patients of Group 1 were overweight or obese (BMI 32.69 ± 0.72 kg/m2). 100% of patients in Group 2 had a normal body mass (BMI was 21.67 ± 0.35 kg/m2). Patients in the comparison group had an average BMI of 20.95 ± 0.47 kg/m^2. A correlation was established between BMI and the severity of the course of asthma ($r = 0.71$), $p < 0.001$. Patients in Group 1 had a significantly higher level of ECP, 33.11 ± 4.49 ng/mL versus 16.6 4 ± 2.11 ng/mL in Group 2, and 10.15 ± 1, 12 ng/mL in the control group ($p < 0.001$ and $p < 0.001$, respectively). The results of the ACT test in patients of Group 1 was 9.98 ± 0.99 points, and in patients of Group 2, was 17.54 ± 0.69 points. A direct correlation was established between the severity of the course of asthma and levels of ECP ($r = 0.71$; $p < 0.05$).

Conclusion: Uncontrolled asthmatic overweight and obese patients have a higher level of eosinophilic cationic protein than patients with a normal body mass index, a more severe course of asthma and more systemic inflammation, which may affect the control of their asthma.

Conflicts of Interest: The authors did not specify any links of interest.

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000560 | Fecal EDN: A novel biomarker in acute FPIES?

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*Presenting author: A. Lemoine

Background: Eosinophil-derived neurotoxin (EDN) is a protein shown to be increased in serum after activation of eosinophils in atopic diseases, but is poorly studied in matrices such as stools. Activated eosinophils have been evidenced in blood after acute reaction of Food Protein Induced Enterocolitis Syndrom (FPIES), in association with an intestinal inflammation. The goal of our study was to monitor fecal EDN in FPIES patients over time.

Method: Stool samples were collected from 38 children with FPIES and from 39 age-matched controls in a longitudinal prospective study in France between January 2020 and 2023. Fecal EDN concentrations were compared between patients and controls and between patients before and after oral food challenge (OFC; some patients had several OFC at different ages). After OFC, several stool samples were collected within the following week, and only the highest value of EDN per OFC was retained for analysis. Mann–Whitney U-tests were used to compare continuous variables between two groups. The study was approved by a national ethics committee.

Results: 39 stool samples of 37 patients were analysed before OFC (allergic/stable: AS-FPIES) and 14 samples during the first 48 h after OFC for 11 patients (allergic/acute: AA-FPIES). 20/38 patients became tolerant during the study period (tolerant: T). EDN was significantly higher in allergic/acute group than in allergic/stable group of FPIES (AA-FPIES: 5502 ng/mg dry feces [min–max: 1156–60983]) versus AS-FPIES: 2405 ng/mg dry feces [192–19496], $p < 0.01$), with a mean fold change of 12 before and after acute allergic reaction. Allergic/stable patients and healthy controls (HC) had similar EDN levels (HC: 1723 ng/mg dry feces [106–19455], $p = 0.4$). Comparison between allergic/stable and tolerant patients revealed a significant decrease in level of EDN associated with acquisition of tolerance (T: 1132 ng/mg dry feces [135–8419]), $p = 0.04$), without correlation with age ($r = -0.4$, $p = 0.1$).

Conclusion: Our results suggest that increased EDN in stools is a biomarker of acute allergic reaction in FPIES patients and that its decrease is predictive of tolerance acquisition. Further studies are necessary to confirm whether EDN could be used as a marker to predict acquisition of tolerance, and thus limit the need of OFC for follow-up.

Conflicts of Interest: The authors did not specify any links of interest.

001654 | Analysis of tolerance to hake and sole in a pediatric population with fish allergy after achieving tolerance to tuna. Predictive biomarkers

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*Presenting author: S. M. Ramos-Rodriguez

Background: To assess tolerance at oral food challenge (OFC) to hake and sole in fish allergic children who have achieved tolerance to tuna and their subsequent tolerance at home. To analyze possible predictive biomarkers.

Method: Prospective study of 145 patients with fish allergy [clinical suspicion, positive skin prick test (SPT) and positive specific-IgE (s-IgE)] between 2014 and 2020. S-IgE to hake and sole, s-IgE/total IgE(t-IgE), Gad-C1-sIgE, Gad-C1-sIgE/t-IgE were performed 6 months before OFC. OFC accumulative dose >12 years: 27 g, <12 years 18 g. If hake was tolerated, OFC to sole was performed. Follow up telephone calls to assess tolerance at home.

Results: 145 children with fish allergy. OFC carried out: hake 80, sole 59. Median Gad-C1-sIgE 3.69 KUI/L (0.9–10.8), median Gad-C1-sIgE/t-IgE 0.65 (0.2–1.81); median hake s-IgE 4.11 KUI/L (1.46–12.2), median sole s-IgE 2.6 KUI/L (0.9–8.73). At OFC to hake, 46.3%(37) presented reactions: grade-1 16.2% (6), grade-2 24.3%(9), grade-3 29.7% (11), grade-4 29.7% (11). At OFC to sole, adverse events were elicited in 39% (23): grade-1 30.4%(7), grade-2 30.4% (7), grade-3 17.4%(4), grade-4 17.4% (4). Statistically significant association between hake s-IgE/t-IgE, Gad-C1-sIgE/t-IgE and OFC to hake was found. Hake s-IgE/t-IgE median was 0.80% in the non-tolerant group, compared to 0.25% in the tolerant group ($p < 0.001$). ROC curves of hake: AUC = 0.74, hake s-IgE/t-IgE 0.49 (S74%, E71%), Gad-C1-sIgE/t-IgE 0.59, AUC = 0.72 (S59%, E79%). ROC curves of sole: AUC = 0.72 (S86%, E58%), Gad-C1-IgE 0.91 KUI/L. Home reaction: hake 44.1% (19), grade-1 75% (14), grade-4 25% (5). Sole 11.1% (4), grade-1 75% (3), grade-2 25% (1). 30% introduced hake and 45% sole in the diet. No association was found between biomarkers and reactions at home. The reactive group had a higher median Gad-C1-sIgE than the tolerant group.

Conclusion: In our population, 30% of children allergic to fish can introduce tuna and hake into their diet. It is mandatory to perform OFC to fish. Most of the non-tolerant patients had anaphylaxis in OFC, as well as a high percentage at home. It is important patient's follow up and home reactions advice. Hake s-IgE/t-IgE ≤0.49 KUI/L, Gad-C1-sIgE/t-IgE ≤0.59 for hake and Gad-C1-sIgE ≤0.91 KUI/L for sole can help in the prediction of OFC tolerance. We did not find biomarkers that allow predicting reactions at home.

Conflicts of Interest: The authors did not specify any links of interest.

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001217 | Cytokines and obstructive sleep apnea in childhood

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*Presenting author: E. D'Auria

Background: Childhood obstructive sleep apnea (OSA) is characterized by prolonged partial and/or intermittent complete upper airway obstruction that disrupts normal ventilation and sleep pattern. In OSA-affected children obesity, growth retardation, cardiovascular anomalies as well as systemic inflammation are frequently reported. OSA prevalence ranges from 1.2% to 5.7%. Plasma cortisol levels have been reported as increased/reduced or unaffected in children and in adults with OSA. Similar patterns for C-reactive protein and plasma pro-inflammatory cytokines (IL-1, Il-6, TNF-α, IL-1β) are reported. We, as well as other Authors, have studied the in vitro production of these cytokines in a group of 43 children affected by OSA of different severity and controls.
Method: All 42 children were admitted to our sleep laboratory and subjected to complete nocturnal polysomnography (PSG). At 2.00 and 8.00 am blood samples were collected through a venous catheter that was left in the vein from the beginning of the PSG recording for evaluation of cortisol levels and for in vitro cultures.
Results: Plasma cortisol levels were measured by a radioimmunoassay technique. The values in the OSA children didn't vary significantly as compared to the control children that had no PSG abnormalities. For IL-1β production no differences were observed in samples drawn from moderate/severe-OSA (MS-OSA) at 2.00 am and 8.00 am. A slightly significant reduction of mean TNF-α production was found in MS-OSA as compared to mild-OSA (m-OSA) after 24 h of culture with PHA by PBMC at 8.00 am. At 2.00 am no difference in TNF-α in vitro production by unstimulated and PHA stimulated culture was observed between OSA patients and controls. At 8.00 am TNF-α production was significantly suppressed in MS-OSA but not in m-OSA as compared to controls. The in vitro production of IL-1β by PBMC at 2.00 am and at 8.00 am was not different between OSA children and controls.
Conclusion: Our results differ partially from those reported in adults patients and in other children cohorts. This may be related to the different severity of their OSA. The in vitro culture results may reflect the culture conditions (PHA versus LPS; PBMC versus whole blood). We agree with other authors that new biomarkers for evaluating the systemic effects of this disorder of breathing should be investigated.
Conflicts of Interest: The authors did not specify any links of interest.

COMPARATIVE VETERINARY ALLERGOLOGY

000859 | AIT with culicoides recombinant allergens is associated with a decreased in vitro sulfidoleukotriene release against these allergens in treated compared to non-treated horses

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*Presenting author: S. Jonsdottir

Background: Insect bite hypersensitivity (IBH) is an IgE-mediated dermatitis of horses caused by bites of insects of the genus *Culicoides*. IBH does not occur in Iceland due to absence of the causative insects but has a high incidence (>50%) in horses imported from Iceland to countries where *Culicoides* are endemic. To study the potential of a preventive AIT against IBH, Icelandic horses have been subject to AIT with a pool of 9 *Culicoides* r-allergens before and yearly after export from Iceland. First results indicate that AIT did not prevent of IBH. Aim of the study presented here is to compare the sensitization level of AIT-treated horses to non- treated horses using an *in vitro* sulfidoleukotriene (sLT) release assay.
Method: In the third summer following import, 16 Icelandic horses subject to AIT that developed IBH (AIT-IBH) and 7 that remained healthy (AIT-H) were tested in a sLT release assay with 8 of the 9 *Culicoides* r-allergens included in the AIT and 1 *Culicoides* r- allergen not included in the AIT. Their response was compared to 4 IBH-affected (K-IBH) and 6 healthy (K-H) horses imported at the same time from Iceland as well as to 25 IBH-affected (IBH) and 15 healthy (H) horses that have lived in Switzerland for >5 years. Peripheral blood leukocytes were stimulated with the insect cell-expressed *Culicoides* r-allergens for 40 min at 37°C. Released sLT were determined by ELISA. Kruskal-Wallis One-Way ANOVA was used to compare the results within IBH groups or H groups, respectively.
Results: The AIT-IBH group had a significantly lower sLT release than the non-treated IBH group for 7 of the 8 AIT allergens, while the K-IBH group had similar sLT values to the IBH group. The sLT release of the AIT-IBH group was similarly high as the other IBH groups with the r-allergen not included in the AIT. Comparison of the 3 healthy groups revealed no significant differences. Comparison of IBH and H horses within each group, showed that K-IBH horses had significantly higher sLT values than K-H horses for 7 of the 9 allergens, IBH horses for 8 of the 9 allergens, while the AIT-IBH horses only had increased sLT values with 2 AIT r-allergens and the one allergen not included in the AIT ($p < 0.05$).
Conclusion: Preventive AIT against IBH is associated with a decreased reactivity in the sLT release assay with the vaccine allergens. Further studies are needed to understand why the preventive AIT did not decrease the incidence of IBH in horses imported from Iceland.
Conflicts of Interest: The authors did not specify any links of interest.

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000718 | Sulfidoleukotriene release assay with recombinant culicoides allergens for diagnosis of insect bite hypersensitivity in horses

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*Presenting author: E. Marti

Background: Insect bite hypersensitivity (IBH) is an IgE-mediated dermatitis of horses caused by bites of insects of the genus *Culicoides*. IBH-affected horses have increased serum IgE to numerous *Culicoides* r-allergens. However, presence of serum IgE levels shows sensitisation but does not demonstrate allergy. Functional in vitro assays such as basophil activation tests, histamine or sulfidoleukotriene (sLT) release assays are more closely related to clinical allergy than IgE serology. Only whole body extracts (WBE) of laboratory-bred *Culicoides nubeculosus* are available commercially but this *Culicoides* species is found rarely in the environment of horses. This probably explains the previously published relatively low sensitivity (78%) of a sLT release assay for diagnosis of IBH. *Culicoides obsoletus*, a species present much more frequently in the environment of horses cannot be bred under laboratory condition. Preparation of *Culicoides obsoletus* extracts is thus very cumbersome and lacks standardization. *E.coli* expressed *Culicoides obsoletus* allergens work well for IgE serology but not for cellular assays, including sLT release assays. The most relevant *Culicoides* allergens have thus been expressed in insect cells and purified. Aim of the present study was to investigate if they are useful in functional *in vitro* tests such as the sLT release assays for *in vitro* diagnostics of IBH and future studies on allergen immunotherapy with *Culicoides* allergens.

Method: Peripheral blood leukocytes of 30 horses (18 IBH/ 12 healthy controls) were stimulated with *Culicoides nubeculosus* (Cul n) and *Culicoides obsoletus* (Cul o) WBE and 8 insect cell -expressed Cul o r-allergens for 40 min at 37°C. Released sLT were determined by ELISA. Data were analysed using ROC analysis and the AUC was determined for each of the tested allergens.

Results: Comparison of both WBE extracts confirmed that Cul o is more relevant for IBH than Cul n, as the AUC of Cul o was higher. Most of Cul o r-allergens had high AUC, in particular Cul o 9, Cul o 8 and Cul o 3 (Table 1).

Conclusion: Insect cell-expressed Cul o r-allergens can be used instead of Cul o WBE to improve in vitro diagnostics of IBH and to monitor allergen immunotherapy of IBH.

Table 1. Area Under Curve (AUC) analysis of the sulfidokeukotriene assay with Culicoides nubeculosus (Cul n) or Culicoides obsoletus (Cul o) whole body extracts (WBE) or with insect cell-expressed Cul o recombinant allergens. The assay was performed in 18 horses affected with insect bite hypersensitivity and 12 healthy control horses

Allergen	AUC	Standard Error	Z-Value to Test AUC > 0.5	Upper 1-Sided P-Value	95% Confidence Limits Lower	Upper
Cul. n WBE	0.8935	0.0756	5.208	0.0000	0.6073	0.9744
Cul o WBE	0.9491	0.0413	10.878	0.0000	0.7646	0.9898
Cul o 9	0.9769	0.0246	19.402	0.0000	0.8246	0.9972
Cul o 8	0.9560	0.0442	10.323	0.0000	0.7119	0.9940
Cul o 3	0.9537	0.0465	9.765	0.0000	0.6985	0.9937
Cul o 7	0.9259	0.0513	8.300	0.0000	0.7278	0.9814
Cul o 2P	0.8866	0.0600	6.441	0.0000	0.6942	0.9607
Cul o 11	0.8681	0.0851	4.326	0.0000	0.5707	0.9641
Cul o 5	0.8565	0.0792	4.498	0.0000	0.6025	0.9530
Cul o 1P	0.7593	0.0856	3.029	0.0012	0.5359	0.8833

Conflicts of Interest: The authors did not specify any links of interest.

DERMATOLOGY 1

000809 | Remibrutinib (LOU064) showed good stability of response in patients with chronic spontaneous urticaria: A novel exploratory analysis of data from the phase 2B study

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*Presenting author: M. Maurer

Background: Chronic spontaneous urticaria (CSU) is characterised by recurrent wheals (hives) and/or angioedema for more than 6 weeks. Intermittent worsening of CSU can have a major impact on patients' well-being. Remibrutinib (LOU064) is a novel, highly selective, potent, covalent, oral Bruton's tyrosine kinase (BTK) inhibitor that has shown clinical efficacy and a favourable safety profile for up to 12 weeks in a Phase 2b dose-finding study in CSU patients. Here, we explore the stability of response to remibrutinib during the treatment period in Phase 2b study.

Method: In the remibrutinib Phase 2b study, 311 patients with CSU were equally randomised to remibrutinib 10 mg once daily (q.d.)/35 mg q.d./100 mg q.d./10 mg twice daily (b.i.d.)/25 mg b.i.d./100 mg b.i.d. or placebo for 12 weeks. The number (proportion) of patients experiencing worsening during the treatment period was assessed. A worsening episode was defined as a temporary increase of rolling weekly Urticaria Activity Score (rUAS7) ≥10 (based on minimal clinically important difference for UAS7) from the lowest rUAS7 achieved before the episode. The end of the worsening episode was defined as the day, when rUAS7 dropped back to ≤9 points above

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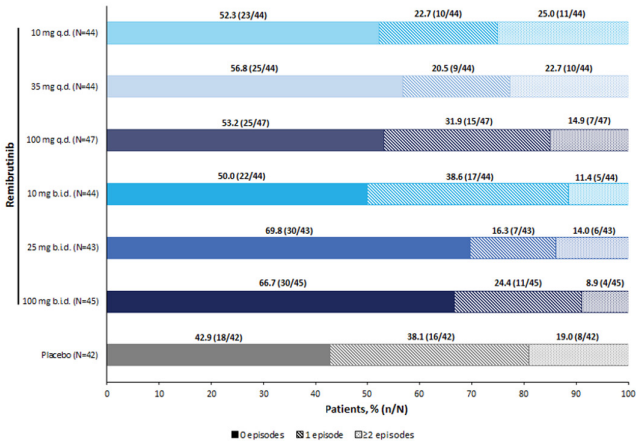
the initial lowest rUAS7 before the episode. The rUAS7 was calculated as the UAS7 for every possible set of 7 consecutive days across the study treatment period. Patients captured their daily UAS in an e-diary.

Results: A higher proportion of patients were free of worsening episodes with remibrutinib: 10 mg q.d. 52.3%, 35 mg q.d. 56.8%, 100 mg q.d. 53.2%, 10 mg b.i.d. 50.0%, 25 mg b.i.d. 69.8%, 100 mg b.i.d. 66.7% versus placebo (42.9%) during the treatment period (**Figure**). A lower proportion of patients experienced 1 or ≥2 worsening episodes with remibrutinib versus placebo during the treatment period.

Conclusion: In this exploratory analysis, more patients were free of urticaria worsening in all remibrutinib treatment arms compared with placebo. The treatment response remained stable during the study, which may have a favourable impact on patients' lives.

Figure: Percentage of patients experiencing number of worsening episodes based on rUAS7, by treatment group, during 12-week study treatment



b.i.d., twice daily; *N*, total number of patients in each arm; *n*, number of patients experiencing number of worsening episodes based rUAS7; q.d., once daily; rUAS7, rolling weekly Urticaria Activity Score.

Conflicts of Interest: MM is or recently was a speaker and/or advisor for and/or has received research funding from Amgen, Allakos, Aralez, AstraZeneca, Celldex, FAES, Genentech, GIInnovation, Kyowa Kirin, Leo Pharma, Menarini, Novartis, Moxie, MSD, Roche, Sanofi, Third Harmonic, UCB, and Uriach. AGA reports roles as a Medical Advisor for Uriach Pharma, Sanofi and Genentech, Novartis, FAES, GSK, AMGEN, Thermo Fisher and has research grants supported by Uriach Pharma, Novartis and Instituto Carlos III- FEDER; she also participates in educational activities for Uriach Pharma, Novartis, Genentech, Menarini, LEO- PHARMA, GSK, MSD, Almirall, AVENE and Sanofi. VJ has consulted and/or advised and/or received research funding from Pediapharm/ Medexus, Sanofi/ Regeneron, Bausch, Novartis, Abbvie, Aralez, ALK, Celgene, Amgen, Leo Pharma, Mylan, Pfizer, Covis Pharma, Galderma, Eli Lilly, and AsteraZeneca. AR has worked as a consultant or speaker for AbbVie, Bioderma, Celgene, Chema Elektromet, Eli Lilly, Galderma, GlaxoSmithKline, Janssen, Leo Pharma, Medac, Menlo Therapeutics, Novartis, Pierre-Fabre, Sandoz, Sanofi Aventis, and Trevi Therapeutics; and participated as principal investigator or subinvestigator in clinical trials sponsored by AbbVie, AnaptysBio, Argenx, Corbus, Drug Delivery Solutions Ltd, Galderma, Genentech, Janssen, Kymab Limited, Leo Pharma, Menlo Therapeutics, MetrioPharm AG, MSD, Novartis, Pfizer, and Trevi Therapeutics. SH and CO are employees of Novartis Pharma AG, Basel, Switzerland. PW is an employee of Novartis Ireland Limited.

000725 | Quality of life in patients with histaminergic angioedema

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*Presenting author: G. Salas

Background: Isolated recurrent histaminergic angioedema (IAE) is a subgroup of chronic spontaneous angioedema, however differences have been described between IAE and AE with urticaria (AE-U). We aimed to explore and compare quality of life in both entities.

Method: We collected 38 patients with AE-U (21 female and 17 male, mean age of 50.4 years) and 49 patients with IAE (34 female and 15 male, mean age of 54.1 years) followed at the Gregorio Marañón University Hospital between 2017 and 2022. None were treated with omalizumab. The mean annual number of AE episodes were 3.41 (4.5) in IAE patients and 24.3 (51.2) in AE-U group. They were asked to complete two questionnaires: AE specific AE-QoL answered by all patients and the general health SF-36 answered by all but 5 patients of IAE. SF-36 consists of 36 questions and eight domains (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health). A higher score indicates lower health state (range: 0%–100%). The AE-QoL is formed by 17 items grouped into four dimensions: functioning, fatigue/mood, fears/shame and food. A higher score indicates lower quality of life (range: 0%–100%).

Results: The SF-36, in both groups, revealed vitality/fatigue and general health as the most affected domains: 62.6% (SD: 28) versus 58.9% (SD: 18.8) and 57.5% (SD: 23.8) versus 63.8% (SD: 21.8) in AE-U and IAE patients (n.s.). The physical and social function with 83.3% (SD: 28.4) and 93.6% (SD: 11.2) in AE-U and 84.1% (SD: 13.6) and 87.5% (SD: 21.4) in the IAE (n.s.) were less altered. AE-QoL total score measured 29.4% (SD: 15.0) and 16.4% (SD: 15.8) in AE-U and IAE respectively (n.s.). The most affected domains in both groups were fears/shame (33.7% (SD: 26.7) versus 26.9% (SD: 23.9) and fatigue/mood (16.4% (SD: 25.5) versus 15.5% (SD: 20.9) in AE-U and IAE. Food and functioning were less altered, 15.1% (SD: 43.7) versus 8.7% (SD: 20.8) and 11.2% (SD: 26.6) versus 5.9% (SD: 13.6). No significant differences were found.

Conclusion: The most affected domains in IAE and AE-U were fears/shame and fatigue/mood in AE-QoL and vitality/fatigue and general health in SF-36 questionnaire. No significant differences were found

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between the two groups in terms of quality of life, despite the different number of attacks.

SF-36	AE-U Mean (%), sd	IAE Mean (%), sd	*p-value*
Physical functioning	83.3 (28,4)	93.6 (11,2)	0,128
Role-physical	68.1 (42,7)	80.68(34,46)	0,298
Bodily pain	73.2 (27,7)	78.25(21,14)	0,3157
General health	57.5 (23,8)	63.75 (21,8)	0,532
Role-emotional	62.9 (48,4)	84.8 (34,1)	0.082
Mental health	74.9 (15,6)	68.1 (18,2)	0,202
Vitality/fatigue	62.6 (28)	58.9 (18,8)	0,388
Social functioning	84.1 (13,6)	87.5 (21,4)	0,945

	AE-U	IAE	*p-value*
AE QoL, m (sd)	29,44 (15,09)	16,4 (15,79)	0.4237
Functioning (%)	11.18(26,56)	5.86 (13,64)	0.229
Fatigue / mood (%)	16.44 (25,46)	15,51 (20,97)	0.851
Fears / shame (%)	33,77 (26.7)	26,87 (23,90)	0.208
Food (%)	15,13 (43,75)	8,67 (20,76)	0.225

Conflicts of Interest: The authors did not specify any links of interest.

000145 | Severe atopic dermatitis treated with anti-IL-4RA reduces the prevalence of psychological burden in alexithymic and non-alexithymic patients

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*Presenting author: R. Zunno

Background: Atopic dermatitis (AD) has been associated with higher rates of perceived stress, anxiety and depression. Data in literature show that anti-IL-4Rα, a monoclonal antibody approved for AD treatment, reduces psychological burden in AD. Some studies show that alexithymia is prevalent in mental and physical chronic illness. The aim of this study is to evaluate whether alexithymia affects the efficacy of anti-IL-4Rα in reducing the psychological burden in AD patients.

Method: 100 patients (age 18–83, mean 36.2 ± 14.1; 54 males, 46 females) affected by AD were treated with anti-IL-4Rα. At beginning of treatment and after 16 weeks, clinical, quality of life (QoL), and psychological disorder scores were evaluated. The prevalence of alexithymia was also evaluated.

Results: QoL, perceived stress, anxiety and depression improved after 16 weeks with anti-IL-4Rα treatment, despite the high prevalence of alexithymia (78% of the sample; Table 1). In alexithymic patients the symptoms of itching are reduced to a greater extent than in non-alexithymic patients (Figure 1).

Conclusion: This study shows that whereas the itching is negatively correlated with alexithymia, there are no differences in the response to biological therapy for AD between alexithymic and non-alexithymic patients.

TABLE 1 Presence of alexithymia or borderline alexithymia according to the TAS-20 score in different levels of psychological variables. *EASI, DLQI, NRSP, PSS, HADS-A, HADS-D, C-SSRS. Bold p values indicate statistical significance.*

	Baseline (T0)			T1		
	Non-alexithymic patients mean ± SD	Alexithymic patients, mean ± SD	p	Non-alexithymic patients mean ± SD	Alexithymic patients, mean ± SD	p
EASI	27,71 ± 11,35	31 ± 9,91	0.0176	0,33 ± 0,57	2,5 ± 2,08	0.3358
DLQI	15,3 ± 7,15	17,46 ± 5,1	0.0538	6,05 ± 6,88	4,45 ± 3,24	0.1251
NRSP	8,25 ± 1,65	8,27 ± 1,83	0.7323	3,1 ± 2,47	2,07 ± 1,54	0.0330
PSS	21,55 ± 9,25	21,94 ± 7,97	0.2299	14,28 ± 5,3	13,48 ± 4,76	0.8254
HADS-A	10,78 ± 6,07	10,76 ± 5,25	0.4880	5,72 ± 2,97	4,8 ± 3,39	0.1504
HADS-D	9,33 ± 5,34	10,8 ± 4,53	0.0075	3,94 ± 2,69	3,73 ± 2,65	0.5531

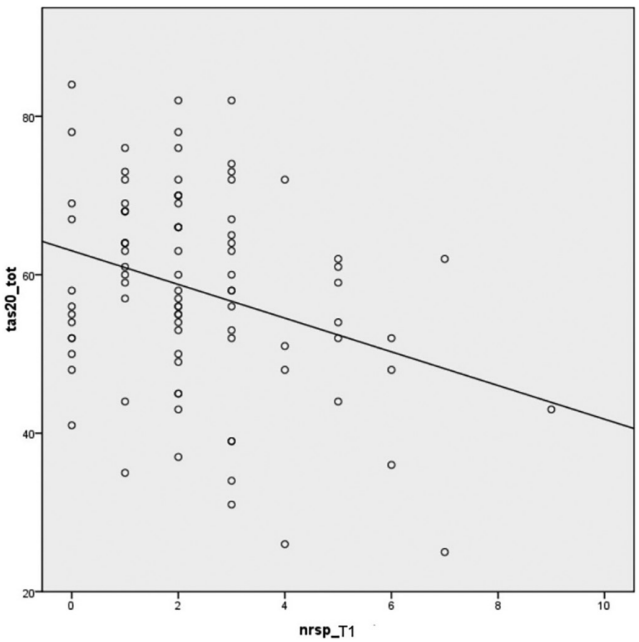

FIGURE 1 Correlation between TAS-20 and pruritus NRS (NRSP) at T1. *TAS-20 and NRSP are negatively related: higher values of alexithymia correspond to less intense values of itching (r = −0.230; p = 0.029).*

Conflicts of Interest: The authors did not specify any links of interest.

000238 | Diagnostic criteria of angiotensin-converting enzyme inhibitors (ACEI) induced bradykinin angioedema: The experience from the French National Reference Center for angioedema

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Background: The estimated frequency of angioedema as a side effect of ACE inhibitor (ACEi) treatment varies between 0.1% and 1% of treated patients. There are evidences that increased levels of

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bradykinin have an important role in the pathophysiology of some of these AE. These ACEi- AE are very severe and life threatening. Spontaneous mast cell angioedema (MC-AE) are like spontaneous urticaria common in the general population and can occur in patients taking an ACEi. MC-AE are not very severe and rarely endanger the vital prognosis. Spontaneous MC-AE and ACEi-AE do not have the same prognosis nor the same impact, i.e. the definitive contraindication of ACEi. Our center has been receiving patients with suspected ACEi-induced BK-AE for several years. A significant proportion of patients labeled as ACEi-AE in the emergency room are in fact spontaneous MC-AE that often become chronic. In this study, we propose to compare ACEi-AE with spontaneous MC- AE initially reported to ACEi and then to propose diagnostic criteria for ACEi-AE.

Method: It is a multicenter retrospective study from 2019 to 2022 conducted in 2 CREAK centers. We included every patients addressed for suspicion of ACEi–AE with a follow-up of at least 12 months. Diagnostic of spontaneous MC-AE was excluded if AE frequency does not improved with anti-histamines long-term prophylaxis. C1Inh assays have been performed for every patient.

Results: 126 patients were addressed for suspicion of ACEi-AE. Of these, 99 could be included in the study. The diagnosis of ACEi-AE was retained in 49 patients and of spontaneous MC-AE in 50. 1 acquired C1Inh deficiency and 1 HAE-PLG were identified. ACEi-AE: The median age of patients at the date of the consultation was 71 years old. 4% have a history of AE before ACEi start. The main AE localization were tongue (60.4%) and larynx (18.75%). The median duration of ACEi-AE was 27 h. 85% of ACEi-AE patients went to emergency room for an attack. 23.4% were hospitalized in intensive care unit. Three patients were intubated. One patient died. ACEi was stopped for every patients. Three patients (6%) have an attack after ACEi disruption. It was a single attack within less than 3 months of ACEi stopping. After 3 months without ACEi, no patients relapsed with a median follow up of 12 months.

Spontaneous MC-AE: Patients with MC-AE have a median age of 53.5 years old. 22.5% of them have a history of AE before ACEi start. Tongue AE occurred in 55% of patients. The median duration of MC-AE was 18 h. ACEi was stopped for every patients and during all the follow up (median duration: 24 months). 30.6% had hives in the same period as AE and 12.24% during the follow up. 47% of patients have had many AE attacks after ACEi disruption. Every patients improved with anti-histamines long-term prophylaxis.

Conclusion: Based on the characteristics of these angioedema, we can propose diagnostic criteria for AE with IEC. The main ones are: the absence of angioedema before starting an ACEi, and the absence of relapse after 3 months of stopping the ACEi.

Conflicts of Interest: Astra Zenaca GSKNovartis Blueprint Biocryst Behring Takeda.

001438 | Allergy profile for patients receiving dupilumab for severe atopic dermatitis

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Background: Dupilumab is a biological treatment used increasingly for the treatment of severe atopic dermatitis (AD) in both adults and children. Severe AD is a risk factor for other atopic disease including food allergy (FA), airborne allergies and atopic asthma (AA). We describe the allergy profile and point prevalence of IgE mediated FA and AA in a large cohort of patients who are receiving or have received Dupilumab for severe AD in a single UK centre (Sheffield Children's Hospital).

Method: The list of all patients who have been prescribed Dupilumab as of December 2022 (not including patients currently taking part in research studies on Dupilumab) was obtained from the hospital pharmacy records. Data about current AA, IgE mediated FA and airborne sensitisation profile was obtained via review of electronic medical records and lab results.

Results: We identified a total of 96 Patients (59% male) with age range 1–21 years (median age 14 y, mean age 12.9 y). 37.5% had current atopic asthma (AA) and 59.3% had at least 1 IgE mediated FA. 70.1% of patients were allergic to multiple foods. The range of number of different foods avoided was 1–8. The most common 5 foods avoided were Nuts (46.9%), Eggs (29.2%), Milk (17%), Fish (9.4%) and Sesame (8.3%). 65.6% of all patients were sensitised to at least one airborne allergen and 45.8% were sensitised to multiple airborne allergens (range 2–4). Patients were most commonly sensitised to house dust mite (58.3%), followed by pollens (42.7% including grass, tree, weed), furry animals (31.2% including cat, dog, mouse and horse) and moulds (9.3%).

Conclusion: Our data demonstrates the high burden of atopic comorbidities in severe AD patients requiring Dupilumab. The study highlights the urgent need for further studies exploring holistic approaches to treatment of AD, AA and FA in this high burden cohort, combining Dupilumab with specific allergen immunotherapy (AIT) for foods and airborne allergens.

Conflicts of Interest: The authors did not specify any links of interest.

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000224 | Inhibitory effect of sanguisorba hakusanensis ethanol extract treatment on atopic dermatitis-like responses in NC/NGA mice and human keratinocytes

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Background: Atopic dermatitis (AD) is an allergic inflammatory skin disease caused by immune dysregulation, and it characterized by skin dryness, thickening inflammation, hypersensitivity, and itching. Sanguisorba genus plant extracts have been tranditional Korean and Chinese herbal medicine that has several pharmacological activities including anti-inflammation. While several studies have been conducted on various species of the genus Sanguisorba, there have been relatively few studies on *Sanguisorba hakusanensis* and no attempts have been made to determine anti-atopic properties. Therefore, this study aimed to investigate the inhibitory effects of of *S. hakusanensis* ethanol extract (SHE) on AD *in vivo* and *in vitro*.

Method: Effects of SHE were investigated in a animal model of AD *in vivo* induced by *Dermatophagoides farina* extract (DFE) and in human keratinocyte stimulated by interferon-γ (IFN-γ) and tumor necrosis factor-α (TNF-α).

Results: Oral administration of SHE suppressed several atopic symptoms associated with DFE in NC/Nga mice as well as the serum levels of inflammatory mediators such as immunoglobulin E, histamine, and inflammatory chemokines. Additionally, SHE treatment reduced infiltration of immune cells such as mast cells and macrophages in AD skin lesions. In vitro, interferon-γ- and tumor necrosis factor-α-stimulated HaCaT cells exhibited increased expression of T helper 1 and 2 chemokines, which were then inhibited by SHE treatment. The anti-inflammatory effects of the SHE treatment involved blocking of the mitogen-activated protein kinase and signal transducer and activator of transcription 1 signaling pathways.

Conclusion: SHE possesses potent anti-allergic and anti-inflammatory effects and should be considered for clinical treatment of AD.

Conflicts of Interest: The authors did not specify any links of interest.

001354 | The effect of tranexamic acid on disease control in hereditary angioedema with normal C1 inhibitor (type III HAE)

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Background: Hereditary angioedema (HAE) is a rare disease that occurs recurrent angioedema attacks resulting from the accumulation of excess bradykinin in the tissues. Both the level and function of the C1-inhibitor (C1-INH) protein are within the normal range in HAE with normal C1-INH (type III HAE). This study aimed to evaluate the disease controls of type III HAE receiving tranexamic acid (TXA) for chronic prophylaxis.

Method: The study included type III HAE patients receiving TXA between January 2015–2022, and who were treated at our tertiary-level allergy and immunology clinic. A total of five patients were evaluated for genetic analysis, angioedema attacks, and quality of life. Angioedema control test (AECT) and quality of life (AEQoL) scale which are used to evaluate disease control were administered before and after receiving TXA therapy.

Results: The median age at diagnosis of type III HAE was 35 (range, 23–45.5) years. The median time to diagnosis was 40 (range, 14.5–54) months. The first angioedema attacks of the patients started an average of 70 months before the diagnosis. Two patients had a family history of angioedema. FXII mutation was detected in one of them, and the others were normal C1-HAE with unknown genetic etiology. Angioedema attack in the form of abdominal pain was experienced in only one patient, while angioedema in the face and extremities was observed in the others. Two of the patients had at least one laryngeal edema during their life. All patients were receiving 1000–1500 mg/d tranexamic acid for chronic prophylaxis while two patients had received C1-INH for acute angioedema attacks. The median time to TXA therapy was 48 (range, 21–54) months. None of the patients had side effects related to TXA. The median number of annual attacks before and after TXA was 36 and 2.8, respectively. The median AECT score before TXA was 6 (range, 3–6), while the median AECT score after TXA was 13.6 (range, 11–16). At least a two-fold improvement in terms of minimal clinically important difference was detected in all four sub-headings (function, fatigue, fear, and nutrition) of the AEQoL scale.

Conclusion: TXA seems to be effective not only in type III HAE with F12 mutation, but also in type III HAE without F12 mutation, both in preventing attacks and improving quality of life.

Conflicts of Interest: The authors did not specify any links of interest.

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000073 | Registry of members of the association of patients with hereditary angioedema of Perú

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*Presenting author: O. Calderon

Background: Hereditary Angioedema (HAE) is a rare disease characterized by episodes of swelling, HAE crisis could cause death by suffocation, also affect the quality of life in these patients, In Perú there are 33 million inhabitants, according to the worlwide prevalence (1:50,000) it is estimated that there could be approximately 700 patients with HAE. Our main objective is to report the current status and registry of the HAE peruvian patients association.
Method: We used the questionnaire of the Latin American HAE committee, crisis information in patients belonging to the association (AEH PERU). Consent was requested from the patients association to report the data.
Results: We report data of 59 patients, 9 Male, 50 Female, range age between 5 and 73 years. Eight under 18 years old, 5/8 between 5 and 12 years. Forty-one HAE C1-INH type I, 12 HAE-FXII, 5 HAE UNK, 1 AAE. Symptoms onset average age in 52/58 HAE patients was 15.8. In the remaining 6, symptoms began before the age of 5 years. In a group of 50 adult HAE patients the average diagnostic delay approximately was 18.3 years.
Laboratory tests: C4 complement is performed in most centers. Since 3 years ago we have access to C1-inhibitor antigenic and functional tests, in order to provide a better diagnosis for HAE patients.
Treatments: The patients have access to tranexamic acid and attenuated androgens for prophylaxis treatment. We do not have registered specific long-term prophylaxis treatments.
Ecallantide is the unique specific treatment registered in Perú, medication for acute crisis.
Conclusion: We present 59 members of the Association of Patients with Hereditary Angioedema of Perú. We have improved laboratory diagnosis in the last years. Ecallantide is the unique specific treatment currently registered in Perú, our objective is the other medications for HAE, be availables in our country. Moderate and high doses of Tranexamic Acid are used for prophylaxis and acute crisis respectively, with acceptable response. Access to HAE medications for acute crisis and prophylaxis should be guarenteed for all the patients.
Conflicts of Interest: The authors did not specify any links of interest.

000309 | The dilemma between phototoxicity and photoallergy

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Introduction: Photosensitivity reactions occur as a result of the interaction of the drug with sunlight. Lesions typically develop in sun-exposed areas. Metformin is an oral antidiabetic. It rarely causes skin reactions. We present a photosensitivity reaction and acute renal injury induced by metformin in a patient with no history of reactivity during sun exposure or recent contact with photosensitizing products.
Case: A 35-year-old female patient was admitted to the outpatient clinic with sunburn-like erythema on the face as well as erythematous, itchy, squamous plaques on the neck and bilateral forearms in August. Her symptoms had begun one week ago, 5–6 h after a 2–3 hour outdoor activity during which she was not directly exposed to the sun. The lesions were restricted to sun-exposed regions only. Since the patient was diagnosed with diabetes mellitus and hypertriglyceridemia one month ago, metformin and fenofibrate have been administered. She had not taken any other medications in the recent past and had nohistory of sun sensitivity. Due to itchy and burning sensations, she was hospitalized and diagnosed with a photosensitivity reaction. While as corticosteroid treatment was planned and metformin was discontinued as blood sugar was regulated with insülin monitoring glucose levels. The patient's lesions regressed after four days, and she was discharged with antihistamine besides regular medications. The lesions recurred at the control visit one week later. Meanwhile, the blood tests revealed a twofold increase in creatinine, and metformin was discontinued due to the diagnosis of acute renal injury. The patient's lesions disappeared, and creatinine level decreased. The patient has been diagnosed as photosensitivity due to metformin.
Discussion: Photosensitivity reactions are divided into photoallergy and phototoxicity; however, in five cases associated with metformin, no such distinction was observed in the literature. As the lesions appeared shortly after sun exposure and only in sun-exposed areas, as well as resolved after cessation of metformin for 5–7 days, this reaction suggests phototoxicity. On the other hand the recovery of lesions without any pigmentation and occurence of the reaction at low doses of metformin are features of photoallergy. In conclusion; although we cannot say 100% phototoxicity or photoallergy, metformin may be responsible for photosensitivity in diabetic patients.
JM case reports session: 18243.

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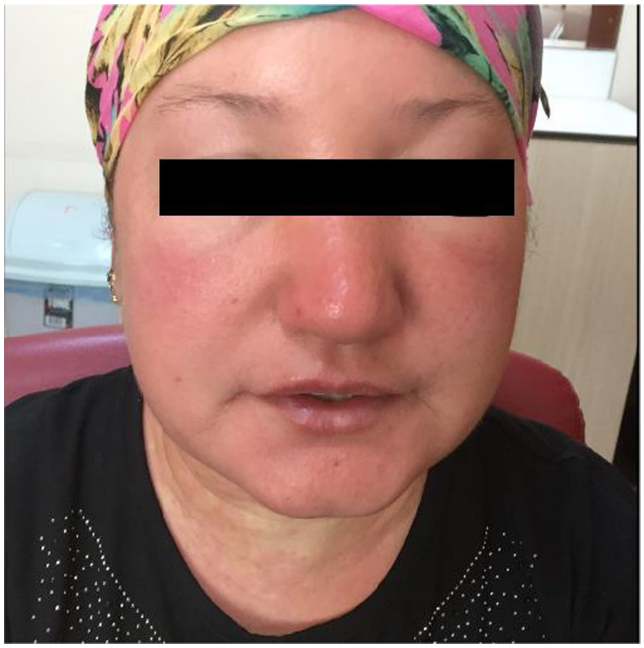

Conflicts of Interest: The authors did not specify any links of interest.

000176 | Phenytoin-induced toxic epidermal necrolysis in a pediatric patient

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Background: Toxic Epidermal Necrolysis (TEN), a severe cutaneous adverse reaction (SCAR), is a rare, life-threatening immunologic reaction. The majority of pediatric cases is triggered by a limited number of drugs, namely antibiotics, anticonvulsants and NSAIDs. We report a pediatric patient who developed TEN following phenytoin (PHT) exposure.
Case report: A 6-year-old male, with inaugural focal epilepsy, required sequential therapeutic step up to achieve symptomatic control. He was first started on levetiracetam (LEV), adding PHT after 13 days. LEV was then switched to perampanel (PER) 9 days later. He subsequently developed a rapidly progressive and confluent erythematous-violaceous maculopapular exanthema, mildly pruriginous, without mucous membranes or palms/plants involvement, followed by persistent fever. There were no other signs/symptoms and an initial blood study revealed eosinophilia, neutro/thrombocytopenia and hepatic cytolysis. No infectious agents were identified on collected samples (respiratory secretions, blood, CSF). Both PHT and PER were suspended and he was admitted under prednisolone and rectal diazepam for eventual seizures. At this time, he had 8% of body surface area (BSA) involved, but a rapid deterioration, with 80% of BSA and labial mucosa involvement, plus newly associated blistering – meeting TEN criteria -, motivated ICU admission. Besides symptomatic treatment, IV dexamethasone and IgG were administered with progressive skin lesion and analytical abnormalities' improvement, allowing relocation to the standard ward in 8 days. Gradual skin lesion resolution, with epidermal detachment of affected regions followed by re-epithelialization prompted discharge after 26 days, with no permanent sequelae. After an allergy appointment, a lymphoblastic transformation test (LTT) was performed using increasing dosages of LEV, PHT, PER and lacosamide (alternative anticonvulsant drug), revealing probable sensitization to PHT. PHT-induced TEN was assumed and, as he was asymptomatic under vigabatrin by the time results were available, this drug was maintained. Avoidance of PHT and other aromatic anticonvulsants was advised, due to the high degree of cross-reactivity, according to literature.
Conclusion: Early SCAR recognition, with drug suspension and early intervention is crucial for acute and long-term morbidity/mortality reduction. As *in vivo* testing in SCAR is contraindicated, LTT is an important resource to help determine the culprit drug and advise alternatives.
JM case reports session: 18243.
Conflicts of Interest: The authors did not specify any links of interest.

000759 | It's not always allergy: Kimura's disease

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Background: Kimura's disease is a rare benign pathology characterized by affecting lymph nodes and subcutaneous cell tissue besides inducing peripheral and local eosinophilia in lymphadenopathy, as well as increased IgE, less common even with skin involvement (eczema and urticaria) and pruritus. It was first described in 1948 by Kimura et al.
Method: 39 years-old-male patient with pathological history of psoriasis and dyshidrotic eczema under follow-up by dermatology, terminal ileitis under follow-up by digestive and polyadenopathy syndrome under study by internal medicine and rheumatology. No allergic history. Referred for study of eosinophilia, increased IgE and skin lesions. For 1 year ago he has lesions on his hands compatible with severe dyshidrotic eczema and on his elbows and extremities compatible with psoriasis, already diagnosed. For the past 5 years, he also presented predominantly painless bilateral inguinal and axillar adenopathy and generalized pruritus, denying any other symptom or endemic zone traveling. The patient provided previous study of neck-thorax-abdomen computed tomography (CT), lymph node biopsy, positrons emission tomography (PET), and clinical analysis. The study was completed with common aeroallergens cutaneous prick test of the area and an extension of analytical study. Path test with standard battery were schedule but the patient did not appear for them.
Results: The CT confirmed small bilateral inguinal reactive adenopathies; lymph node biopsy described lymphoid follicular hyperplasia with eosinophil infiltration without evidence of malignancy; PET showed increased glycidic metabolism in bilateral axillary and inguinal adenopathies and lymph nodes in the parotid region of probable inflammatory etiology. In the analysis leukocytes were 8720 10×9/L with eosinophilia of 3020 10×9/L, proteinogram slight polyclonal elevation in gamma fraction, IgM 253 UI//L, IgE >2000 UI/L, the rest of the onco-hematological study was negative in blood. Coagulation,

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ESR, liver, kidney, and thyroid function, vitamin B12, folic acid, rest of immunoglobulins, C3, C4, tumor markers (AFP, CA19-9, PSA, CEA, BHCG), autoimmunity, and infectious serology were all normal or negative. The allergy study was negative on prick test for common inhalants in the area, LTP, latex, and profilin.

Conclusion: We present an interesting and rare case of eosinophilia that after analysis of the clinical history and complementary tests concluded Kimura disease. The differential diagnosis was based on ruling out other pathologies that present with eosinophilic adenopathies (oncological disease like Hodgkin's disease, Langerhans cell granulomatosis, Castleman's disease, Churg Strauss granulomatosis, parasitic lymphadenitis, etc.) The patient received treatment with methylprednisolone cycle with a decrease in eosinophilia and improve skin lesions.

Conflicts of Interest: The authors did not specify any links of interest.

ENT 1

000896 | Impact of mepolizumab in patients with chronic rhinosinusitis with nasal polyps according to prior systemic corticosteroid use

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Background: For patients with chronic rhinosinusitis with nasal polyps (CRSwNP) who do not achieve adequate disease control with systemic corticosteroids (SCS), additional treatments are required. The efficacy of mepolizumab according to prior SCS use and the SCS-sparing effect of mepolizumab were assessed in patients with severe CRSwNP.

Method: SYNAPSE (GSK ID: 205687/NCT03085797; Phase 3 double-blind study) randomised patients with severe, bilateral NP eligible for repeat sinus surgery to 52 weeks of 4-weekly subcutaneous mepolizumab 100 mg or placebo, plus standard of care, which could include SCS. Post hoc subgroup analyses according to number (0/1/>1) of SCS courses for NP in the prior year were conducted for: change from baseline in total endoscopic NP score (NPS; Week 52), nasal obstruction visual analogue scale (NO-VAS) score (Weeks 49–52) and Sino-Nasal Outcome Test-22 (SNOT-22) total score (Week 52), plus time to first sinus surgery (up to Week 52). On-treatment total prednisolone-equivalent oral corticosteroid (OCS) dose for NP (up to Week 52) was analysed post hoc in patients with ≥1 SCS course during SYNAPSE and by patient characteristics; SCS use (≥1 course) during SYNAPSE by patient characteristics was also assessed (prespecified).

Results: Overall, 52% (210/407), 27% (111/407) and 21% (86/407) of patients received 0, 1 and >1 SCS courses in the year before SYNAPSE. Patients with 1 prior SCS course had larger improvements (difference in medians [95% confidence interval (CI)]) with mepolizumab versus placebo in their NPS (−1.00 [−1.51, −0.49]), NO-VAS (−3.72 [−5.49, −1.95],) and SNOT-22 (−22.57 [−39.16, −5.98]) than those with 0 courses (NPS: 0.52 [−1.01, −0.04], NO-VAS: 2.55 [−4.17, −0.92], SNOT-22: 17.02 [−26.16, −7.88]) or >1 course (NPS: −0.43 [−1.25, 0.39], NO-VAS: −3.55 [−5.18, −1.92], SNOT-22: −16.16 [−27.67, −4.65]). Patients with >1 prior SCS course had the largest reduction in risk of sinus surgery with mepolizumab versus placebo (hazard ratio [95% CI], 0/1/>1 SCS course: 0.62 [0.27, 1.39]/0.30 [0.10, 0.86]/0.17 [0.04, 0.68]). Among patients who required SCS during SYNAPSE, fewer received >200 mg/year of prednisolone-equivalent OCS with mepolizumab versus placebo (75% [38/51] vs. 86% [61/71]). The impact of mepolizumab on SCS use during SYNAPSE by patient baseline characteristics is shown in the Table.

Conclusion: Mepolizumab is associated with clinical benefits in patients with severe CRSwNP with and without prior SCS use and may have an SCS-sparing effect.

Table. Effect of mepolizumab versus placebo on SCS use according to baseline characteristics.

	Proportion of patients requiring ≥1 SCS course for NP up to Week 52			Total prednisolone-equivalent OCS dose for NP up to Week 52 (mg/year)	
	Placebo, n (%)	Mepolizumab, n (%)	Odds ratio, mepolizumab/placebo (95% CI)*	Placebo, mean (SD)	Mepolizumab, mean (SD)
Geometric mean blood eosinophil count					
≤300 cells/μL	18/66 (27)	15/69 (22)	0.78 (0.33, 1.84)	NR	NR
>300 to ≤500 cells/μL	21/59 (36)	14/60 (23)	0.47 (0.19, 1.16)	NR	NR
>500 to ≤700 cells/μL	8/26 (31)	9/28 (32)	1.04 (0.30, 3.58)	NR	NR
>700 cells/μL	27/50 (54)	14/49 (29)	0.34 (0.12, 0.95)	NR	NR
<150 cells/μL	NR	NR	NR	147.4 (380.4) n=15	68.5 (176.8) n=20
≥150 cells/μL	NR	NR	NR	183.9 (363.7) n=183	113.6 (264.7) n=185
<300 cells/μL	NR	NR	NR	86.6 (225.7) n=61	94.7 (238.8) n=67
≥300 cells/μL	NR	NR	NR	223.3 (404.7) n=137	116.2 (266.6) n=138
Prior surgery					
1	29/81 (36)	20/108 (19)	0.37 (0.18, 0.76)	151.7 (334.8) n=80	61.5 (175.1) n=108
2	14/47 (30)	14/47 (30)	1.77 (0.60, 5.19)	149.0 (349.9) n=46	160.4 (329.7) n=47
>2	31/73 (42)	18/51 (35)	0.55 (0.22, 1.37)	234.5 (401.4) n=72	164.2 (310.3) n=50
Comorbid asthma					
Yes	56/149 (38)	37/140 (26)	0.56 (0.32, 0.98)	202.2 (399.3) n=146	119.3 (277.8) n=139
No	18/52 (35)	15/66 (23)	0.64 (0.26, 1.56)	122.0 (232.3) n=52	87.8 (208.6) n=66
Comorbid N-ERD					
Yes	29/63 (46)	13/45 (29)	0.39 (0.15, 0.97)	231.5 (409.4) n=61	90.1 (206.0) n=44
No	45/138 (33)	39/161 (24)	0.68 (0.39, 1.18)	158.8 (341.3) n=137	114.4 (270.1) n=161

*Analysis using logistic regression model with covariates of treatment group, geographic region, number of SCS courses (0, 1, >1) for NP in the previous 12 months, baseline total endoscopic NPS and baseline nasal obstruction VAS score for all characteristics; log(e) baseline blood eosinophil count was an additional covariate for prior surgery, comorbid asthma and comorbid N-ERD. Courses of systemic steroids separated by <7 days were considered to be a continuation of the same course. CI, confidence interval; N-ERD, non-steroidal anti-inflammatory exacerbated respiratory disease; NP, nasal polyps; NPS, nasal polyp score; NR, not recorded; OCS, oral corticosteroid; SCS, systemic corticosteroid; SD, standard deviation; VAS, visual analogue scale.

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Conflicts of Interest: Funding: GSK (ID: 205687/NCT03085797) GC has received advisory board fees, speaking fees, and research grants from GSK, AstraZeneca, Genentech, Sanofi Genzyme, Regeneron, Teva, and Novartis. IA has received advisory board fees and consultation fees from Maylan, Menarini, GSK, MSD, Novartis, Sanofi, and Roche. NLL reports grant support and advisory board fees from GSK, Genentech, Sanofi/Regeneron and Novarits; grant support, consulting fees, and advisory board fees from AstraZeneca; and consulting fees and advisory board fees from Teva Pharmaceuticals. HHK has received speaker fees and conference attendance support from GSK. AB has received research grants and consulting fees from AstraZeneca-MedImmune, Boehringer Ingelheim, Cephalon/Teva, GSK, Novartis, Sanofi-Regeneron; consulting fees from Med-in-Cell, Actelion, Merck, Roche, Chiesi; and is an investigator/co-investigator for trials promoted by AstraZeneca-MedImmune, Boehringer Ingelheim, GSK, Novartis, Sanofi/Regeneron, Chiesi, Actelion, Merck, Roche, Vertex, Galapagos AMC has received research support and clinical studies grants and/or has received fees for advisory boards and speaker honoraria via Technical University Munich (TUM) from Allergopharma, ALK, Abello, AstraZeneca, Bencard/Allergen Therapeutics, ASIT Biotech, Immunotek, Lofarma, GSK, Novartis, LETI, Roche, Sanofi Genzyme/Regeneron, Zeller, Federal German Ministry of Education and Research, and the European Institute of Technology (EIT). SGS, PH, ARS, BM, and RHC are employees of GSK and own stocks/shares AM has received speaker's honoraria from AstraZeneca, Novartis, and GSK, and honoraria for attending advisory panels with Sanofi, AstraZeneca, GSK, Novartis, and Chiesi.

000920 | Mouse model for house dust mite (HDM)-specific immunotherapy in allergic rhinitis

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Background: Allergen-specific immunotherapy (AIT) has been widely used as effective disease-modifying treatment tool for allergic rhinitis (AR). However, animal models demonstrating the efficacy, immunological changes and mechanisms of AIT have not been well-established. The purpose of this study is to develop standardized mouse model for house dust mite (HDM) subcutaneous immunotherapy (SCIT) in AR.

Method: Six-week-old female BALB/c mice were divided into four groups (PBS group, negative control; HDM-sensitized group, positive control; low dose SCIT group, treatment group with low dose SCIT, HDM 100 ug; high dose SCIT group, high dose SCIT, HDM 500 ug). Positive control and low and high dose SCIT groups were intraperitoneally administered with 100 μg of HDM extract (*Dermatophagoides pteronyssinus*) on days 0, 7, and 14 for sensitization. After sensitization, low and high dose SCIT groups were subcutaneously treated with 100 μg and 500 μg of HDM, respectively, on days 21, 24, and 27. Next, all of the groups were intranasally challenged with 10 ug of HDM for last seven days. Multiple parameters of AR, including symptoms (rubbing and sneezing), eosinophil counts, immunoglobulin and cytokine production were evaluated.

Results: High dose SCIT group showed significantly lower symptom score compared to HDM group ($p < 0.05$). Both low and high dose SCIT groups tended to exhibit decrease in eosinophil counts. High dose SCIT group showed lower HDM-specific IgE level ($p < 0.001$) and higher HDM-specific IgG1 level ($p < 0.001$) compared to HDM group. In terms of mRNA expression level of cytokines in nasal mucosa, low dose SCIT group exhibited decreased IL-4 ($p < 0.05$), 5, and 13 level and increased IL-10 and IFN-γ level.

Conclusion: This study has established the optimal mouse model for HDM SCIT in AR. Further studies will be designed to elucidate additive effects of adjuvants or biologics using this HDM SCIT model.

Conflicts of Interest: The authors did not specify any links of interest.

000353 | Evaluating treatment responses of dupilumab versus omalizumab in severe chronic rhinosinusitis with nasal polyps and comorbid asthma patients: The Everest trial

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Background: Chronic Rhinosinusitis with Nasal Polyps (CRSwNP) and asthma are chronic inflammatory diseases predominantly driven by type 2 inflammation. Dupilumab (DUP), a fully human monoclonal-antibody, blocks receptor component for interleukin-4/-13, key and central drivers of type 2 inflammation. Omalizumab (OMZ) is a humanized anti-IgE monoclonal-antibody. DUP and OMZ are approved for the treatment of uncontrolled CRSwNP/nasal polyps and asthma. Head-to-head comparison studies of these interventions will contribute to evidence-based decision making for treating respiratory diseases.

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Method: EVEREST (NCT04998604) is a phase-4 global, multicenter, parallel group, randomized (1:1), double-blind, active-controlled study comparing the efficacy and safety of DUP (300 mg Q2W) versus OMZ (75–600 mg Q2W) over 24 weeks, as add-on to nasal corticosteroid therapy. Approximately 422 patients, aged ≥18 years with uncontrolled CRSwNP, ongoing symptoms of nasal congestion, loss of smell, NP score ≥5, coexisting asthma, treated with low/medium/high-dose inhaled corticosteroids and a second controller, and with an Asthma Control Questionnaire (ACQ)-5 (sum of the responses to the first 5 questions derived from ACQ-7) score ≥1.5 will be recruited across 15 countries. Patients who have undergone any prior sinus surgery within 6 months and patients with conditions/concomitant diseases such as antrochoanal polyps, nasal septal deviation, acute sinusitis, nasal or upper respiratory infection, known or suspected diagnosis of cystic fibrosis and eosinophilic granulomatous with polyangiitis, and who are current smokers or had cessation of smoking within 6 months prior to screening visit will be excluded.

Results: Primary objective is to evaluate the efficacy of DUP compared to OMZ in reducing NP size and improving sense of smell (change from baseline to week 24 in NP score and University of Pennsylvania Smell Identification Test, respectively). Secondary objectives include the assessment of lung function (pre-bronchodilator forced expiratory volume in 1 second [BD FEV_1]), nasal peak inspiratory flow, nasal congestion, quality of life (Sino-nasal outcome test [SNOT-22]), asthma control (visual analogue and ACQ-7), and safety.

Conclusion: EVEREST, the first head-to-head trial assessing the comparative efficacy and safety of DUP versus OMZ in patients with severe CRSwNP and comorbid asthma, will provide evidence to optimize treatment for these patients.

Conflicts of Interest: Peters AT: Regeneron Pharmaceuticals, Inc., Sanofi – research support and advisory board member; AstraZeneca – research support and advisory board member; Optinose – consultant and research support. Heffler E: AstraZeneca, Boehringer Ingelheim, Circassia, GlaxoSmithKline, Nestlé Purina, Novartis, Sanofi, Teva, Valeas – research grants. Hopkins C: GlaxoSmithKline, Sanofi, AstraZeneca, Dianosic – advisory boards. Bachert C: ALK, AstraZeneca, GlaxoSmithKline, Mylan, Novartis, Sanofi, Stallergenes Greer – advisory board member and speakers' fees. Wagenmann M: ALK-Abelló, Allakos, AstraZeneca, GlaxoSmithKline, HAL, Meda Pharmaceuticals, Novartis, Otonomy, Roche, Sanofi, Stallergenes, Strekin, Teva – member of national and international scientific advisory boards (consulting), fees for lectures, grants for research projects. Hellings PW: is an advisory board member for Regeneron Pharmaceuticals, Inc. and Sanofi. Sanofi, GSK, Viatris, ALK, and Stallergenes. De Prado Gomez L, Khan AH, Jacob-Nara JA, Rowe P, Zhang M, Xing J: Sanofi – employees, may hold stock and/or stock options in the company.

000223 | A prospective study of cognitive and olfactory function in patients with moderate to severe asthma

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Background: Asthma is associated with cognitive deficits, and a bidirectional association between them has been found. Olfactory dysfunction is observed in asthmatics, and is related with asthma control status. Recent studies found an association between olfactory dysfunction and cognitive impairment. We investigated changes in cognitive and olfactory function in patients with moderate to severe asthma.

Method: A total of 30 adult asthmatics were enrolled in this study. Cognitive and olfactory function were assessed using the Montreal Cognitive Assessment (MoCA) test and YSK olfactory function test at baseline and 6 months later. Sino-Nasal Outcome Test (SNOT-22) survey and EuroQuol five dimensions (EQ5D) were also evaluated.

Results: Nineteen patients (63.3%) were severe asthma, and 9 (30%) were treated with biologics. Seventeen (56.7%) had chronic rhinosinusitis with and without nasal polyps. MoCA score (24.4 ± 4.97 to 25.37 ± 4.64, $p = 0.005$) was significantly increased during the study period. YOF score, SNOT-22, and EQ5D were improved. Mild cognitive impairment (MCI) and olfactory dysfunction were 7 (23.3%) and 20 (66.7%) at baseline; 4 (13.3%) and 15 (50%) after 6 months, respectively. Improvement of cognitive and olfactory function was observed in 3 (10%) and 9 (30%). There were no significant differences in cognitive and olfactory function irrespective of the biologic therapy. However, patients receiving biologics had improvements in SNOT-22 and a subjective perception of smell did not reach statistical significance, whereas patients receiving conventional treatment (no biologics) showed deterioration. A significant improvement of MoCA score was observed in patients exhibited improvement of olfactory function.

Conclusion: Cognitive impairment and olfactory dysfunction were observed and changed in moderate to severe asthma. Biologic treatment improved olfactory function, sensation of smell, and quality of life. Cognitive and olfactory function may be closely related to each other in asthmatics.

Conflicts of Interest: The authors did not specify any links of interest.

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000247 | Gleditsia sinensis lam. Attenuates nasal inflammation by inhibiting MUC5AC production

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Background: Allergic rhinitis (AR), a chronic respiratory inflammatory disease, is among the most common chronic diseases reported worldwide. Mucus hypersecretion is a critical feature of AR pathogenesis. Although the *Gleditsia sinensis* extract has several beneficial effects on human health, its effects on allergic inflammation have not yet been investigated.
Method: we examined the effects of *G. sinensis* aqueous extract (GSAE) on nasal inflammation in an ovalbumin (OVA)-induced AR mouse model. GSAE was administered orally for 1 week and then the clinical nasal symptoms were evaluated. The levels of histamine, OVA-specific immunoglobulin (Ig) E, and interleukin (IL)-13 were measured in the serum using an enzyme-linked immunosorbent assay (ELISA). Inflammatory cells were then counted in the nasal lavage fluid (NALF) and histopathology in the nasal epithelium was evaluated. STAT3/STAT6 phosphorylation was examined in primary human nasal epithelial cells (HNEpCs) using western blot analysis.
Results: Oral administration of GSAE to OVA-induced AR mice alleviated nasal clinical symptoms and reduced OVA-specific immunoglobulin E, interleukin (IL)-13, and histamine levels. The accumulation of eosinophils in nasal lavage fluid, nasal mucosa, mast cells, goblet cells, and mucin 5AC (MUC5AC) in the nasal epithelium was also inhibited by GSAE. Treatment with GSAE inhibited the production of MUC5AC in IL-4/IL-13-stimulated primary human nasal epithelial cells through the signal transducer and activator of transcription (STAT)3/STAT6 signaling pathway.
Conclusion: These results indicated that GSAE reduces nasal inflammation, suggesting that it could be developed as a potential treatment for AR.
Conflicts of Interest: The authors did not specify any links of interest.

000666 | House dust mite sublingual allergen immunotherapy in Southeast Asian population with allergic rhinitis

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Background: Sublingual allergen immunotherapy (SLIT) is effective in treating (House dust mite) HDM-induced allergic rhinitis. The effect could be observed as early as 1 month after administration in the Asian population of this region. However, the data to support the effectiveness and safety profile especially amongst the southeast Asians is lacking despite the high prevalence of HDM respiratory allergic diseases.
Method: Retrospective analyses were conducted to determine the efficacy of HDM-SLIT tablets on monosensitized (HDM only) and polysensitized southeast Asian communities and its adverse reactions. Data is extracted from a single-centre study including atopy allergy test, skin prick test, SNOT-22 questionnaires pre- and post-treatment, biometric data of those received HDM-SLIT tablets and their case notes were studied from June 2021 to January 2023. Specific complaints were documented to observe the safety of SLIT.
Results: Twenty-two subjects were studied during this period with 11 subjects in the monosensitized group and 12 subjects in the polysensitized group. Improvement in SNOT-22 can be seen as early as 1-month post-treatment in both groups receiving HDM-SLIT tablets and there is no significant difference between the monosensitized and polysensitized groups throughout this period ($p > 0.05$). Side effects were less notably with most commonly symptoms seen are swelling of the floor of mouth, increasing itch and tightness in the throat.
Conclusion: Clinical improvement is observed as early as 1-month post treatment with HDM-SLIT tablets even in those with polysensitization. No serious side effects were observed during the period of study.
Conflicts of Interest: The authors did not specify any links of interest.

000754 | High-intensity focused ultrasound (HIFU) as a new device for treatment of inferior turbinate hypertrophy due to allergic rhinitis: Comparison study with coblation

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Background: Various procedures are performed for patients with inferior turbinate hypertrophy (ITH). We developed a new surgical device for the treatment of ITH that uses high-intensity focused ultrasound (HIFU), and performed a clinical trial of patients with ITH.
Method: A total of 20 patients with allergic rhinitis underwent inferior turbinate surgery, which consisted of either HIFU or coblation therapy. Efficacy was evaluated by subjective symptom scores, acoustic rhinometry, and nasal endoscopy.
Results: The modified nasal obstruction symptom evaluation (NOSE) score and nasal obstruction visual analog scale (NO-VAS) were significantly decreased in both groups at 12 weeks postoperatively. Differences in the evaluation scores between two groups were not significant. On nasal endoscopy, the HIFU patients showed the improvement in mucosal swelling sooner than the patients underwent coblation therapy did. Nasal crusting was significantly increased in the coblation group than the HIFU group until postoperative 4 weeks. The mucosal preservation was superior in the HIFU group to coblation group. Although HIFU was less painful than coblation therapy during the procedure, the difference was not significant

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(4.9 vs. 6.3, $p = 0.143$). The difference in global satisfaction between two groups was not significant, although it was slightly greater for the HIFU than the coblation (4.6 vs. 4.1, $p = 0.393$).

Conclusion: HIFU provided similar results to those of coblation in relieving nasal obstruction due to ITH, but HIFU caused less discomfort during the procedure than coblation. HIFU therapy could be an effective and non-invasive alternative to the current surgical modalities for ITH.

Conflicts of Interest: The authors did not specify any links of interest.

000413 | Dupilumab safety and effectiveness in chronic rhinosinusitis with nasal polyps: Real-world practice

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Background: Dupilumab, a fully human monoclonal antibody against IL-4R$_\alpha$ that inhibits IL-4/IL-13 signaling, is a therapeutic option in patients with chronic rhinosinusitis with nasal polyps (CRSwNP). Its efficacy has been shown in clinical trials. Our aim is to present data from our center to corroborate this evidence in the complexity of real-life patients.

Method: A retrospective longitudinal study of patients with CRSwNP treated with dupilumab in our center was performed. We collected data regarding demographics, previous surgeries, FEV$_1$, FEF25–75, FeNO, eosinophilic blood count and total IgE before starting Dupilumab, as well as rescue treatments with systemic corticosteroids (SCS) and antibiotics, impact on quality of life (QoL) through Sino-Nasal Outcome Test (SNOT-22), both before and at 3 and 6-month evaluation, when available, and safety profile.

Results: A total of 11 patients were included [7 female (63.6%), median age 46 years old, IQR 39–51]; all 11 patients had concomitant asthma, 6 also had NSAID-exacerbated respiratory disease (NERD) and 6 were atopic. In this sample, a mean of 2 ± 0.63 nasal polyp surgeries were performed, with a median of 44 months [IQR 18–68] from the last surgery up to the start of dupilumab. At baseline, the absolute eosinophilic blood count: 620 cells/uL [IQR 429–700], total IgE: 203 kU/L [107–479], FEV$_1$: 82.7% [65.9–100.2]; FEF25–75 50.6% [27.9–119.6]; FeNO: 46 ppm [10–122]. Dupilumab was auto-administered subcutaneously, 300 mg every 2 weeks. The treatment duration was 8 months [IQR 5–10]. Median scores of all primary outcomes improved significantly from baseline: SNOT-22 went from 62 to 32 ($p = 0.011$) at 3 months and to 21 ($p = 0.028$) at 6 months; SCS courses went from 2 to 0 ($p = 0.017$) and antibiotic courses went from 1 to 0 ($p = 0.011$). There were no side effects reported.

Conclusion: In our sample, we observed a significant improvement in QoL and decrease in SCS and antibiotic use in patients with CRSwNP treated with dupilumab, with a good safety profile. This information supports data from clinical trials and early real-life experience in other populations.

Conflicts of Interest: The authors did not specify any links of interest.

000793 | Recurrent chronic rhinosinusitis with nasal polyposis in a teenager – The importance of a timely diagnosis

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CASE REPORT

Background: Chronic rhinosinusitis with nasal polyposis (CRSwNP) is mostly characterized by a moderate to severe T helper type 2 (T2)-mediated inflammation with hypereosinophilia and increased IgE concentrations. CRSwNP is difficult to treat and recurrences are frequent, despite medical treatment and surgical interventions, and it is often asociated with other diseases such as asthma.

Case Report: We present the case of a 17-year-old male referred to an Allergy and Clinical Immunology (ACI) Department of a tertiary hospital due to recurrent nasal symptoms, such as obstruction, posterior rhinorrhea and anosmia. He had a history of uncontrolled asthma and rhinosinusitis, starting in childhood, associated with poor therapy compliance and absenteeism at medical appointments. Regarding past history, he had been submitted through multiple cycles of oral corticosteroid (OCS; average 4 per year) since he was 9 years old; and had been submitted to 3 polypectomies, the first at 11 years old. Concerning disease control scores he reported global scores ranging from ACT 9–15, SNOT 22 > 60 and mini-AQLQ 30–35. He had been on formoterol fumarate/budesonide maximum recommended daily dosage, but still remained symptomatic. His respiratory function tests revealed a moderate-severe obstructive pattern, with a positive bronchodilation test. Step-up treatment with triple therapy was conducted, but therapeutic optimization was still not achieved. Due to the severity of his CRSwNP, diagnostic work up have been deeply extended, highlighting the presence of peripheral eosinophilia (870–1420 cells/L). Skin prick tests with aeroallergens serie were negative, and immunodeficiencies and autoimmune disorders study (including sweat test), all presented results within the normal range. Due to his asthma phenotype (eosinophilic asthma), bad lower respiratory disease control and the severity of his recurrent CRSwNP a decision to start biological treatment with a IL4 and IL13 inhibitor (dupilumab) was made, timely, in order to avoid new polyps recurrence and/or asthma exacerbations. Currently, the patient has completed 6 months of treatment, reports a better life quality (mini-AQLQ >50, SNOT 22 <45), has recovered some of his sense of smell and has yet had to resort to OCS.

Discussion/Conclusion: This case illustrates the T2 inflammation pattern, which is responsible for Asthma and CRSwNP, in a young male. Quality of life, absence of OCS, and clinical improvement was evidenced after 6 months of dupilumab treatment, highlighting the effectiveness and safety of an anti IL4 and IL13 therapeutic approach. Currently, with the availability of phenotype-driven biological treatments, a timely diagnosis of the immunoinflammatory patterns of immunological diseases constitutes an important factor for the treatment of these patients and the improvement of their quality of life.

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Conflicts of Interest: The authors did not specify any links of interest.

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000971 | Characterization of a cohort of adult patients with chronic rhinosinusitis with and without nasal polyposis

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*Presenting author: A. Murillo

Background: Chronic rhinosinusitis (CRS) affects between 6 and 15% of the adult population. This respiratory pathology causes a great impact on the quality of life. The gold standard treatment is intranasal glucocorticoids (IGC) and in severe forms, systemic glucocorticoids. Recently, dupilumab, an anti-IL-4Rα, had been approved for severe forms of CRS. Our aim was to describe the clinical and sociodemographic characteristics, as well as the treatment in a cohort of adult patients with CRS.

Method: A retrospective, cross-sectional and descriptive study was conducted, including patients with CRS, who were treated in a high-level institution in Cali, Colombia, from September 2021 to December 2022. Multivariate analysis included demographic variables, quality of life measurement using the SNOT 22 scale, nasal sinus tomography, smell disturbance, comorbidities, and treatments.

Results: Twenty-four patients were analyzed. Fourteen (58.3%) were male. The median age was 46.5 years (33–53). Eighteen patients (75%) were diagnosed with CRS with nasal polyps (CRSwNP), and 6 patients (25%) with CRS without nasal polyps (CRSsNP). Fifteen patients (83%) of the group of CRSwNP suffered from smell alterations and 2 patients (33%) in the group CRSsNP also reported it. Twenty patients (83%) had a Lund Mackay score greater than 4. The group CRSwNP had a median of 20 (14–23). Of the patients with CRS, 5 patients (21%) had intolerance to nonsteroidal anti-inflammatory drugs and 11 (46%) had asthma. The median SNOT 22 score was 45.5 (23–87). Skin tests for aeroallergens were performed on 18 patients (75%), being positive in 12 patients (66.6%). House dust mites were the most prevalent sensitizers in 11 patients (92%). All patients were treated whit IGC. Eleven patients 46% required treatment with dupilumab. In three of them, treatment reached 12 months at the moment of this report, having a significant improvement in quality of life and recovery of smell.

Conclusion: In this cohort, most of the patients were mid-age male, with a negative impact on their quality of life, smell affectation, and significant radiological extension evaluated by Lund Mackay score. Dust mites were the main sensitizers. Dupilumab was required in 46% of patients.

Conflicts of Interest: The authors did not specify any links of interest.

ENVIRONMENTAL ALLERGY AND CLIMATE CHANGE + OCCUPATIONAL ALLERGY 1

000817 | Klarify app: Self-reported allergy symptom scores correlate with seasonal pollen peaks and may assist clinical decision-making

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Background: Evidence based medicine (EBM) relies on clinical expertise, scientific evidence, and a patient centred approach. The klarify mobile app allows hay fever symptom logs and provides daily allergy alerts for a mixed cohort of users of unknown allergic status. Data from the cohort of klarify app users include allergy symptoms scores; objective measures of pollen counts and patients' satisfaction with current treatments. The aim of this study was to describe and investigate self-reported user data from the app, by linking allergy symptom scores with pollen counts.

Method: This study was an open prospective cohort design based on data from the klarify app from 01-01-2020 to 30-04-2022 in Great Britain (GB), Germany (DE), and USA (US). Individuals using the app could log daily allergy symptoms scores (0–4 scale, 0 lowest, 4 highest) which weas accompanied by location specific grass pollen counts. Multiple linear regression modelling was used to correlate symptom scores and grass pollens counts. All users consented to their data being aggregated and used for scientific purposes in accordance with regulatory guidelines.

Results: This study included 140 K users: GB 45%, DE 43% and US 12%, with an average of 5.9 logs per user during the study period. The overall mean daily self-reported symptoms score was 1.93 (SD = 1.2). Seasonal pollen counts were associated with symptom scores with the highest average month being June (mean = 2.25, SD = 1.3) coinciding with the grass pollen season, and the lowest being December and January (mean = 1.09, SD = 1.1). Symptom scores correlated with objective grass pollen counts in all three countries during peak grass pollen season: GB = 0.27, $p < 0.001$; DE = 0.23, $p < 0.001$; and US = 0.19, $p < 0.001$).

Conclusion: This real-world evidence generated from the klarify app, represents self-reported, non-invasive insights into the burden of allergic disease across seasons and geography in a non-clinical setting. Individually reported symptom scores correlated significantly with objective grass pollen exposure, suggesting that the klarify app may be a valuable tool to assist clinical decision-making and empower allergic individuals.

Conflicts of Interest: All authors and co-authors are employed by ALK Abelló A/s, Global Research, Hørsholm, Denmark.

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000983 | Extraction of airborne allergens and proteases from filters collected in the salmon processing industry in Norway

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*Presenting author: M. Grgic

Background: In recent years departments of occupational medicine in Norway experienced an increase in patients from the salmon industry exhibiting allergies and work-related respiratory symptoms. Allergy and other hypersensitivity reactions have significant impact on the quality of life of both affected individuals and the industries in which they work. Determining exact causes of allergies is therefore important both to increase quality of life and to improve work environments. In our current project within salmon processing industries in Norway, we wanted to determine causative agents of allergies and asthma in the salmon industry, namely proteases and IgE-reactive proteins, by measuring them quantitatively and qualitatively.

Method: Aerosols containing proteases and IgE-reactive proteins (allergens) of interest were collected on filters by stationary pumps and pumps attached to working personnel. The protein analysis was carried out in two different assays: Zymography for proteases and MS/MS analysis for allergens. In both assays the first step was extraction of allergens from filters. While the standard protocol for extraction of allergens used in our lab was suited for zymography, MS/MS could not be performed for the detection and characterization of allergens due to an incompatibility between the extraction buffer and the instruments used for MS/MS analysis. In collaboration with the proteomics laboratory at the Arctic University of Norway, we endeavored to devise an extraction method that would provide similar or better gains of proteins from filters as compared to standard methods used in our laboratory. Four potential buffers that can be used for extraction and are compatible with MS/MS instruments were used in testing: 0.5% SDS + 10 mM glycine; 0.05% SDC + 10 mM; 10% SDS and 0.1% SL. All buffers were compared with a buffer used in the standard protocol of our laboratory: 0.5% Tween-20 + 1× PBS. Additionally, different extraction times and temperatures were tested.

Results: To determine the successfulness of extraction, SDS gel and BCA (total protein) analyzes were performed. Based on these assays it was determined that the best extraction method for IgE-reactive proteins was 0.05% SDS buffer + 10 mM glycine buffer with overnight extraction (>16 h) with concentration range from 0.1 to 10 µg/mL.

Conclusion: Using this method, we managed to extract allergens with efficacy on par with the standard buffer containing Tween-20 and successfully run MS/MS analyse on extracted samples.

Conflicts of Interest: The authors did not specify any links of interest.

000380 | An unusual occupational contact dermatitis agent in a denim sandblasting worker: Sodium sulfite

O. Can Bostan[1]; A. Sandal[2]; G. Tuncay[1]; M. Cihanbeylerden[1]; H. Kayikci[1]; B. Guven[1,3]; E. R. Sahin[1]; E. Damadoğlu[1]; G. Karakaya[1]; A. F. Kalyoncu[1]

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*Presenting author: M. Cihanbeylerden

Case report: A 33-year-old male patient, without atopy and any chronic disease, was admitted to our adult allergy clinic with erythematous and scaly plaques on both hands, vesicles, and bullae in some places, especially at contact sites for seven months. There were lichenification, erythematous plaques, and occasional fissures in the lesion area. The patient had been working as a denim sandblaster for the last three years and his lesions tended to increase at work and improve during holidays. Other co-workers at the same workplace did not have similar symptoms. In the patient's history, it was reported that he was wiping the area manually with bare hands with a chemical agent containing sodium sulfite (Na_2SO_3) to clean the permanganate in the environment after denim sandblasting. The patient had no respiratory symptoms and was using a gas mask while working. Chest X-rays and respiratory examinations were performed regularly and were evaluated as normal. The patient, whose biochemical tests and chest X-ray were normal, underwent a patch test with the standard epicutaneous patch test panel and was observed as negative for all tested allergens. Afterwards, a skin patch test was performed in 5% petrolatum with the culprit agent, sodium sulfite, obtained from the patient's workplace. The patch test result at the 48th hour was positive with vesiculobullous reaction with sodium sulfite. The vesiculobullous lesion persisted at the 72nd hour and tended to resolve at the 96th hour. As a result, the patient was diagnosed as occupational contact dermatitis due to sodium sulfite and topical corticosteroid treatment was initiated and avoidance of exposure was recommended, and protective measures to be used at the risk of contact were explained. In the clinical follow-up after 3 months, the patient's lesions, who avoided the workplace environment, showed significant improvement. Recognition of allergic contact dermatitis caused by sodium metabisulfite is increasing; however, contact dermatitis to sodium sulfite is less well-known. In denim sandblasting, which is mostly associated with respiratory and immunological reactions, one should be aware of possible sources of exposure to agents used for cleaning, such as sodium sulfite.

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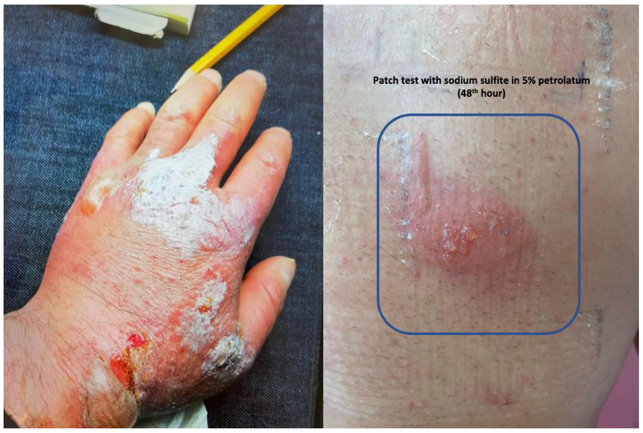

Skin lesions of the patient and the skin patch test with sodium sulfite

Conflicts of Interest: The authors did not specify any links of interest.

000514 | NSAIDs-induced palpebral angioedema in patients with allergy to house dust mites

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Background: Urticaria/angioedema induced by Nonsteroidal anti-inflammatory drugs (NSAIDs) is the most prevalent phenotype of NSAIDs hypersensitivity reactions. Within this phenotype a clinical entity with specific features has been proposed in which atopy is a predisposing factor. This specific form is characterised by the appearance of periorbital angioedema (usually bilateral and isolated), associated with respiratory allergy (rhinitis and/or bronchial asthma), mostly due to hypersensitivity to mites. Its pathogenic mechanism is unknown, although a relationship with respiratory disease exacerbated by NSAIDs is postulated.

Method: The purpose of this review was to evaluate possible differences in the patterns of sensitization between house dust mites allergic patients with palpebral oedema associated with NSAIDs, and a control group who tolerate NSAIDs. A retrospective study was performed from September to December 2022, and 20 patients with allergic rhinitis and/or bronchial asthma due to dust mite hypersensitivity (DM-H) identified by prick test were recruited. All of them underwent total serum IgE determination by ImmunoCAP® and multiplex molecular diagnostic test (ALEX®). The active group included 10 patients with DM-H and periorbital angioedema after taking NSAIDs, and the control group included 10 patients with DM-H and tolerance to NSAIDs. Lipid transfer proteins (LTP) allergy was ruled out in both groups. The Mann-Whitney test was used to evaluate mean differences between components of both groups.

Results: Patients with DM-H and NSAIDs angioedema had a mean age of 36 years (vs. 32 in the control group), 80% were female (vs. 60%), and total IgE mean value was 109 kUA/L (vs. 378 in the control group). All patients presented rhinitis, and 10% of both groups also associated bronchial asthma. Table 1 shows the molecular diagnostic results in both groups.

Conclusion: There were no statistically significant differences ($p < 0.01$) in the prevalence of sensitization to mite components between the group of DM-H patients with NSAIDs angioedema and the DM- H patients tolerant to NSAIDs. Analysis of a larger sample is required before these results can be considered conclusive.

nº PAT - S/A	IgEt (kUA/L)	IgEs (kUA/L)	Der f1	Der f2	Der p1	Der p2	Der p5	Der p7	Der p10	Der p21	Der p23	Gly d2	Tyr p2	Lep d2	Blo t10	Blo t21
DM-H with NSAIDs angioedema																
1- F/53	≤20	(-)														
2- F/22	51	(-)														
3- F/50	≤20	(-)														
4- F/31	85	(+)		0,38			3,05									
5- M/39	318	(+)	4,33	39,31	11,08	36,93				14,26	8,55	1,77	9,8			
6- M/34	53	(+)	14,06	38,06	6,68	39,2	8,64	6,84		24,38	4,21	3,51		0,38		2,25
7- F/32	≤20	(+)							0,42						0,39	
8- F/18	364	(+)	7,38	31,77	9,4	33,82										
9- F/46	139	(+)		10,07	0,82	9,36	6,28			4,74	1,34				0,37	
10- F/33	≤20	(+)		7,65	1,43	6,86	1,64	0,45		0,39						
DM-H and NSAIDs tolerance																
11- M/33	136	(+)	0,36	7,85	3,94	8,16					2,23			1,14		
12- F/32	41	(+)		0,81		0,73										
13- M/30	233	(+)	16,47	40,87	35,17	43,5		6,35			13,08	6,76	1,68	5,25		
14- M/18	2776	(+)	37,58	46,25	34,06	46,73	43,85		7,22	0,56	27,03	16,25	1,7	11,82		
15- F/39	78	(+)	2,42	19,52	5,07	18,37	3,78			2,55	7,72					
16- M/34	85	(+)	7,82	44,24	7,05	43,76	8,7	8,81		13,37	9,43					
17- F/30	≤20	(+)		1,16		1,22					0,51					
18- F/47	93	(+)	16	34,39	4,6	39,32	8,24	6,19		8,93						
19- F/36	152	(+)	2,29	50		50		0,65								
20- F/20	170	(+)	9,66		1,98											

Table 1.
PAT: patient; S: sex; A: age; F: female; M: male; IgEt: IgE total; IgEs: specific IgE; (-): negative; (+): positive

Conflicts of Interest: The authors did not specify any links of interest.

000757 | Mold allergy sensitization – 10 years of experience in allergy and clinical immunology consultation

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Background: Molds are considered a relevant allergenic source in respiratory allergy, with *Alternaria*, *Aspergillus*, *Cladosporium* and *Penicillium* being known as the most frequent allergy sources amongst them. *Alternaria alternata* is known as the most relevant fungal species responsible for sensitization, especially in the Mediterranean area. The aim of this study was to assess clinical characterization in patients with mold sensitization.

Method: Retrospective descriptive analysis of patients with mold sensitization (*Alternaria*, *Aspergillus*, *Cladosporium*, *Penicillium*, *Mucor*, or *Candida*) evaluated in our department between 2013 and 2022. Demographic and clinical characterization, sensitization profile, based on skin prick tests and/or specific IgE results, and immunotherapy data were collected. Comparison between sensitization to one fungus or various different fungi species was performed. Statistical analysis was performed using SPSS Statistics 27 program.

Results: We included 305 patients (median age 22 years; 51.5% male). Allergic rhinitis/rhinoconjunctivitis (89.5%; 18.7% of those with sinusitis), asthma (60%) and atopic dermatitis (20.7%) were the most frequent atopic comorbidities. Nineteen percent were only sensitized to fungus, without other aeroallergen sensitization. In 76.7% we verified sensitization to only one fungal genera. *Alternaria* (69.5%) was the most implicated fungus, followed by Aspergillus (27.5%), Candida (13.4%), Cladosporium (8.5%) and

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Penicillium (2%). Allergy bronchopulmonary aspergillosis was diagnosed in 1.6% of patients and extra-pulmonary involvement of invasive aspergillosis in 0.7% of patients. Out of the 41 candida-sensitized patients, 22% were either immunocompromised or recurrent infections patients. Regarding statistical analysis, older age ($p = 0.005$) was associated with sensitization to only one type of fungus. Pollen sensitization ($p = 0.020$) and higher severity grades in rhinitis ($p = 0.044$), asthma ($p = 0.034$) and atopic dermatitis ($p = 0.013$) were associated with sensitization to multiple type of fungus. A total of 28.9% of patients underwent immunotherapy, and in 27.3% of those the immunotherapy included *Alternaria*. Results are shown in Table 1.

Conclusion: Most patients were sensitized to one fungal genera and the majority were co-sensitized to other aeroallergens. Alternaria, Cladosporium, Penicillium, and Aspergillus are the 4 genera more reported as source of allergy, however, in this study, Candida was the third more frequently implicated fungus and very few cases of Penicillium sensitization were found. Interestingly, pollen sensitization, worse stages of asthma, rhinitis and atopic dermatitis were associated with sensitization to multiple type of fungus.

Table 1 - Clinical features of patients with mold sensitization

Categorical Variables (n; %) / Numerical variables (median±range)	Total (n=305;100%)	Monosensitization to one type of fungus		*p*-value
		Yes (n=234; 76.7%)	No (n=71; 23.3%)	
Gender				
Male	157 (51.5)	119 (50.9)	38 (53.5)	0.694
Female	148 (48.5)	115 (49.1)	33 (46.5)	
Atopic Comorbidities				
Rhinitis/ rhinoconjunctivitis	273 (89.5)	208 (88.9)	65 (91.5)	0.522
With sinusitis	51 (16.7)	37 (15.8)	14 (19.7)	0.440
Mild	109 (35.7)	90 (38.5)	19 (27.8)	**0.044**
Moderate-Severe	164 (53.8)	118 (50.4)	46 (64.8)	
Asthma	183 (60.0)	140 (59.8)	43 (60.6)	0.912
Step 1-2	77 (25.2)	65 (27.8)	12 (16.9)	**0.034**
Step 3-5	107 (35.1)	76 (32.5)	31 (43.7)	
Atopic dermatitis	63 (20.7)	41 (17.5)	14 (19.7)	0.073
Mild	41 (13.4)	36 (15.4)	5 (7.0)	**0.013**
Moderate-Severe	22 (7.2)	13 (5.5)	9 (12.7)	
Co-sensitization to other aeroallergens				
Dust mites	212 (69.5)	161 (70.1)	51 (71.8)	0.627
Pollens	174 (57.0)	125 (53.4)	49 (69.0)	**0.020**
Dog/cat epithelium	65 (21.3)	47 (20.1)	18 (25.4)	0.343
Immunotherapy	88 (28.9)	69 (29.5)	19 (26.8)	0.657
Immunotherapy with *Alternaria*	24 (7.9)	19 (8.1)	5 (7.0)	0.768
Age (years)	22 (14-42)	31 (19-48)	21 (13-39)	**0.005**
Total IgE level (kU/ L)	443 (146-1160)	519 (215-1529)	402 (136-1080)	0.065

Conflicts of Interest: The authors did not specify any links of interest.

000577 | A comparison of the prevalence and risk factors of allergic diseases between the old and the new town in Incheon

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*Presenting author: D. H. Lim

Background: This study was conducted to find out whether there is a difference in the incidence of allergic diseases between children living in old town and new town.

Method: A total of 2017 elementary school students participated in this study between 2015 and 2019. The ISAAC questionnaire was used and skin prick test and pulmonary function test were performed. Climate and atmospheric environmental hazards data used in this study were obtained from Korea Meteorological Administration (KMA) and Institute of Public Health and Environment in Incheon.

Results: Participants were all in the same grade which means actually no differences in age. Height was smaller in the new town (121.50 ± 5.32 vs. 122.02 ± 5.45, *p*: 0.03). The FEV1 seemed lower in the new town but there was no significant difference. The FVC was lower in the new town (1.39 ± 0.25 vs. 1.46 ± 0.28, *p*: 0.03). From 2015 to 2019, in allergic rhinitis patient, the sensitization rate of students was higher than that of students in the original down. (302 (25.1%) of 1205 vs. 146 (21.6%) of 676). The sensitization rate of weeds (Ragweed) and fungi (black mold) was high in the new town. (Ragweed: 5.4% vs. 14.9%, $p = 0.003$, Black mold: 3.4% vs. 9.2%, $p = 0.026$). As Black mold need high humidity to live, the new town students seemed more vulnerable to sensitize to fungi, especially black mold. The concentration of O3 and CO was higher in the new town (O3: 0.031 ± 0.01 vs. 0.025 ± 0.02 $p < 0.001$, CO 0.56 ± 0.23 vs. 0.53 ± 0.26, $p < 0.001$). The relative humidity was higher in the new town (76.3 ± 13.3 vs. 70.1 ± 16.1, *p*-value < 0.001).

Conclusion: We found that climate and atmospheric factors such as relative humidity, CO, O3 affected the allergic disease. Also, house conditions such as whether or not to use air conditioner or dehumidifier, age of house, period of residence, remodeling status can affect the allergic disease. A follow-up study is needed using allergic biomarkers and to confirm symptom improvement through environmental factor management.

Conflicts of Interest: The authors did not specify any links of interest.

000709 | Hidden exposure to rubber additives in a silicone breast implant: A rare case of allergic contact dermatitis

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Doctor Peset University Hospital, València, Spain
*Presenting author: S. Dager García

Case report: A 20-year-old woman consulted at our outpatient clínic because of bilateral periareolar eczema, two months after an unilateral breast implant surgery. A cutaneous biopsy revealed spongiotic dermatitis. Treatment with topical and systemic corticosteroids, emollients and tacrolimus was ineffective and soon after a few weeks she developed multiple nummular eczema lesions in arms and legs (Figure 1). The patient was patch tested with a true test series, our rubber series, a silicone patch test and a prick test with látex. The patch test was applied on the upper back, and occluded for 2 days. Readings were performed on 2° and 5° days. The patient reacted positively to 1,3-diphenylguanidine (DPG) and diamino diphenylmethane (DADPM) on the 5th day. Rest of the patch testing and prick with látex were negative. Blood analysis showed normal parameters on hemogram, TSH, T4, C3, C4, VSG, ANA, kidney and liver function and total serum IgE. The patient was not in contact with rubber materials nor epoxy resins. The manufacturer (Mentor®) provided the composition of the breast implant and expander (silicone shell filled with silicone cohesive gel). Although the implant does not contain DPG or DADPM

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in the manufacturing process, direct contact with devices containing these substances and possible transfer capacity from the devices to the breast implants are unknown. The implant was removed and about a week after peripheral eczematous lesions disappeared. At present it has residual breast lesions treated with topical corticosteroids and phototherapy, with slow improvement. Patients can react to low concentrations of allergen. In this report, we present an example of hidden exposure to DPG and DADPM in a silicone breast implant not containing these substances in the data sheet: in this case, the reaction has a plausible cause-effect relationship. DADPM is a catalyst in the production of polyurethane and has been proposed to be a marker for methylene diphenyl diisocyanate (MDI) contact sensitization. DPG is not widely used in rubber production and it is considered a problematic allergen, because it has a low reaction index and it has a high probability of causing irritant reactions, our patient has a strong positivity to both allergens. Interestingly, none of these allergens are present in most baseline series, showing the need to test additional substances to make an accurate diagnosis.

JM case reports session: 18243.

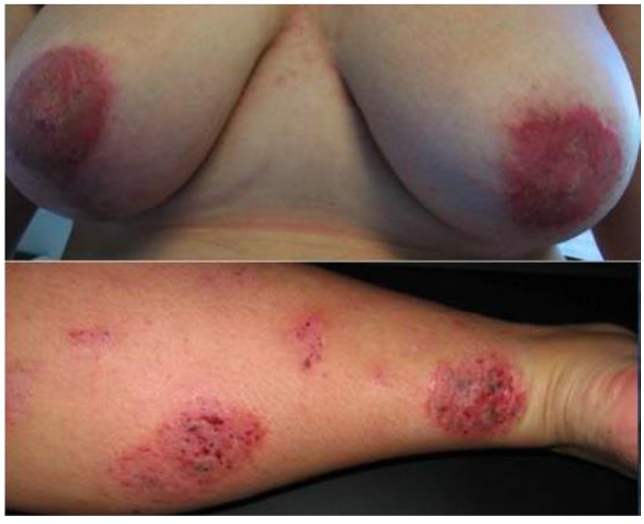

Figure 1

Conflicts of Interest: The authors did not specify any links of interest.

000988 | Exploring the possibility of in vivo test allergen-compounding in pharmacies: First results

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*Presenting author: R. Jost

Background: The availability of standardized skin prick test (SPT) substances is a prerequisite for reliable diagnosis of occupational type I allergies. However, there is an increasing diagnostic gap due to the withdrawal of commercial test extracts by pharmaceutical companies. This trend is continuing in Germany and other EU member states. In attempt to reduce this gap, we are examining the possibility of compounding test allergens in public pharmacies in accordance with the German Medicinal Products Act Section 13 (2) no. 1 in combination with Section 13 (2a) sentence 2 no. 3.

Method: A priority list of 20 occupationally relevant allergens was defined in consultation with the statutory social accident insurances including flours, enzymes, mites, woods, molds, natural rubber latex, fish and seafood, as well as animal epithelia. Commercially available source materials were purchased from licensed international allergen manufactures. Protein extraction, SPT compounding and documentation as standard operating procedures (SOPs) were established in a two-step process: First, SPT were prepared under optimal standardized laboratory conditions. In a second step, these SOPs were adapted to the specific conditions in a pharmacy. These require simplified extraction methods in accordance with the Eur. Pharmacopoeia and the German Pharmacy Operation Ordinance (Apothekenbetriebsordnung, ApBetrO). Protein content and profile of SPTs are examined by Bradford assay and SDS-PAGE. For stability testing SPTs were stored at 4°C and regularly tested regarding sterility (under aerobic and anaerobic conditions) as well as protein content and profile.

Results: Here, we present first results of SPT solutions prepared from model allergen sources (*Gadus morhua* (cod) and *Farfantepenaeus aztecus* (shrimp)) in a public pharmacy. In process controls showed clear and faintly yellowish extracts, with a pH of 7–8 for shrimp and pH 9–10 for cod. Protein concentrations of SPT solutions ranged from 1.5–1.7 mg/mL; the respective protein profiles of the different extraction procedures showed characteristic bands between 10–250 kDa. Qualitatively, the pharmacy-prepared SPT solutions showed comparable protein patterns to those prepared under laboratory conditions or commercial SPT solutions. At this point, 6-months stability data show robust quality.

Conclusion: Preparation of SPT solutions in public pharmacies could represent a feasible way forward to close the diagnostic gap for occupational allergies.

Conflicts of Interest: The authors did not specify any links of interest.

001095 | Maintenance of a controlled, consistent, and naturalistic environment in an environmental exposure chamber for house dust mite allergy trials

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Background: The conduct of clinical trials in the Environmental Exposure Chamber (EEC) requires a number of patients to be within the chamber simultaneously. Operating the EEC for longer periods allows subjects to complete a chamber session in one day. In order to

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confidently provide a clinical model in which all patients experience similar exposures to house dust mite (HDM), the chamber must be stringently controlled within a specified range of allergen exposure and environmental conditions. The objective of the current investigation was to obtain and maintain a consistent range of 20–100 ng/m^3 HDM.

Method: Milled house dust mite extract (*Dermatophagoides pteronyssinus*, Der p) was aerosolized in the chamber. To make the HDM distribution consistent, a balance in aerosolization and appropriate airflow was maintained. Number of HDM particles of respirable particle size were used to monitor the aerosolization efficiency via a real-time particle counter. To measure the spatial and temporal consistency of HDM-allergen, an in-house developed quantification method was followed. Five samples were collected hourly for 6 h by using spatially arranged button samplers connected to suction pumps that mimic normal human inspiration to analyze the allergen quantitatively.

Results: The representative subset of samples (sampler 1, 2, and 4) was observed to be proportionally similar to the average concentration of allergen from all 5 samplers (correlation $r \geq 0.75$). There was no significant difference between the overall average and the average of the subset in maintaining the concentration of 20–100 ng/m^3 der p over time. The particle counts for each hour were maintained at a level greater than 10,000 and 5000 particles per cubic meter for 5 and 10 microns, respectively.

Conclusion: Unlike pollen, milled HDM does not have aerodynamic properties; the above methods along with consistent airflow helped to achieve and maintain a stable environment with appropriate concentration and distribution of HDM allergen over longer durations. This provides a controlled yet naturalistic environment to study subjects allergic to HDM.

Conflicts of Interest: The authors did not specify any links of interest.

000532 | Dust mite allergen levels in a mobile naturalistic exposure chamber

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*Presenting author: L. Haya

Background: To facilitate multi-site clinical research, we have developed a mobile naturalistic allergen exposure chamber (Mobile NEC) wherein house dust mite allergen source material is precisely dispensed and aerosolized. Here we present the Der p 1 allergen air concentrations measured for three operating setpoints.

Method: The Mobile NEC consists of an indoor pop-up tent with a carpeted floor, seating for 1–2 subjects and equipment for allergen aerosolization and sampling. Milled spent dust mite culture (*D. pteronyssinus*) is dispensed in controlled amounts at programmed intervals into the exhaust of a modified robot vacuum cleaner. Fans contribute to mixing in the chamber. Air allergen content was sampled on glass-fibre filters for three different operating points (varied by dispense duration and frequency), and Der p 1 air concentration was quantified by ELISA. Repeatability was assessed.

Results: The mean (SD) Der p 1 air concentrations for the low, medium, and high setpoints were 24 (6), 45 (16), and 55 (13) ng/m^3 ($n = 3$, 6, and 4 repeats; ANOVA $p = 0.03$), respectively. These results are within the range of Der p 1 levels measured in homes (Price et al., 1990). For all operating points, there was no significant change of Der p 1 over time in 2-hour tests (ANOVA, $p = 0.75$, 0.53, 0.48 for low, medium, and high setpoints respectively).

Conclusion: A dispensing system for house dust mite has been shown to produce repeatable, stable, and adjustable allergen concentration for three setpoints, representative of dust levels in homes. Clinical validation is planned for 2023. This mobile system can provide controlled dust mite exposure for anti-allergy therapy clinical trials or other research of allergic disease.

Conflicts of Interest: Stefan Van de Mosselaer, Laura Haya, Rachel Friedrich, and Alissa Belanger are employees of Red Maple Trials Inc. Suzanne Kelly is a stockholder and employee of Red Maple Trials Inc. Jimmy Yang is a shareholder and employee of Red Maple Trials Inc. William H. Yang is a stockholder and employee of Red Maple Trials Inc. He has received consultant and speaker fees from CSL Behring, Shire/Takeda, BioCrys, Novartis, Sanofi, Merck. Also, he has received research grants from CSL Behring, Shire/Takeda, BioCryst, Pharvaris, Sanofi, Regeneron, GSK, AstraZeneca, Amgen, Genentec/Roche, Pfizer, ALK, Stallergenes, Providence, Galderma, Glenmark, Dermira, AnaptysBio, VBI Vaccines, Ionis, Astria. He is a medical advisor (volunteer) for HAE Canada; his clinic is recognized as the Treatment & Reference Centre of Excellence by HAEi-A Care in Canada.

000093 | Two unusual case reports of contact dermatitis and urticaria due to hypersensitivity to chlorhexidine

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Background: Chlorhexidine is a widely used disinfectant in the healthcare setting. Its use in children and adults has provided an excellent record of safety and efficacy for diverse applications like preoperative skin preparation or beauty products. Adverse reactions to chlorhexidine include immediate and non-immediate hypersensitivity, ranging from mild cutaneous reactions to anaphylaxis.

Method: We present two case reports. The first patient was a 30-year-old woman patient referred to our Allergy service due to suspected metal hypersensitivity. She had developed several episodes of dermatitis after physical therapy with dry needling manifested as round erythematous lesions around the area of the needles, lasting two days. She also developed local dermatitis around peripheral venous access on the same day of its placement. She tolerated metal jewelry and had

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used chlorhexidine without any incidence before. The allergy study was performed following the European guidelines (ESCD): Patch testing with standard battery and chlorhexidine digluconate 0.5% with 48 and 96 h reading. The second patient was a 7-year-old boy referred for pruritus and erythema after applying chlorhexidine solution due to a wound in his knee. He developed round itchy wheals and edema in his upper lip because the patient touched himself and spread the contact with chlorhexidine. An open test with chlorhexidine digluconate 0.5% with immediate reading was performed.

Results: First patient: Patch testing revealed a positive result for CL + ME–Isothiazolinone and chlorhexidine at the 96 h reading. All patches with metals were negative. Therefore, we diagnosed her with chlorhexidine and CL + ME-Isothiazolinone allergic contact dermatitis. We recommended avoidance of any products containing chlorhexidine or CL + ME-Isothiazolinone or its components.

Second patient: The chlorhexidine open test with immediate reading was positive so we diagnosed him with urticaria for chlorhexidine. We recommended avoidance of chlorhexidine products.

Conclusion: We present two uncommon case reports of contact hypersensitivity to chlorhexidine, a type IV and a type I mechanism. Doctors should consider these entities because chlorhexidine will be extensively used in many different medical specialties and as a cosmetic product, so this allergen can behave as a hidden allergen.

Conflicts of Interest: The authors did not specify any links of interest.

000318 | Trends in asthma encounters and pollution before and after the COVID-19 pandemic

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Background: The COVID-19 pandemic dramatically changed air quality as well as healthcare admissions. Even though COVID-19 lockdowns caused global air pollution declines, post-pandemic air quality values and its effect on asthma patients are unknown. We sought to identify changes in asthma-related healthcare utilization and levels of air pollution by comparing pre-pandemic (PreP: 2019) and post-pandemic (PostP: 2022) air quality values.

Method: In Turkey, Kirikkale city's air quality data (particulate matter (PM_{10}, $PM_{2.5}$), carbon monoxide (CO_2), sulfur dioxide (SO_2), nitrogen oxide (NO), nitrogen dioxide (NO_2, NO_x) and ozone (O_3)) was obtained from the formal website, by evaluating monthly averages of these gases. Rates of outpatient admissions and hospitalizations of adult patients with asthma in local University Hospital, Department of Pulmonary and Allergy Diseases were recorded, as well as gender, age, blood eosinophil value and number of attacks. Patients with lack of eosinophil values were excluded.

Results: The number of hospital outpatient admissions were higher in PostP ($n = 847$) than PreP ($n = 635$; $p > 0.05$). Female patient admissions were higher in both groups (PreP 73.2% and PostP 70.3%). The mean age of the patients were 53.35 ± 5.5/year and were similar between the groups. The asthma patients' PreP and PostP median eosinophil values were similar (283.18/μL (min-max 128–693/μL) versus 252.56/μL (154–372/μL), p>0.05). The number of asthma attacks increased in PostP compared to PreP ($p < 0.01$). Air quality parameters were found to be similar between PreP and PostP, except with an increase in mean values of NO_2, NO_x and SO_2 in PostP than PreP ($p = 0.008$, $p = 0.04$, $p = 0.001$). Correlation analysis showed no significant relation in eosinophil values and air quality data in both periods. A significant relation was found between the number of hospital admissions of asthma patients and SO_2 values in PreP ($p = 0.01$, $r = 0.70$) and between the number of asthma attacks and PM_{10}, SO_2, CO, NO_2, NOx, NO, and O_3 values ($p < 0.05$). However, in PostP there was a significant relation between the number of $PM_{2.5}$, NO, NO_x with the number of hospital admissions of asthma patients ($p = 0.01$, $p = 0.003$, $p = 0.01$), and with the number of asthma attacks ($p = 0.01$, $p = 0.02$, $p = 0.04$).

Conclusion: Concurrent with the relaxation of COVID-19-related public health measures, in Kirikkale there was an increase in the number of some air quality particles in PostP which accompanied by increases in the number of hospital admissions and the attacks with no relation to blood eosinophil values in asthma patients. Even though some substantial changes in air pollution levels compared with PreP were observed after pandemic, some other factors might also influenced the increase in asthma healthcare activity. Future policies should target decreased asthma attack while managing air pollution by controlling or decreasing severe air pollution.

Conflicts of Interest: The authors did not specify any links of interest.

000177 | Fig tree-induced phytophotodermatosis

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Introduction: Phytophotodermatosis is a dermatosis that results from the combination of contact with a photosensitizing plant and exposure to solar radiation. Several plants and food of plant origin have already been recognized as implicated. A detailed anamnesis, followed by epicutaneous tests, is essential for the correct diagnosis of this entity. We report a case of phytophotodermatosis involving contact with a fig tree and sun exposure.

Case report: A 55-year-old male, with no relevant personal history or regular medication, was evaluated in an Allergy and Clinical Immunology appointment following two similar episodes with development of erythematous, painful and pruritic maculopapular lesions on both forearms. These lesions progressed to blisters in the course of 12 h and resolved with residual hyperpigmentation one week after onset. Other signs and symptoms were denied, as well as contact with drugs, food or with different hygiene or cosmetic products. The patient mentioned that episodes coincided with sunny days when

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he was picking figs and pruning a fig tree and he recognized that lesions only developed on exposed body areas. During our investigation, epicutaneous tests were performed with a preparation created from the maceration of fig tree leaves and stems. The preparation was placed on both forearms and contact was maintained for 1 hour. The patient was then asked to keep the area in contact with the preparation uncovered during the day, only on one of the forearms, to promote sun exposure. About 8 h later, the patient reported pain and erythema at the site of contact with the preparation, only on the forearm exposed to solar radiation. He denied any complaints in the unexposed arm. The reproducibility of the reaction, only on the forearm exposed to solar radiation, confirmed the diagnosis of phytophotodermatosis triggered by the fig tree.

Discussion: Phytophotodermatosis is a self-limiting condition that usually only requires symptomatic relief measures. Fig tree sap contains furocoumarins, already recognized as a photosensitizer, capable of inducing phytophotodermatoses. Recognition of the trigger is essential in these cases to prevent the recurrence of episodes.

JM case reports session: 18243.

Conflicts of Interest: The authors did not specify any links of interest.

EOSINOPHILIC ESOPHAGITIS

000678 | Paediatric eosinophilic esophagitis: A proposal to simplify the eosinophilic esophagitis histology scoring system (EOEHSS)

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Background: Peak eosinophil count (PEC) is the actual gold standard in defining eosinophilic esophagitis (EoE) diagnosis and therapeutic response but is limited to eosinophilic inflammation. The recently validated EoE histology scoring system (EoEHSS) overcomes this limit evaluating seven histological features beyond PEC but results complex when scored and interpreted. Our aim is to compare PEC and EoEHSS, identifying EoEHSS histological features which greater influence PEC.

Method: We retrospectively enrolled 18 EoE children (17 males; mean-age: 11.5 years). For each patient all histological samples from proximal, mid and distal oesophagus were analyzed by a single pathologist; for each sample (in total 155 biopsies) PEC and EoEHSS were scored. For EoEHSS, all eight constituent features (PEC; basal zone hyperplasia, BZH; eosinophilic abscesses, EA; eosinophil surface layering, ESL; dilated intercellular spaces, DIS; surface epithelial alteration, SEA; dyskeratotic epithelial cells, DEC; lamina propria fibrosis, LPF) were scored as Grading and Staging. Spearman's Rho was used for correlations (coefficient range: 0.51–0.8 strong, >0.8 very strong) and linear regressions for predictions (significance: $p < 0.05$).

Results: In linear regression models, EoEHSS Grading and Staging predict PEC (Grading-R^2: 0.63, β: 0.19 and Staging-R^2: 0.49, β: 0.17; $p < 0.05$). Grading and Staging are strongly correlated (ρ: 0.92, $p < 0.05$); PEC predicts Grading (R^2: 0.92, β: 0.02, $p < 0.05$), but, unexpectedly, seems inversely related to Staging (R^2: 0.89, β: −0.38, $p < 0.05$). Therefore, an exclusive use of Grading seems reasonable. Considering EoEHSS features, BZH, DIS and EA are the only variables associated with PEC (ρ: >0.5, $p < 0.05$) and the best predictors of PEC variability (R^2: 0.56; β-BZH: 0.30; β-DIS: 0.20; β-EA: 0.67; $p < 0.05$).

Conclusion: EoEHSS is a more comprehensive tool in evaluating EoE but, given its complexity, a simplification is advisable. Based on our results, a histological analysis limited to Grading of BZH, DIS, EA together with eosinophilic inflammation, could be proposed but need to be further verified.

Conflicts of Interest: The authors did not specify any links of interest.

001225 | Adherence to swallowed topical steroids therapy in patients with eosinophilic esophagitis (EOE) and the impact on disease outcome

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Background: Eosinophilic Esophagitis (EoE) is an inflammatory condition of the esophagus and swallowed topical corticosteroids is one of the available therapies, but the effectiveness of the treatment is directly related to the correct adherence to the medication. This study aims to evaluate the rate of adherence to swallowed topical corticosteroids, the impact on the outcome of the disease and possible associated factors.

Method: Retrospective study of the records of the last two medical appointments (6 months apart) of patients with EoE between 2019 and 2022 in a specialized outpatient clinic of a tertiary pediatric hospital. Patients using swallowed topical steroids were analyzed according to gender, age group, adherence to treatment (good adherence was characterized by use with proper technique more than 3 times/week), resolution of EoE symptoms and reduction in the number of eosinophils in the esophagus to less than 15/hpf (after 6 months of drug prescription), average dose of the drug and presence of side effects. Significance analysis of the data was performed using the chi-square and Fisher's exact tests.

Results: Of the 35 patients followed up due to EoE, 20 (15 male) were using swallowed topical steroids. The mean age of the patients was 12.3 years (6–18 years) and the mean dose of swallowed topical steroids was 860 mcg. Of these patients, 12 presented good adherence to treatment and 8 did not. Of the 8 patients who did not adhere properly, 6 did not use the prescribed medication and 2

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used with incorrect technique. Regarding related factors to proper adherence to treatment, we did not observe a statistically significant difference in gender, mean dose of medication and adverse effects. Patients above 13 years old were significantly more adherent to treatment ($p = 0.01$). Proper adherence to treatment significantly contributed to the resolution of EoE symptoms ($p = 0.0007$) and reduction in number of eosinophils in the esophagus below 15/hpf ($p = 0.0001$) after 6 months of swallowed topical steroids prescription. Non-adherence contributed significantly to the poor reduction of eosinophils ($p = 0.0001$) and for the persistence of symptoms ($p = 0.0007$).

Conclusion: Poor adherence to treatment was relevant in our study and contributed to a worse result in EoE control, just as good adherence significantly contributed to a better outcome. Older patients adhered more to the treatment, possibly due to a greater ability to understand the disease and the correct use of medication. It is important that we are assertive and efficient when informing the importance of medication adherence and proper technique.

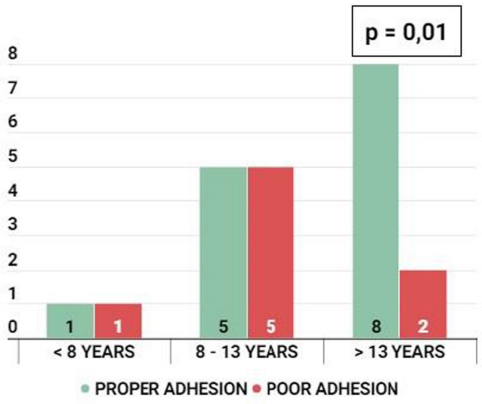

CHART: Comparison between the age of patients and the adhesion to swallowed topical steroids.

	RESOLUTION OF SYMPTOMS		
	YES	NO	TOTAL
PROPER ADHERENCE	10	2	12
POOR ADHERENCE	0	8	8
TOTAL	10	10	20
	REDUCTION OF EOSINOPHILS IN ESOPHAGUS (< 15/HPF)		
	YES	NO	TOTAL
PROPER ADHERENCE	11	1	12
POOR ADHERENCE	0	8	8
TOTAL	11	9	20

p = 0.0007

p = 0.0001

TABLE: Comparison between adhesion to swallowed topical steroids and the resolution of Eosinopilic Esophagitis (EoE) symptoms and reduction of eosinophils in esophagus (< 15/hpf) after 6 months of prescription.

Conflicts of Interest: The authors did not specify any links of interest.

000751 | A retrospective report of patients with eosinophilic esophagitis

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Background: Eosinophilic esophagitis (EoE) is a chronic immune-mediated inflammatory disease characterised by eosinophilic infiltration of the oesophageal mucosa, leading to tissue fibrosis and esophageal dysfunction. Clinical expression varies from dysphagia, vomiting, regurgitation, chest pain, to food impaction. Diagnosis requires demonstration of at least 15 eosinophils/high potency field by oesophageal biopsy in the absence of other causes of oesophageal eosinophilia. Current treatment therapies include proton pump inhibitors (PPIs), topical corticosteroids, food elimination diets and endoscopic dilation.

Method: To evaluate the efficacy of the treatment used in patients diagnosed with EoE, based on clinical and histological remission. A retrospective review was performed from medical records of 32 patients with eosinophilic oesophagitis in a tertiary hospital, who were in follow up by Allergology and Gastroenterology departments.

Results: Data collected are shown in Table 1. A total of 32 patients (25 males, 7 females) with diagnosis of EoE were included. Most of the patients (81.2%) had food impactions and dysphagia as initial symptoms. Thirty-one patients (96.8%) were treated with PPIs. About one third of these patients (36.36%) required treatment with corticosteroids due to lack of histological remission, and 63.63% of them due to lack of clinical remission. Twenty-one patients (65.6%) underwent elimination diet concomitant with PPI treatment, with or without corticosteroids. Only one patient underwent esophageal dilation. Two patients were treated with biologic therapy (omalizumab) for other reasons (mast cell activation syndrome and asthma). The overall improvement was about 80% with all the therapeutic methods. Dysphagia was the persistent mostly frequently described symptom by patients after treatment.

Conclusion: Most of the patients had an appropriate evolution with conventional treatments, either in monotherapy or with combination therapy. However, new therapies are needed to achieve remission in non-responders due to the chronic course of the disease and its severe consequences.

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Total n	32			
Male n (%)	25 (78,1%)			
Female n (%)	7(21,8%)			
Atopy history n (%)	27 (84,3%)			
Food allergy history n (%)	23 (71,9%)			
Esophageal biopsy for diagnostis n (%)	32 (100%)			
Eosinophils/high powered field (%)	15-30	31-60	>61	
	37,5%	28,1%	18,7%	
Food impaction before diagnosis n (%)	26 (81,2%)			
Dysphagia before diagnosis n (%)	26 (81,2%)			
Chest pain before diagnosis n (%)	6 (18,7%)			
PPI n (%) 31 (96,8%)	Omeprazol	23 (74,2%)		
	Pantoprazol	2 (6,5%)		
	Esomeprazol	3 (9,7%)		
	Lansoprazol	2 (9,7%)		
Improvement with PPI n (%)	25 (80,6%)			
Corticosteroids n (%) 12 (37,5%)	Budesonida	4 (28,6%)		
	Fluticasona	8 (57,1%)		
Improvement with corticosteroids n (%)	12 (85,7%)			
Food elimination at same time as PPI+/- corticosteroids n (%)	21 (65,6%)			
Improvement with food elimination n (%)	17 (80,9%)			
PPI+ corticosteroids due to lack of clinical improvement n (%)	3 (27%)			
PPI+ corticosteroids due to lack of histological remission n (%)	8(72,2%)			
Biologics- Omalizumab n (%)	2 (6,2%)			
Improvement with biologics n (%)	2 (100%)			
Esophageal dilation n (%)	1 (3%)			
Esophagela biopsy after treatment n (%)	19 (59,4%)			
Eosinophils/high powered field (%)	<15	15-30	31-60	>61
	36,8%	15,7%	21%	10,5%
Food impaction after treatment n (%)	6 (18,7%)			
Dysphagia after treatment n (%)	11 (34,4%)			
Chest pain after treatment n	0			

Table 1.

Conflicts of Interest: The authors did not specify any links of interest.

001487 | Eosinophilic esophagitis and ltp sensitization: An emergent link?

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*Presenting author: A. L. Pinhal

Case report

Introduction: Eosinophilic Esophagitis (EoE) is a chronic inflammatory disease of the esophagus characterized by symptoms of dysphagia and food impaction. Concomitant atopic disease is common. Lipid Transfer Proteins (LTP) are thermostable proteins, ubiquitous in the plant kingdom. We aim to describe the case of a woman with EoE and sensitization to LTP.

Description: A 33-year-old female harpist, with a history of asthma and allergic rhinitis, was observed in our outpatient clinic for dysphagia and food impaction that had started several years before. Initially, the complaints were with chicken and turkey, followed by sesame, spinach, fresh fruits and nuts. She adopted an elimination diet guided by symptoms which became progressively more restrictive with eviction of all the referred foods. The main results from the allergy food work-up performed were positive skin prick tests (SPT) with commercial extracts to LTP and positive skin prick-prick tests to linseed, sesame, apple, turkey, banana and melon. ImmunoCAP ISAC® test demonstrated positive specific IgE for Ses i 1 and Pru p 3. In the first upper endoscopy, circular rings, strictures and exudates were observed. Esophagus biopsies showed epithelial eosinophilic infiltrates (50 eosinophils per high power field) and eosinophilic microabscesses. Helicobacter pylori infection was identified in the gastric mucosa. Clinical history and endoscopy confirmed the diagnosis of eosinophilic esophagitis. Treatment with esomeprazole 20 mg twice daily was initiated as well as eradication of H. Pylori. Only partial control of symptoms was achieved with this treatment and diet. The follow-up endoscopy revealed no improvement and esomeprazole was up dosed to 40 mg twice daily. Additional treatment with topical corticosteroids and dupilumab is being considered. Taking into account the potential nutrition deficits, she was also referred to a nutritionist.

Discussion: The recommendations for elimination diets in EoE are not completely established. In this case, the patient is sensitized to LTP, which is an allergen not frequently described in EoE. Maintenance of a diet that avoids these allergens may be difficult and especially challenging in this patient who frequently travels. New drugs, recently approved for EoE, may be particularly beneficial in this case.

JM case reports session: 18243.

Conflicts of Interest: The authors did not specify any links of interest.

001062 | Retrospective evaluation of diagnostic routes of patients with peripheral eosinophilia

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Background: Peripheral eosinophilia is defined as peripheral blood eosinophil count above 0.5 G/L. The condition can be caused by numerous factors such as asthma, allergy, atopic dermatitis, leukaemia, vasculitis, tumours, and parasitic infestations. Since there are many potential causes of a condition and clinical manifestations are often non-specific, the cause of eosinophilia remains a diagnostic challenge with some cases considered idiopathic. Our study aimed to evaluate diagnostic routes that patients with peripheral eosinophilia underwent and investigate final diagnostic outcomes.

Method: The group consisting of 44 patients with peripheral blood eosinophils over 1.0 G/L referred to the allergology department was selected randomly. The group consisted of 36.36% male and 63.64% female patients. The mean patient's age was 55 years. The data including anthropometric measurements, laboratory test results, imaging, additional tests (including bronchoscopy, and trepanobiopsy if performed) and final diagnoses were drafted from the department's retrospective data and analyzed. Statistical analysis was done using Spearman's rank correlation coefficient calculated with Statistica 13 software.

Results: In a studied group most common diseases associated with eosinophilia were: asthma (77.27%), allergic rhinitis (25%), eosinophilic granulomatosis with polyangiitis (EGPA)(18.8%), parasitic infestations (13.64%), chronic eosinophilic pneumonia (6.82%), atopic dermatitis (2.27%) and eosinophilic esophagitis (2.27%). Eosinophil counts ranged from 1.21 G/L up to 12.24 G/L. Statistical analysis of laboratory test

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results has shown a correlation between asthma and basophils which was statistically significant (p-value < 0.05). Additionally, a positive correlation between monocyte count and EGPA diagnosis was recognized. No statistically significant correlations have been identified between eosinophil count and final diagnosis.

Conclusion: Most common diagnosis in patients with peripheral eosinophilia was asthma. The eosinophil count could not predict a specific cause of raised eosinophil count. High monocyte count in patients with eosinophilia might predict EGPA.

Conflicts of Interest: The authors did not specify any links of interest.

EPIDEMIOLOGY 1

000803 | Association of exposure to environmental vanadium and manganese with lung function among young children: A population-based study

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*Presenting author: T. C. Yao

Background: Exposure to environmental metals has been associated with health outcomes including respiratory health. Little is known about the impact of exposure to environmental metals on lung function among young children in general population. This study aimed to investigate the associations of exposure to metals with lung function among young children in a population-based cohort.

Method: A total of 1488 children aged 5–8 years attended a follow-up visit as part of the Longitudinal Investigation of Global Health in Taiwanese Schoolchildren (LIGHTS) cohort. Urinary concentrations of vanadium, manganese, arsenic, nickel, and cadmium were measured, and lung function tests were performed.

Results: Urinary vanadium concentrations were inversely associated with FVC (β coefficient for the highest quartile versus the other quartiles: −33.40, $p = 0.001$), FEV_1 (β: −41.31, $p < 0.001$), FEV_1/FVC ratio (β: −1.00, $p = 0.009$), PEF (β: −92.12, $p = 0.004$), and FEF_{25-75} (β: −82.85, $p < 0.001$), after adjusting for relevant confounders. Urinary manganese concentrations were inversely associated with FVC (β: −26.60, $p = 0.007$), FEV_1 (β: −31.62, $p = 0.001$), PEF (β: −84.86, $p = 0.009$), and FEF_{25-75} (β: −69.21, $p = 0.002$). Stratification analyses found inverse association of urinary vanadium and manganese concentrations with lung function predominantly among children exposed to environmental tobacco smoke. We did not find significant associations of urinary arsenic, nickel, and cadmium concentrations with lung function parameters.

Conclusion: This study adds new evidence showing inverse association of vanadium and manganese exposure with lung function among young children in the general population. Children with environmental tobacco smoke exposure are particularly vulnerable to adverse impact of vanadium and manganese exposure on lung function.

Conflicts of Interest: The authors did not specify any links of interest.

000692 | Exclusive sensitization to ARA H 9 is not associated with clinical reactivity in the majority of children in central Spain

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*Presenting author: I. C. De Agrela Mendes

Background: LTP sensitization is common in the Mediterranean area. The most frequently offending food involved in clinical presentation is peach, nevertheless restrictive diets in children who show sensitization to other LTP-containing foods is commonly seen in the clinical setting. This leads to unnecessary restrictive diets which impact on patients QoL. Our aim was to evaluate clinical reactivity of patients diagnosed of peanut allergy with exclusive LTP sensitization

Method: Patients with peanut allergy (PA) diagnosis were prospectively recruited. Demographic and clinical data were collected. The study included skin prick test (SPT) with commercial peanut extract, LTP, prick-prick test and determination of total and specific IgE against peanut and its components by means of ImmunoCAP. Patients who tested positive for peanut LTP (Ara h9) but not to seed storage proteins (Ara h2 and 6) were included. Oral food challenge (OFC) with roasted or fried peanuts was performed.

Results: Seventy-five patients with a median age of 9.42 years (IQR: 6.83–13.08) were included (females $n = 56$, 33.3%). Forty-two patients (56%) had a previous history of peach allergy and 26 (34.67%) had a diagnosis of allergy to another nut. Only 20 patients (26.67%) had withdrawn peanut from the diet because of presenting symptoms upon its intake. The rest of the patients (73.33%) were on an exclusion diet because of having had symptoms with another nut (28 cases) or a positive SPT with commercial peanut extract (27 cases). Half ($n = 20$) of the patients presented oral allergy syndrome (OAS) and 30% have had anaphylaxis. All the patients tested positive for LTP in SPT (median 6.5 mm, range 3–14.5), 72.9% tested positive with commercial peanut extract (median 0 mm, range 0–11.5) and 42.9% in prick-prick (median 0 mm, range 0–8.5). Median total IgE was 2.73 kU/L (range 13.8–4278), median specific IgE (sIgE) against peanut was 2.74 kU/L (range 0.35–113), median sIgE-Ara h 9 was 4.13 kU/L (range 0.4–76.5). All the patients underwent an OFC with fried or roasted peanuts. Only one patient tested positive, presenting with OAS.

Conclusion: The vast majority of the patients exclusively sensitized to peanut LTP passed an OFC with peanut. This indicates that exclusive sensitization to LTP in the absence of seed storage proteins may be cautiously evaluated and performing OFC is worthwhile, as it may prevent from unnecessary restrictive diets.

Conflicts of Interest: The authors did not specify any links of interest.

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000798 | Association between asthma and cardiovascular diseases: A longitudinal follow-up studies using a national health screening cohort

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Background: Asthma has been suggested as a risk factor for cardiovascular diseases (CVDs). However, the evidence for this relationship is inconclusive. This study investigated the long-term relationship of asthma and asthma exacerbation with the occurrence of CVDs such as ischemic heart disease (IHD), heart failure (HF), and stroke using data from a large-scale nationwide cohort.
Method: This longitudinal follow-up study comprised 111,316 asthma patients and 1:1 matched control participants based on propensity scores of age, sex, residential area, and income from the Korean National Health Insurance Service-Health Screening Cohort database (2002–2019). A propensity score overlap weighted cox proportional hazard regression model was used to analyze the overlap weighted hazard ratios (HRs) of asthma and exacerbated asthma for CVDs. In these analyses, crude (unadjusted) and overlap-weighted model (adjusted for age, sex, income, region of residence, blood pressure, fasting blood glucose, total cholesterol, hemoglobin, obesity, smoking, alcohol consumption, the Charlson comorbidity index scores, and chronic obstructive pulmonary disease) were used.
Results: During the follow-up period, IHD occurred in 8215 patients with asthma and 6066 controls (incidence rates (IR): 7.82 and 5.79 per 1000 person-years (PYs), respectively). HF occurred in 2743 patients with asthma and 1457 controls (IR 2.53 and 1.36 per 1000 PYs, respectively). After adjustment, the asthmatics exhibited 1.27-fold and 1.56-fold higher occurrences for IHD (95% confidence interval (CI) = 1.23–1.37, $p < 0.001$) and HF (95% CI = 1.36–1.63, $p < 0.001$) than the controls, respectively. In addition, subgroup analyses demonstrated that increased HR for IHD and HF in exacerbated asthma group, which requires hospitalization, emergency department visit, or systemic steroid use, than those of the non-exacerbated asthma group (aHR, 1.29, 95% CI = 1.24–1.34, $p < 0.001$ for IHD and aHR 1.68, 95% CI = 1.58–1.79, $p < 0.001$ for HF). However, the occurrence of stroke was decreased in asthmatics than in controls (aHR = 0.96, 95% CI = 0.93–0.99, $p = 0.008$).
Conclusion: Adult asthma patients may increase the likelihood of developing CVDs. In addition, asthmatics who had a history of severe exacerbation had a more increased risk for CVDs.
Conflicts of Interest: The authors did not specify any links of interest.

001112 | Hypersensitivity to dog allergens: Dependence of the severity of symptoms of allergic rhinitis and/or asthma on sensitization to allergenic proteins of the dog

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Background: Dog allergens are an important factor in the occurrence of year-round allergies among children and adults, the most frequent manifestations of which are allergic rhinitis and asthma.
The aim of the study: to analyze the dependence of the severity of allergic rhinitis and asthma in patients with hypersensitivity to dog allergens on sensitization to individual dog allergen proteins.
Method: Blood serum of 102 patients (37 women and 65 men) with a confirmed diagnosis of persistent allergic rhinitis and/or asthma and hypersensitivity to dog allergens was used for the study of dog allergenic proteins. Serum was analyzed for the presence of the major dog allergen proteins Can f1 and Can f5 and the minor (cross-reactive) protein Can f3 using ImmunoCAP technology (Thermo Fisher Scientific, Uppsala, Sweden).
Results: The vast majority of patients with a mild form of persistent AR were monosensitized to one of the major dog allergen proteins Can f1 (50%) or Can f5 (33%). Whereas sensitization to 2 proteins occurred in this category of patients much less frequently, as only 12% of patients were sensitized to Can f1 and Can f5, and 5% to Can f1 and Can f3 simultaneously. In patients with a moderate and severe form of persistent allergic rhinitis, the sensitization profile was dominated by hypersensitivity to several allergenic components (Can f1 and Can f5), which occurred in 40% of the examined, and sensitization to 3 components (Can f1, Can f5 and Can f3) of allergens dogs – in 50% of patients. Among the examined patients with asthma, the most frequent proteins in the form of mono- or co-sensitization were the main dog allergens Can f1 and Can f5. Monosensitization to the minor component of Can f3 was not detected in any patient from both groups of subjects.
Conclusion: The vast majority of patients with allergic rhinitis and/or asthma and hypersensitivity to dog allergens were sensitized to one or both of the major dog allergens Can f1 and Can f5. As a rule, sensitization to 2 or more allergenic proteins was associated with a more severe course of respiratory allergy pathology.
Conflicts of Interest: The authors did not specify any links of interest.

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000592 | Electronic drug allergy alert in a Spanish university hospital: Description of changes and over-rides

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Background: The electronic drug allergy alerts reduces the frequency of adverse drug events, although it is subject to collateral effects, since 80%–90% of alerts are not real, and a large percentage are over-ridden (46.2%–96.2%). We reviewed how the alert system is used at University Hospital Fundación Alcorcón (HUFA).

Method: Data was obtained from drug allergy alert and the alert over-ridding notification forms (2011–2020). We also recorded drug allergy diagnoses at HUFA and drug consumption in primary care in 2016. We analyzed: causative drugs, activation, over-rides, cancellation and reactivation of drug alerts.

Results: During the study period 6.83% (1061) of the alerts were cancelled, with a median duration of cancellation of 28.68 months (IQR: 8.63–91.60). The highest number of cancellations were made at the Allergy Unit (61.4%), Emergency (10.8%), Internal Medicine (10.1%) and Anesthesia (7.43%) departments. Penicillins (26.91%) followed by other NSAIDS (8.21%) and propionic acid NSAIDs (7.86%) were the most frequently cancelled drugs. Reasons reported for deleting alerts were: drug allergy ruled out (45.56%), drug allergy ruled out in the Allergy Department (14%), re-edition of drug allergy alert to improve accuracy (8.3%) and correction of mistakes (9.6%). 21.77% of the cancelled alerts were reactivated, being the main reason to improve information given for a drug allergy alert. Penicillins (49.5%) and NSAIDS (36.3%) were the most reactivated, followed by fluoroquinolones (22%), heparins (5.5%) and iodinated contrast media (4.4%). Regarding to NSAIDs, hypersensitivity to pyrazolones was responsible for 47.6% of the reactivations. The median time between cancellation and reactivation was of 3.3 months. 100 over-rides were recorded per year from 2016 (6.8% of 8434 activated alerts, during 2014–2020). Over-ride reasons for beta-lactam antibiotics were in 17.6% of the cases due to prescription of the same drug and 4.11% due to cross-reactivity. In reverse for NSAIDs, cross-reactivity accounted for 45.5% compared to 13.82% of the same NSAID prescription.

Conclusion: We detected a low frequency of cancellations (6.83%), being ruled out drug allergy the main reason. A relevant frequency of reactivations (21.77%) and a very low frequency of overrides (6.8%) mostly for beta-lactam antibiotics and NSAIDs as reported for other items in this study.

Conflicts of Interest: The authors did not specify any links of interest.

000276 | Celiac disease and IgE-dependent allergy: Does the opposite dominant immune mechanism exclude the coexistence of these diseases?

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*Presenting author: M. Choina

Background: The dominant mechanism of immunological response is the opposite in IgE-mediated allergy (A-IgE) and celiac disease (CD). The activated T helper type 2 cells play a pivotal role in A-IgE and their function prevents the development of cellular response and tissue destruction, typical of CD. Nevertheless, in both diseases, the part of T regulatory cells is impaired, which theoretically may result in concomitant A-IgE and CD. The aim of the study was to evaluate if A-IgE and CD can coexist.

Method: To verify the possibility of the coexistence of CD and A-IgE, the following keywords were searched in the database PubMed: „allergy OR sensitization OR anaphylaxis AND celiac OR coeliac" until 28th December 2022. This systematic review was performed in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. The review protocol has been submitted for registration to PROSPERO system (ID number 383887).

Results: In total, 2013 publications were found. After rejecting studies unrelated to the occurrence of A-IgE in CD, the analysis included 18 publications (6 observational studies and 12 studies describing a total of 15 cases). The authors of 4 research articles confirmed that CD patients might also suffer from A-IgE, while in 2 research articles, the relationship between these diseases was denied. The analysed studies used various tests to diagnose sensitization/allergy. The sensitization in the subjects with CD ranged from 16.6% to 20.0% when specific immunoglobulins E in the blood serum were tested to more than one allergen. The most frequently tested allergens were these containing gluten: wheat, rye and barley. Wheat was the most frequent allergen source causing A-IgE symptoms in subjects with CD (4.0%–7.0%).

Conclusion: The analysis indicates the possible coexistence of A-IgE in CD subjects. As the GFD may promote wheat sensitization and decreased oral tolerance, strict elimination of cereals needs to be thoughtfully prescribed. Clinical manifestations of both diseases might overlap, which may lead to allergy underdiagnosis in CD patients. Screening for A-IgE in CD subjects should be considered, especially when symptoms persist after the GFD introduction. The review implies the need for further research on the coexistence of CD and A-IgE and an explanation of mechanisms responsible for the coexistence of these diseases.

Conflicts of Interest: The authors did not specify any links of interest.

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000676 | Relationships between blood eosinophil count and change in body mass index: A longitudinal observation study in healthy individuals

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Background: A relationship between obesity and blood eosinophilia has been reported. However, considering the characteristics of blood eosinophilia with large changes over time, a large-scale, longitudinal study is needed. Also, studies on the relationship between obesity and blood eosinophilia in normal subjects without asthma are rare.

Method: We analyzed data of healthy subjects who had undergone at least three medical checkups at the Seoul National University Hospital Healthcare System Gangnam Center. The annual peripheral blood eosinophil count (BEC) and body mass index (BMI) change rate were calculated, and the correlation was analyzed.

Results: A total of 29,517 individuals was enroll in this study. Cross-sectional analysis showed BECs were positively correlated with BMI in each visit. Individuals who were consistently obese or non-obese in all three visits were analyzed and with all three visits, the BECs were higher in obese group. When the total population is divided into four groups according to sex and smoking status, BECs of obese were higher in each visit with statistical significance except only for smoking female group. With longitudinal analysis, eosinophil change was also correlated with BMI change in four groups. We also analyzed the relationship of BMI and BEC changes in the subgroups with BECs consistently above 300, 200, and 100 for all three visits and it also showed positive correlation.

Conclusion: In this study, we confirmed the association between obesity and eosinophilia and their changes over time in a large-scale study of healthy individuals.

Conflicts of Interest: The authors did not specify any links of interest.

000975 | Trends in adult referrals to an allergy department: Shift in a decade (trade study)

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Background: The incidence and prevalence of allergic diseases are globally increasing and new players are coming to the field. The health care system should accompany these new trends. The aim of this study was to characterize the referral of adult patients to an Allergy and Clinical Immunology department of a tertiary hospital a decade apart.

Method: Demographic data, characteristics of referral and the main final diagnosis of adult patients, referred to our outpatient clinic in 2009 and 2019, were collected in the last trimester of 2019. Statistical analysis was performed with IBM SPSS Statistics 28®, the Wald H0 and the Median tests were used, and results were considered significant for $p < 0.05$.

Results: A total of 4368 patients were included, 1788 in 2009 and 2580 in 2019, corresponding to a 44% increase in referrals. The median age (IQR) raised from 36 (23) to 40 years (26; $p < 0.001$) and most patients were female (65% and 66%, respectively). Patients were mainly referred from primary health care, 71% in 2009 and 74% in 2019. The main reasons for referral in 2009 were rhinitis (37%), asthma (21%), urticaria (12%), drug allergy (10%) and angioedema (3%). In 2019, the main motives were rhinitis (28%), drug allergy (25%), urticaria (15%), asthma (12%) and food allergy (7%). There was a significant decrease of the proportion of referrals for rhinitis ($p < 0.001$) and asthma ($p < 0.001$) and a significant increase of drug allergy ($p < 0.001$), urticaria ($p = 0.01$) and food allergy ($p < 0.001$). Considering all those referred for rhinitis (1254), 66% had allergic rhinitis as the main diagnosis, 18% non-allergic rhinitis and 5% asthma. Asthma was confirmed in 72% of the 616 patients who were referred for this suspicion. From the total of 778 referred for drug allergy, only 28% had concluded the study (confirmed in 20% and excluded in 8%). Urticaria was the diagnosis in 60% of the 550 patients referred for this reason. Only 48% of the 198 patients referred for food allergy, had concluded diagnostic work-up (confirmed in 32% and excluded in 16%). Of the 83 patients referred for unspecified cough, 25% were diagnosed with rhinitis and 10% with asthma.

Conclusion: This study highlights the overall increase of referrals to our department and the shift in the top five allergic conditions in adults. Awareness of the multiplicity of allergic diseases and possible interventions with relevant clinical outcomes may explain this trend. Characterization of other subsets of the whole TRADE study sample will be the aim of other presentations.

Conflicts of Interest: The authors did not specify any links of interest.

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001508 | Skin prick test sensitization in allergic patients in Mexico differs between dry and humid regions and has augmented over the past 12 years

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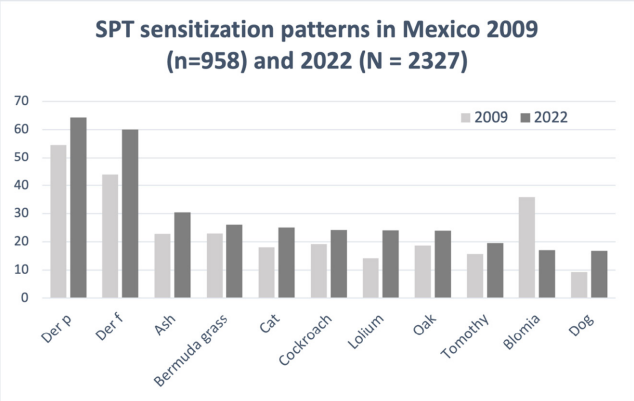
*Presenting author: D. Larenas-Linnemann

Background: In 2009 we conducted a nationwide retrospective SPT sensitization study in Mexico. We decided to repeat the same observations in 2022, as a first step in conducting a prospective trial.

Method: colleagues throughout the country were asked to download the results of their last 100 SPT in patients 3–80 years, with respiratory allergy in a standardized excel file. Clinics were grouped according to the National Geographical Center, INEGI, climatologic classification, in (semi)humid and (semi)dry zones. Results are presented descriptively and analysed nationwide and compared to the 2010 results. We also compared between humid and dry zones, using Chi-square test with Yates' correction to calculate Risk Ratio (RR) and confidence intervals (Cis), with $p < 0.05$ as cut-off for between-zone comparisons.

Results: Physicians from 19 different clinics participated, distributed all over Mexico. For% of SPT positivity of the ten most frequent positive aeroallergens in 2022 versus 2009, see Figure 1. When compared to the drier zones, in (semi)humid zones of Mexico the risk for SPT(+) was higher for ash, oak, and olive (RR between 1.68–2.40; $p < 0.001$ for all), Alternaria (RR $p < 0.01$), cockroach and almost all weeds (RR between 1.30–8.36; $p < 0.01$–0.001; exception *salsola*); while the RR for SPT(+) was lower than in the dry zones for mesquite (RR 0.6887 95% CI 0.5564–0.8525; $p < 0.001$) and pepper tree pollen (RR 0.6565 95% CI 0.4938–0.8727; $p < 0.005$) and almost all grasses (RR between 0.30–0.71; $p < 0.05$–0.001).

Conclusion: The here presented results suggest a quite remarkable rise in SPT sensitization, specifically of the most common allergens, over the past 12 years, and a different sensitization profile throughout the country, related to humidity. These data should be confirmed in a prospective study with blinded extracts and standardization of the SPT technique. Data should ideally be complemented by molecular allergen sensitization profiles.



Conflicts of Interest: The authors did not specify any links of interest.

001075 | Prevalence and clinical characteristics of molecular house dust mite sensitization in a mediterranean area

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*Presenting author: M. J. Castillo

Background: House dust mites (HDM) contains allergen components that causes allergy around the world. Major allergens of HDM are Der p 1, Der p 2 and Der p 23 (WHO/IUS Allergen Nomenclature). The objective of this study was determining prevalence and characteristics of the sensitization of molecular allergens Der p 1, Der p 2 and Der p 23 in our region.

Method: A descriptive, retrospective study of 2141 patients from 2018 was made. The selection criteria was the positivity in *D. pteronyssinus* skin test and presence of respiratory symptoms (rhinitis, rhinoconjunctivitis, asthma, spasmodic cough). We collected data on age, gender, skin tests positivity's, total IgE, single plex Der p 1, Der p 2, Der p 23, clinical symptoms, evolution time of allergic sensitization, indication of immunotherapy and comorbidities. The ethics committee authorized the study.

Results: 288 patients fulfilled the selection criteria, 134 were adults (57 males, 77 females) and 154 children (98 males, 56 females). According to co-sensitizations towards pollens, animals and moulds, patients were divided into mono-sensitized (42%), oligo-sensitized (2 allergens groups; 11.4%) and poly-sensitized (3 or more allergens groups) 22.2% patients. Only 11.4% of patients were diagnosed from asthma. Most of them, 77.7%, had an indication for immunotherapy according to the guides. The average time from symptom

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evolution to diagnosis was 4.49 years. 70.4% of patients were positive to Der p 1; 81.2% were positive to Der p 2 and 72.9% were positive to Der p 23. Only 4.5% of patients were negative to recombinant allergens Der p 1, Der p 2 and Der p 23. Secondly, 5.9% of patients were mono-sensitized to Der p 23.

Conclusion: Prevalence and characteristics of sensitization to molecular HDM allergens depend on the geography. In our study mono-sensitization to HDM is high (42%) and Der p 1, 2 and 23 behaves as a major HDM allergens.

Conflicts of Interest: The authors did not specify any links of interest.

001099 | Hereditary angioedema due to C1-esterase inhibitor deficiency in Valladolid, Spain. Clinical profile and genetic study

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Rio Hortega University Hospital, Valladolid, Spain

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Background: Hereditary angioedema due to C1 inhibitor deficiency (HAE-C1-INH) is a rare genetic disease. The different characteristics and mutations in these patients are poorly elucidated in Valladolid (Spain). Moreover, the prevalence of the disease in Valladolid remains unknown. We consider it of interest to do an analysis of these patients, proposing possible local characteristics as hypotheses. Furthermore, increase knowledge about HAE-C1-INH would help clinics to decrease diagnostic delays.

Objectives: describe patients with HAE-C1-INH in Valladolid and document mutations in the SERPING1 gene. Identify different variants and establish the minimum prevalence of the disease.

Method: We conducted a cross-sectional descriptive observational study of patients diagnosed with HAE-C1-INH in the Allergology Unit of the Rio Hortega University Hospital in Valladolid, and follow-up during the period from October to December 2021.

Results: Twenty-six patients were diagnosed with HAE-C1-INH in our Allergology Unit, twenty-two of them were alive in the inclusion period. All patients had HAE-C1-INH type 1. The age of onset was 23 ± 12.79 years, and the diagnostic delay was 5.59 ± 8.73 years with no mortality associated to HAE-C1-INH. Five different mutations distributed along the SERPING1 gene were found. Overall, the clinical characteristics were comparable to those described in the literature. A minimum prevalence of 4.23 per 100,000 inhabitants was established.

Conclusion: Patients with HAE-C1-INH in Valladolid have similar clinical presentations and attack triggers to those described in the literature. The minimum prevalence was higher than the national and international average, with a total predominance of Type 1. Genetic analysis helped identify the molecular basis of HAE-C1-INH, moreover it should be noted the heterogeneity of the mutations. The diagnostic delay is lower than the national and international average, but it is clinically significant. Thus, it is imperative that knowledge about the disease be spread.

Conflicts of Interest: The authors did not specify any links of interest.

000510 | Clinical features of pediatric chronic urticaria: A single-center analysis

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*Presenting author: M. Votto

Background: Chronic urticaria (CU) is defined as the daily or almost daily recurrence of wheals with or without angioedema for more than six weeks. CU is defined as spontaneous (CSU) or inducible (CIU) if it occurs in response to specific and definite triggers. Although CU is a self-limiting disorder, it significantly impairs the quality of life. CU is less common in children than in adults; the overall estimated prevalence is approximately 1% in Europe. The therapeutical management of pediatric CU is extrapolated from adult guidelines.

Method: We conducted a retrospective study enrolling children and adolescents (<19 years) with CU, followed at the Pediatric Clinic in Pavia from 2014 to 2022. We collected clinical data, focusing on treatments received and their response. All patients provided written informed consent; the Ethical Committee approved the study.

Results: A total of 55 patients (median age 9 years; 70% female) have been enrolled. CSU was more common (78%) than CIU. In 42 (76%) patients, CU was triggered by an infection (71% viral infection [EBV, CMV, HHV-7, HHV-6, and SARS-CoV-2] and 29% parasitosis). 29 (53%) patients had other allergic comorbidities (allergic rhinitis prevailed in 25% of cases). 30 (55%) patients responded to a single dose of antihistaminic, and 7 (13%) patients found benefits after increasing the antihistaminic dose. Omalizumab was administered in 15 (27%) patients. Among these, 3 (20%) patients received omalizumab therapy off-label because of their age (<12 years). No patients experienced side effects after or during the omalizumab cycle. 12 (80%) patients experienced a complete CU resolution, while 3 (20%) patients needed a second omalizumab cycle.

Conclusion: CSU is the most common subtype of CU and is mainly triggered by viral or parasite infections. Antihistamine therapy is often inadequate to control CU symptoms. Omalizumab was an effective therapy in all patients who mostly recovered after a single cycle. No adverse events have been reported, even in patients under 12 years.

Conflicts of Interest: The authors did not specify any links of interest.

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000596 | Clinical profiles of allergic sensitivity to anisakis simplex

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Background: *Anisakis Simplex* is a parasite that can generate many different diseases (allergic, digestive, or a mixture of both), as it usually infests fish and shellfish. The prevalence of anisakiosis is currently on the rise due to the exponential increase in the consumption of raw or undercooked sea products as a result of globalization. That is the reason there are more and more patients with allergic sensitization to this parasite. Many times the allergic sensitization does show a correlation with the clinical presentation of the patient; but, in many other cases, sensitization may not have any relation.
Method: This paper presents a descriptive retrospective study based on 32 patients who consulted for allergic reactions and were found to be sensitized to *Anisakis S*. We state the relevant percentage of this allergy in relation to the index reaction for which the patients had consulted, as well as which food had triggered the reaction. After that, we checked whether the patients had suffered any sympton after been given a brochure with recommendations for avoidance of this parasite.
Results: Table 1 displays the results of this research. As shown on the table, fish species have been identified as a reaction trigger only in 14 out of the total number of surveyed patients. Later on, only 20 patients have been reassessed whether they had had further reactions after the delivery of the aforementioned recommendations.
Conclusion: Many allergic reactions are due to allergic sensitization by *Anisakis S*. Nevertheless, according to these results, this parasite becomes relevant only in half of the cases approximately. The most frequent clinical symptomatology is anaphylaxis. In relation to food, the most frequent triggers were fish, in particular, anchovies. After being handed some recommendations to avoid new reaction, 60% of the patients did not have any reaction again.

SOCIODEMOGRAPHIC STUDY OF THE SAMPLE (n=32)		
Age	Average: 53 years Mode: 70 years Median: 49 years	
Sex	Female: 22 (68.75%) Male: 10 (31.25%)	
REACTION INDEX (n=32)		
Clinical signs and symptons	CU/AE: 10 (31.25%) Anaphylaxis: 18 (56.25%) Digestive: 4 (12.5%) Respiratory: 0 (0%)	
Clinical relevance of Anisakiosis	Yes: 14 (43.75%) No: 18 (56.25%)	
Involved food (n=14)	Fish: 10 (71.42%)	Anchovies: 5 (35.71%)
		European bass (*Dicentrarchus labrax*) / Hake / Other 5 (35.71%)
	Shellfih: 4 (28.57%)	
ALLERGOLOGICAL STUDY (n=32)		
Average Prick Anisakis	3.93 mm	
Average IgE Anisakis	38.34 UI/mL	
EVOLUTION (n=32)		
Informative brochure against anisakiosis	Yes: 32 (100%) No: 0 (0%)	
New reactions after handing brochure (n=20)	Yes: 8 (40%) No: 12 (60%)	

Conflicts of Interest: The authors did not specify any links of interest.

EPITHELIAL CELL BIOLOGY

000851 | Gene expression analysis of nasal provocation-associated cellular responses in birch pollen-allergic individuals

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*Presenting author: C. Hafner

Background: Birch is one of the major elicitors of pollinosis in Europe. Interaction of inhaled pollen with airway epithelial cells results in an immune response, which may lead to allergic sensitization in certain individuals. However, exact mechanisms that lead to birch pollen (BP) allergy are not yet completely understood. In the current pilot study, we aim to characterize the cellular responses upon BP nasal provocation (NP) in BP-allergic individuals, using a systems biology approach.
Method: Twelve BP-allergic individuals were recruited with informed consent and subjected to NP with saline solution (N1) as control and an aqueous BP NP solution (N2), on two separate days. Patients were assigned to four different time points (15, 30, 60 or 120 min) with three patients in each group to obtain nasal scrapings (NS) after N2. In addition, NS were obtained 15 min after N1 from each patient. Total RNA from NS was isolated and sequencing libraries were prepared at the Core Facility Genomics, Medical University of Vienna, using the QuantSeq FWD protocol (Lexogen). Pooled libraries were sequenced on a NextSeq500 instrument (Illumina) in 1 × 75 bp single-end sequencing mode. Differential gene expressions between N1 and N2 was calculated using the DESeq2 version 1.22.2. Further analysis was performed using the gProfiler Web Tool, the Ingenuity Pathway Analysis (IPA) tool and the GENEVESTIGATOR platform.
Results: From the set threshold, at time points 15, 30, 60 and 120 min, 8, 123, 13 and 21 differentially expressed genes (DEGs), respectively, were obtained. At time points 15, 30, 60 and 120 min, 14, 90, 41 and 39 significantly enriched pathways, respectively, were obtained from the gProfiler over-representation analysis. DEGs from 15 and 30 min (N2) were pooled and subjected to IPA core analysis, resulting in 84 significant Canonical Pathways and 2956 Upstream Regulators. Similarly, DEGs from 60 and 120 min (N2) resulted in 26 significant Canonical Pathways and 628 Upstream Regulators. The Signature Tool dissected top 50 conditions that showed highest similarity with the patients' gene expression data. Our results demonstrate activation of important cellular pathways related to cell adhesion, innate immune responses and cell proliferation after NP.
Conclusion: These pathways open new perspectives to study the role of key players in BP allergy. Currently, the study is extended to

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non-allergic subjects, to be included as an additional control group to gain further insights.

Conflicts of Interest: The authors did not specify any links of interest.

000476 | Cigarette smoke exposure of ali-cultured nhbe cells and pubertal male mice increases bronchial epithelial thickening in adults

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*Presenting author: B. Hammer

Background: While cigarette smoking (CS) is decreasing in the overall population, smoking in early adolescence is increasing. CS exposure is associated with airway diseases as COPD and asthma, but the underlying mechanisms are not fully understood. Oxidative stress generated by CS induces molecular and structural alterations in the lung. In this study, we aim to investigate if CS exposure during puberty as a susceptibility window has long-term influence on the airway epithelium.

Method: NHBE cells were cultured at air-liquid-interface (ALI) and exposed to mainstream CS (3R4F, University of Kentucky) or room air (air; 9 or 18 min/day) from d14 once per day for 14 days (P.R.I.T. ExpoCube), and further processed for PAS staining. 3-week-old, prepubertal male C57BL/6 mice were exposed to a low dose of mainstream CS (3R4F) for 2 weeks (1 puff/min) and to heavy smoking (4 puffs/min) for 4 weeks or air for 1 h once per day 5 days/week (inExpose System). At 9 weeks of age, lungs were collected for qRT-PCR, H&E and PAS staining, immunohistochemistry and airway measurement.

Results: Both CS exposures of NHBE stimulated mucus production, and the epithelial thickness of the cells (CS for 9 min/day) was significantly increased compared to the air-exposed NHBE cells. In pubertal CS-exposed male mice, CS significantly increased bronchial epithelial thickness. Furthermore, mRNA levels of *Sod2* and *Nox4* were significantly downregulated in male CS-exposed lungs. Conversely, CS increased SOD2 in the bronchial and bronchiolar epithelium, and NOX4 was localized in the bronchiolar epithelial cells of both exposure groups.

Conclusion: CS exposure at onset and during puberty triggers bronchial epithelial thickening in early adulthood of male mice. Reactive oxygen species might possibly play a role in this process.

Conflicts of Interest: The authors did not specify any links of interest.

000017 | Clinical relevance of serum CC16 in adult asthma

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Background: Club cell 16-kDa secretory protein (CC16) is a lung surfactant and functions as an anti-inflammatory or anti-oxidant protein. However, altered levels of serum CC16 as well as their effect on asthma have not yet been fully evaluated.

Method: We recruited 63 adult asthmatics and 61 healthy controls (HCs) at Ajou University Hospital, South Korea. The asthmatic subjects were divided into 2 groups according to the results of bronchodilator reversibility (BDR) test: the reversible group (asthmatics with positive BDR test results) and the stable group (those with negative BDR test results). Serum CC16 levels were measured by enzyme-linked immunosorbent assay (ELISA). As an *in vitro* study, the effect of *Dermatophagoides pteronyssinus* antigen 1 (Der p1) on the production of CC16 in airway epithelial cells (AECs) according to a time-dependent manner was assessed; the effects of CC16 protein on oxidative stress system, airway inflammation, and remodeling were tested.

Results: Serum CC16 levels showed significantly higher in the asthmatics than in the HCs ($p < 0.001$). When asthmatics were classified into two groups according to the results of BDR test (reversible vs. stable groups), the reversible group had significantly lower levels of serum CC16 and FEV_1%/MMEF%, but showed higher level of FeNO with a significant correlation between serum CC16 and FEV_1% values ($p < 0.05$ for all). Serum CC16 levels (below 496.0 ng/mL) could discriminate the reversible from the stable group (area under the curve = 0.740, $p = 0.004$). *In vitro* testing demonstrated that Der p1 exposure significantly released CC16 from AECs for 1 h, which was progressively decreased after 6 h, and followed by MMP-9/TIMP-1 production. These findings were associated with oxidant/anti-oxidant disequilibrium, and restored by CC16 treatment (but not dexamethasone).

Conclusion: These results indicate that decreased CC16 in asthmatics may contribute to persistent airway inflammation and reversible airway obstruction, resulting in airway remodeling and lower lung function. Thus, CC16 may be a potential therapeutic target for asthmatics presenting reversible airway obstruction.

Conflicts of Interest: The authors did not specify any links of interest.

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000752 | Expression of long and short isoforms of TSLP in patients with chronic rhinosinusitis with nasal polyps, and their modulation after dupilumab treatment

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*Presenting author: R. Pinto

Background: Chronic rhinosinusitis with nasal polyposis (CRSwNP) is a disease impacting the quality of life of patients, and recently Dupilumab (an anti-IL4 receptor alpha monoclonal antibody) has been approved for its treatment. The pathogenesis of CRSwNP includes the dysregulation of the sinonasal epithelium with hyperproduction of epithelial cytokines (the so-called "alarmins") that drive the type 2 inflammation typical of the most frequent endotypes of the disease. Thymic stromal lymphopoietin (TSLP) is an epithelial alarmin and has been reported to be overexpressed in the nasosinusal mucosa of patients with CRSwNP. Two isoforms of TSLP have been recently identified: the short one, constitutively expressed and with anti-inflammatory activity, and the long one, with pro-inflammatory activity. To date, there are no data on the differential expression of the two isoforms in CRSwNP and their modulation by Dupilumab.

Method: Fifteen consecutive patients with CRSwNP and indication for Dupilumab and 5 healthy subjects were included in the study and underwent sinus mucosal biopsy for evaluation of real-time PCR (rt-PCR) of TSLP long (long-TSLP) and short (short-TSLP) isoforms, and of the TSLP receptor (TSLP-R). The biopsy was repeated 3 and 6 months after the start of dupilumab therapy in patients with CRSwNP. The values were expressed as fold increase with respect to the mean values measured in healthy subjects.

Results: At baseline, patients with CRSwNP had mean long-TSLP, short-TSLP, and TSLP-R values increased by 3.31 ± 5.37, 215.25 ± 315.72, and 91.08 ± 265.28 compared with healthy controls, respectively. After 3 months of treatment there was a reduction, albeit not significant, of the long-TSLP (from 3.31 ± 5.37 to 1.47 ± 1.27, $p = 0.230$), and a substantial stability of the short-TSLP (from 215.25 ± 315.72 to 209.13 ± 153.60, $p = 0.943$) and TSLP-R (from 91.08 ± 265.28 to 92.08 ± 249.49, $p = 0.992$). After 6 months of treatment there was a significant increase in long-TSLP (8.52 ± 12.26, $p = 0.039$), and a substantial, albeit not significant, reduction in short-TSLP (161.81 ± 124.13, $p = 0.537$) and in TSLP -R (25.88 ± 18.70, $p = 0.365$).

Conclusion: The sinus mucosal expression of both TSLP isoforms and TSLP-R is markedly higher than in healthy subjects. Dupilumab therapy is associated with an initial reduction of long-TSLP expression followed, at 6 months, by a significant increase, against a gradual reduction of short-TSLP and TSLP-R expression. These data would seem to indicate a possible shift in the level of alarmin-mediated epithelial response, following the inhibition of type 2 inflammation by Dupilumab. The increase in the number of studied cases and in the follow-up period over time will allow us to understand whether this phenomenon occurs specifically in patients with different levels of response to therapy or perhaps in those who develop adverse drug events or a shift in local inflammatory response.

Conflicts of Interest: The authors did not specify any links of interest.

000787 | The involvement of activated leukocyte cell adhesion molecule (ALCAM/cd166) in respiratory syncytial virus-induced airway inflammation

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*Presenting author: S. M. Baek

Background: Respiratory syncytial virus (RSV) is a common respiratory virus that causes acute lower respiratory tract infectious diseases. Infection with RSV is known to induce the expression of epithelial cell derived innate type 2 cytokine, and is associated with mitogen-activated protein kinase (MAPK) and nuclear factor-κB pathway activation. Activated leukocyte cell adhesion molecule (ALCAM; also known as CD166) is a glycoprotein attached to cells in a homotypic or heterotypic state and regulates cell to cell interactions. ALCAM is involved in autoimmune and inflammatory diseases, and its correlation with experimental asthma and acute lung injury has been demonstrated. However, the association of ALCAM in RSV induced airway inflammation has not been elucidated.

Method: The RSV virus titer, indicated in plaque forming units (PFU)/mL, was determined by a standard plaque assay. Human airway epithelial cells, A549, were inoculated with RSV at a multiplicity of infection (MOI) of 0.1 for 1 h, and harvested 72 h after infection. To identify a specific role of ALCAM, ALCAM knockdown was established in the A549 cells using short hairpin RNA lentivirus. The mRNA expression levels of ALCAM and inflammatory cytokines were measured by real time polymerase chain reaction. The protein expression of ALCAM was analyzed by enzyme-linked immunosorbent assay and western blot analysis. Phosphorylation of MAPK pathway was also investigated by western blot.

Results: The mRNA and protein level of ALCAM expression were highly elevated by infection with RSV comparing with control cells. Cell deaths and inflammatory cytokines, such as interleukin (IL)-33, IL-1β, IL-6, IL-8, and tumor necrosis factor-α, were also increased by RSV infection in A549 cells. Interestingly, IL-33 expression was significantly alleviated in ALCAM-knockdown cells compared to control cells after RSV infection. RSV infection induced phosphorylation of MAPK signaling pathways such as ERK1/2, p38, and JNK. In addition, inhibition of these MAPK pathways remarkably decreased the expression of IL-33. Besides, phosphorylation of MAPK pathways was diminished in ALCAM knockdown A549 cells comparing with control cells after RSV infection.

Conclusion: These findings suggest that ALCAM contribute to IL-33 expression by regulating MAPK signaling pathways induced by RSV infection.

Conflicts of Interest: The authors did not specify any links of interest.

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000044 | Oncostatin M suppresses the expression of filaggrin in human epidermal keratinocytes

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Background: The inflammatory cytokine Oncostatin m (OSM) is known to be increased in eczematous lesions of atopic dermatitis. Previously, we have shown that monocytes produce OSM upon IL-4 and GM-CSF stimulation. However, it is not clear how OSM is involved in the pathogenesis of atopic dermatitis. Skin barrier dysfunction due to reduced expression of filaggrin and loricrin is important in the pathogenesis of atopic dermatitis. This reduction in filaggrin is associated with various factors, not only loss-of-function mutations in the filaggrin gene and type 2 pro-inflammatory cytokines such as IL-4 and IL-13. And OSM may contribute to this reduced filaggrin expression via IL 24 expression. This study aimed to clarify that OSM is involved in the impaired barrier function of atopic dermatitis.
Method: Cultured keratinocytes and a three-dimensional cultured epidermis model were stimulated with OSM and the expression of IL-24 and filaggrin were examined.
Results: HaCaT cells and cultured human epidermal keratinocytes produced IL-24 and reduced filaggrin expression by IL-4 and IL-13 stimulation. OSM stimulation induced more IL-24 production and less filaggrin production from keratinocytes than IL-4 or IL-13 stimulation. OSM stimulation also decreased the expression of loricrin, desmoglein 1 and occludin in keratinocytes. Filaggrin expression was also reduced in 3D-cultured epidermis by OSM stimulation.
Conclusion: The OSM-IL-24 pathway suppresses the expression of filaggrin, loricrin and tight junction components, and might contribute to the impaired barrier function in atopic dermatitis.
Conflicts of Interest: The authors did not specify any links of interest.

001359 | Functional regulation of ACE2 via the forkhead box transcription factor FOXO1 in ifn-associated pathways

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Background: ACE2 is a critical enzyme in the renin-angiotensin-aldosterone system (RAAS) and has been shown to play a key role in SARS-CoV-2 infection. Recent studies postulated that ACE2, or more likely its truncated isoform (truncACE2), is an interferon (IFN)-stimulated gene. Studies have described various binding motifs for Forkhead box transcription factors (Fox) within the ACE2 promoter. However, the mechanisms underlying its regulation are not fully understood. To investigate the regulatory mechanisms of ACE2 expression in the context of COVID-19, we focused on the role of interferon (IFN) in regulating both the full-length and truncated isoforms of ACE2 via FoxO1.
Method: Expression levels of ACE2 were measured at the transcription and protein level in IFN-stimulated primary human bronchial epithelial cells (NHBEs). In addition, we inhibited FoxO1 with a specific inhibitor and created FoxO1 knock out cells, using the CRISPR/Cas9 system, to interrupt IFN-triggered signaling. To analyze the impact of the IFN stimulus on the expression of the ACE2trunc isoform, specific oligos were designed along the ACE2 coding sequence. FoxO1 binding to the ACE2 promoter was analyzed by Luciferase Assay and transcription factor ELISA.
Results: Our results showed that type-I and type-III IFN treatment leaded to an upregulation of the full-length and truncACE2, although truncACE2 showed a higher expression level. Type-II IFN induced rather truncACE2 expression compared to the full-length isoform. In addition, our data showed that ACE2 expression was induced 4 h post IFN stimulation. The ACE2 upregulation induced by IFNs was counteracted by FoxO1 inhibition and knock out. Specifically, in the immunoblotting analysis, FoxO1 inhibition in NHBEs counteracted the IFN-a and IFN-l3-triggered ACE2 induction and even led to a downregulation of ACE2. Using transcription factor ELISA, we identified several binding sites within the proximal ACE2 promoter site that are crucial for FoxO1-mediated regulation of ACE2. In addition, luciferase intensity was significantly increased in samples containing FoxO1 and the proximal ACE2 promoter site.
Conclusion: Our study provides new insights into the regulation of ACE2 expression in the context of COVID-19 and the role of IFN in this process. We demonstrate that FoxO1 plays a crucial role in regulating ACE2 expression through binding to specific sites within the proximal ACE2 promoter. These findings may have implications for understanding the role of ACE2 in the pathogenesis of COVID-19 and the potential of IFN as a therapeutic target for modulating ACE2 expression in respiratory diseases.
Conflicts of Interest: The authors did not specify any links of interest.

000672 | Expression of basal cell marker P63 in the fetal lung tissue of mice generated by in vitro embryo culture and embryo transfer

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*Presenting author: G. Dogan

Background: Children born through assisted reproduction are more susceptible to pulmonary infections and allergic respiratory diseases like asthma. Airway epithelial cells are critical for the pathogenesis of asthma. Our previous study showed that the composition of epithelial cells in both fetal and adult lung tissue is altered in mice generated by *in vitro* embryo culture and embryo transfer, suggesting that establishment and/or differentiation of basal cells (BCs) might

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also be altered. While, in mice, BCs are restricted to trachea, main and secondary bronchi, in humans, they are spread out from the trachea to bronchioles. There is also evidence indicating that BCs constitute a heterogeneous population, and that they can be located ectopically in the alveolar space. It was recently demonstrated that $p63^+$ BCs are multipotent progenitors of airway and alveolar lineages in early lung development, however, they later were restricted in proximal airways. On the other hand, there is no information in the literature concerning the effect of *in vitro* embryo culture on the expression of BC marker p63 in fetal lung tissue. The aim of the present study was to test whether or not *in vitro* embryo culture and embryo transfer performed under atmospheric concentrations of oxygen alter the expression of p63 isoforms in the lung tissue of mouse fetuses.

Method: The study included a control (CG) and an experimental group (EG). Zygotes were cultured at 5% CO_2-95% air for 95 h. and resulting blastocysts were transferred to pseudo-pregnant females in order to obtain EG fetuses. CG fetuses were obtained from naturally ovulating females. mRNA expression of p63 (Tap63 and ΔNp63) isoforms was determined by SybrGreen quantitative real time-PCR (qRT-PCR). Immunohistochemistry was used to demonstrate the expression pattern of p63.

Results: mRNA levels of Tap63 (FC: 5.97, $p = 0.004$) and ΔNp63 (FC: 2.10, $p = 0.029$) isoforms were significantly increased in the lung tissue of EG fetuses compared to the CG fetuses. While p63-positive BCs were observed in bronchi and bronchioles, they were not found in the alveolar spaces of lung tissue of both CG and EG fetuses.

Conclusion: The evidence gathered in the present study reveals that expression of BC marker p63 is altered in EG fetuses obtained by *in vitro* embryo culture and embryo transfer. It remains to be determined whether altered expression of p63 in the fetal period has any long-term impact on epithelial cell functions in the adult lung tissue.

Conflicts of Interest: The authors did not specify any links of interest.

000248 | FPR2-selective peptide ligand NCP112 ameliorates atopic dermatitis in preclinical models through inhibition of type 2 immune response and recovery of skin barrier function

J. Ghim[1]; S. Kim[2]; M. G. Jeong[1]; Y. E. Kim[1]; D. Kim[1]; Y. Choi[1]; S. Y. Park[2]; J. Y. Roh[3]; T. Lee[1]; S. H. Kee[2]

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*Presenting author: S. H. Kee

Background: Atopic dermatitis is a chronic inflammatory skin disease that usually develops at young age and characterized by severe pruritus, eczematous skin lesions, and lichenification. Skin barrier dysfunction and dysregulation of immune system promoted by complex risk factors are regarded main causes leading pathogenesis of atopic dermatitis. Although recently approved biologic Dupixent has shown efficacy for patients with moderate-to-severe symptoms, there is still a high unmet medical need for an effective topical agent with long-term safety for patients with mild-to-moderate symptoms.

Method: FPR2 (formyl peptide receptor 2) is a GPCR which mediate process for resolution of inflammation by recognizing several pro-resolving factors including LXA4, RvD1, and annexin A1, etc. NCP112 is a FPR2-selective synthetic heptameric peptide ligand, acting as a pro-resolving factor via FPR2 activation.

Results: Treatment of NCP112 in topical formulation improves clinical score for skin symptoms and reduces epithelial thickness both in DNCB- and Capsaicin-induced rodent models for atopic dermatitis. In addition, Enhancement of type 2 immune response along with allergic reactions mediated by IgE, which are characteristics of atopic dermatitis, can be relieved through treatment of NCP112 – down-regulation of expression of IL-4, IL-13 and ILC2 expansion in skin lesion while relieving pruritic symptoms through dampening of serum IgE level. Dysregulated expression or mutation of filaggrin, a structural protein of skin epithelium, can lead to disruption of skin barrier functions. NCP112 recovers skin barrier through normalization of altered proteolysis of filaggrin by dysregulated protease system in capsaicin-induced rat model. Proteomic analysis of epidermis from capsaicin-induced animal shows that a wide range of proteins involved in innate immunity, wound healing, protease, and skin barrier which are affected by disease status are restored by topical treatment of NCP112.

Conclusion: These finding indicate that NCP112 has immunoregulatory activities to alleviate the skin manifestation of atopic dermatitis and it has the potential to be novel treatment option.

Conflicts of Interest: The authors did not specify any links of interest.

000442 | Epithelial lipocalin-2 synthesis after smoking and viral infection?

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*Presenting author: M. Wolff

Background: Smoking is the main risk factor for COPD but not every smoker develops the disease. Smokers experience more frequent and severe viral infections. We hypothesized that these could trigger pathways that increase predisposition to COPD. In mouse model mimicking a heavy smoker with viral infection, 2D protein gels were used to examine the abundance of various biomolecules in cell-free bronchoalveolar lavage fluid (BALF). Lipocalin-2 in particular was upregulated which was confirmed by immunohistochemistry in epithelial cells in murine lung samples. Upregulation of lipocalin-2 was also found in the transcriptome of human BALF from COPD patients and colocalized with club cells in human lung tissue samples. In the

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present work, we aimed to establish an in vitro model to investigate whether lipocalin-2 is indeed secreted by airway epithelium.

Method: NHBE cells from female donors were cultured and differentiated at the air-liquid interface for 14 days. Daily exposure to cigarette smoke (CS) or room air occurred for 14 days, using 1, 2, or 3 cigarettes (cig.) for 9, 18, or 27 min, respectively. Exposure was performed using the inExpose system (SCIREQ, Montreal, Canada). Nonexposed cells served as controls. Basal medium and apical washes were collected every other day, and transepithelial electrical resistance (TEER) measurements were performed. After the last CS exposure, cells were collected for protein, RNA, and histologic analyses. Tissue sections were stained by PAS reaction. Cell viability was assessed by water soluble tetrazolium (WST) and lactate dehydrogenase (LDH) assays.

Results: Cell viability showed no difference between the exposure groups using the LDH assay. A slight but non-significant decrease in cell viability was observed in all CS-exposed cells compared with air exposure using a WST assay. Measurement of epithelial barrier integrity by TEER showed a significant decrease in all CS-exposed cells (1 cig. $p = 0.0002$, 2 cig. $p = 0.0007$, 3 cig. $p < 0.0001$; all compared to air). Histologic analysis revealed epithelial cell hyperplasia and cell decay in all CS-exposed cells.

Conclusion: This dose-finding study showed that NHBE cells remained alive when exposed to CS independent of the used dose. The integrity of the epithelial barrier was impaired in cells exposed to CS in general. The structure of the epithelial cell layer was increasingly destroyed with increasing CS dose. In a next step, we will infect the cells exposed to CS with hRV16 and analyse the secretion of lipocalin-2.

Conflicts of Interest: The authors did not specify any links of interest.

FOOD ALLERGY 1

001237 | Sesame-safe doses in a large sesame allergic Israeli population

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*Presenting author: L. Nachshon

Background: Information regarding safe sesame protein doses in sesame-allergic population is limited.

Method: All positive sesame diagnostic oral food challenges (OFCs) performed at Shamir medical center between November-2011 and July-2021 were analyzed to determine the no observed adverse level (NOAEL) and the lowest observed adverse effect level (LOAEL). Additional OFCs performed at the beginning of sesame oral immunotherapy (OIT), which included prolonged dosing intervals for determination of safe doses, were analyzed as well. Only objective symptoms were used as stopping criteria for OFCs.

Results: In the 127 patients who underwent a diagnostic OFC, the median discrete NOAEL was 60 mg (range 0.1–1000) and the estimated discrete LOAEL for 1% (ED01) and 5% (ED05) of the population were 0.3 mg (95% CI 0.1–8.9), and 3.5 mg (95% CI 0.7–69.8), respectively. In the 158 patients who entered OIT, the median discrete NOAEL was 40 mg (range 1–2400) and the estimated ED ≤ 01 and ED05 were 0.8 mg (95% CI 0.4–7.5) and 3.4 mg (95% CI 1.2–22.9), respectively. Eliciting doses were not affected by patients' age, gender, SPT to sesame, asthma, atopic dermatitis or allergy to other foods. No objective reaction in any of the OFCs was observed to a dose ≤1 mg sesame protein.

Conclusion: This study provides information regarding the distributions of sesame safe dose among the largest group of sesame-allergic patients. The higher ED01 determined by specialized OFCs with long intervals between doses compared to ED01 obtained from diagnostic open OFCs, suggest that open OFCs may be used to increase the margin of safety for the food industry.

Conflicts of Interest: The authors did not specify any links of interest.

000680 | Development and validation of a model to predict tolerance achievement after 3 years of cow's milk slow low-dose oral immunotherapy under 4 years of age

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Background: We recommend children with food allergy to avoid complete elimination of the causative food and encourage Slow Low-dose oral immunotherapy (SLOIT) under the threshold. We have no predictive model for the prognosis of young children initiating cow's milk (CM) -SLOIT under 4 years of age. We developed and validated a model to predict tolerance achievement after 3 years in children who initiated CM-SLOIT under 4 years of age.

Method: We included the children with CM sensitization, completely eliminating dairy products at the first visit and receiving CM-SLOIT under 4 years old. We followed them until remission or for 3 years after OIT initiation. First, a prediction model was developed for the probability of remission 3 years after the SLOIT initiation for 120 children who had their first visit between 2014 and 2016. Predictor variables were CM-specific IgE level before OIT initiation, age in months of OIT initiation, serum TARC level before OIT initiation, and CM-specific IgE level 1 year after OIT initiation. Logistic regression analysis was used to develop the models, and the area under the receiver operating curves (ROC-AUCs) was applied as a measure of predictive performance. We performed external validation using data from 71 children who had their first visit between 2017 and 2018.

Results: The predictive model using CM-specific IgE level before OIT initiation, age in months before OIT initiation, and serum TARC level before OIT initiation showed good discrimination with ROC-AUC of

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0.80 (95% CI:0.72–0.88). Application of the model in the validation set showed good discrimination (ROC-AUC = 0.80 (95% CI:0.69–0.91)) and reasonable calibration (intraclass correlation coefficient (ICC) = 0.86 (95% CI:0.55–0.96)). Furthermore, ROC-AUC was 0.83 (95% CI:0.76–0.91) in the model with the addition of CM-specific IgE level 1 year after OIT initiation, and ROC-AUC was 0.89 (95% CI:0.80–0.97) in the analysis with the validation set, ICC = 0.88 (95% CI:0.62–0.97).

Conclusion: We developed and validated predictive models for determining the remission rate at 3 years after SLOIT initiation under 4 years of age in young children with CM allergy. This model was a highly accurate model and may help in the management of CM allergy on daily basis.

Conflicts of interest: The authors did not specify any links of interest.

000084 | Threshold dose distributions for peanut, cashew nut, and walnut allergy in Japan and the effects of allergen component-specific IgE levels

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Background: In Western countries, eliciting doses (EDs) for priority food allergens have been established. However, little is known about EDs in Asian countries. In Japan, the number of patients with tree nut allergies has recently increased dramatically. This study aims to identify EDs in Japan for patients with peanut, cashew nut, and walnut allergies. Furthermore, we looked for the relationship between each allergen's specific IgE level and EDs.

Method: We enrolled patients with suspected peanut, cashew nut, or walnut allergy who underwent oral food challenges (OFCs) between November 2013 and October 2022 at National Center for Child Health and Development in Tokyo, Japan. Interval-censoring survival analysis and benchmark-dose modeling were used to calculate EDs. A curve was also drawn to show the relationship between component-specific IgEs (2S albumin: Ara h 2, Ana o 3, and Jug r 1) and ED_{05}, ED_{10}, and ED_{50}. Informed consent was obtained from patient's guardians with opt-out possibility.

Results: This study included 362 patients with confirmed peanut, 111 with cashew nut, and 373 with walnut allergies. Their median ages were 5, 6, and 6 years, respectively (range, 0–25 years). In this study, 13 patients with peanut allergy, 7 with cashew nut allergy, and 8 with walnut allergy required intramuscular adrenaline during OFCs, with the lowest cumulative dose of positive challenge being 0.35, 0.05, 0.1 mg, respectively. The data were analyzed using the best-fit distribution model after log-normal, log-logistic, and Weibull probabilistic distribution models were plotted. In this population, the ED_{05} was 6.5 mg for peanut, 1.5 mg for cashew nut, and 5.7 mg for walnut, which is similar to the ED_{05} in the current Codex Alimentarius Commission recommendations. When the cutoff value for each component-specific IgE level (3.5 kUa/L) was used, the ED_{05} for peanut was 20.2 mg, 10.1 mg for cashew nut, and 11.3 mg for walnut.

Conclusion: In Japan, the EDs for peanut, cashew nut, and walnut are comparable with those in other countries. If a patient is sensitized to these component allergens, it may be safer to begin an OFC at a lower dose than EDs.

Conflicts of interest: The authors did not specify any links of interest.

000839 | Characteristics and current management strategies of children diagnosed with peanut allergy (PA) in the United Kingdom (UK)

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Background: Understand the patient characteristics and current management strategies of children diagnosed with peanut allergy (PA) in the United Kingdom (UK).

Method: An online survey was conducted among UK physicians between April-July 2021 who were actively (within 12 months) managing children aged 4–11 years with peanut allergy. The survey collected anonymous data on patient profiles, including diagnosis, reaction history, and current management strategies.

Results: Responses from 51 physicians ($n = 30$ Allergists; $n = 21$ Paediatricians) who provided a total of 194 patient record forms (PRFs). 31% and 51% of PA children were diagnosed at the age of 1–2 years and before the age of 4 years respectively. PA was isolated in 39% of the PA children, yet the majority had at least one other atopic condition, the most frequent being atopic dermatitis/eczema (27%) and asthma (22%). The most frequent concomitant food allergies were tree nuts (14%), cow's milk (11%) and hen's egg (10%). A reaction after eating peanut or being in contact with peanut was the main reason to suspect peanut allergy (75%). 55% had sIgE measurement at diagnosis and 32% during the last 12 months, 56% and 28% SPT, 24% and 6% had both tests respectively. 18% of the children had an Oral Food Challenge (OFC) ever, most of them being a single dose OFC (37%) and performed with peanut butter (51%). 43% of the families would accept an OFC without difficulties. Most children (73%) experienced ≥1 anaphylactic reaction to peanut, including 12% having experience ≥3 reactions, with 56% of these reactions requiring adrenaline and/or an emergency department visit. Adrenaline was administered by a non-HCP (parent/carer, teacher, etc) in 61% of cases. 44% of respondents described the parents/families of PA children as extremely stressed or anxious about their allergy. Most patients were managing their PA through strict avoidance (76%).

Conclusion: Based on these patient profiles, most children experience anaphylaxis despite practicing strict avoidance. This results in substantial stress and anxiety for these families. This approach has limitations and perhaps other management strategies such as peanut desensitization may be required to overcome these.

Conflicts of interest: This study was sponsored by DBV Technologies.

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001326 | Latex allergy: Prevalence of sensitization in health personnel in different regions of Argentine

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Background: Latex is a product of plant origin used in the manufacture of medical and commercial objects. The increase in its use has caused immediate and delayed hypersensitivity reactions. The main risk groups are health workers, latex factory workers and children with spina bifida or urogenital anomalies.
Objetive: Determine the prevalence of sensitization to latex in healthcare workers in different institutions in the central region of Argentine and the prevalence of its cross-reactivity with banana and kiwi, widely described in the world literature.
Method: It an observational, prospective, cross-sectional, descriptive and multicenter study in which a questionnaire (Google Form®) was completed, where epicutaneous tests with latex, kiwi and banana were performed on health personnel from different hospitals in the central region of Argentine.
Results: Were 121 (*n*) participants. 7.4% presented sensitization to latex, without previously recognizing allergies, only one patient manifested local itching and 11% of those sensitized presented a reaction to high latex proteins (kiwi and banana). 56% female, with an average age of 42 years. Regarding the frequency of use of gloves and sensitization to latex, 66% reported daily use.
Conclusion: The aim of this study was to underline the prevalence of sensitivity to latex in workers health, that it is similar to that reported in current literature. It should be noted that of the total number of patients evaluated, none presented symptoms at the time despite showing sensitization to latex. No significant association was shown in cross-reactivity with latex, banana and kiwi. Preventive measures are important to avoid latex allergy in sensitized Health population.
Conflicts of interest: The authors did not specify any links of interest.

000131 | Alternative sources for cows milk protein allergy

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Background: Cow's Milk Allergy is showing an increasing trend now in the developing world. The alternative sources are either difficult to procure or beyond financial means. Hence, we looked scientifically at alternate sources.
Method: In a cross sectional study 7 Cases of cow's milk allergy were subjected to 300 component resolved diagnostics using microarray technology and were than challenged with alternative animal milk.
Results: Seven children (4 male and 3 female) aged 19 months to 72 months median age 40 months with cow's milk protein allergy were tested for alternative milk. The diagnosis of cow's milk allergy was made on personal history and physical examination and was confirmed by positive test on component resolved diagnostics by microarray technology and history. The symptoms reported by the children on ingestion of cow's milk was wheezing (5), atopic dermatitis (4), urticaria (5). One child reacted to skin contact also. All were positive for other food allergens and aero allergens. All had elevated IgE.
All the patients had a detailed analysis of the cow's milk protein and were tested for the alternative milk proteins by microtek assay. All the seven children were positive for Casein component ranging between 0.38 and>50. All except one were negative for mare's milk.
Five out of seven were subjected to direct challenge to mares' milk in outpatient setting. One child was challenged with goat's milk. One child with severe reaction refused all animal milk because they were strict vegans.
None of the 5 children reacted adversely to the mare's milk and also the 1 child to goat's milk. All the six children tested successfully for alternate milk were able to continue the alternative animal milk successfully as on a follow up of one month.
Conclusion: Although the study was small, we could with microarray technology and minimal cost and difficulties for the child diagnose cows milk allergy components along with the allergy to alternate sources and use this knowledge to challenge in an office setting successfully. Mares milk if available can be used as an alternative after successful challenge.

Animal	Component	Case I	Case II	Case III	Case IV	Case V	case VI	Case V
		66mo/F	40mo/F	17mo/M	19mo/M	19mo/M	72mo/M	12mo/F
Cow, milk	Bos milk	>50	>50	21	4.1	0.9	Nil	18
	Bos d 4 α-Lactalbumin	>50	Nil	Nil	Nil	Nil	Nil	Nil
	Bos d 5 β-Lactoglobulin	>50	1.09	9.6	2.57	1.9	Nil	2.1
	Bos d 8 Casein	>50	>50	25	4.0	3.6	0.38	6.0
Camel	Cam d	10.8	8.6	1.1	0.6	0.4	Nil	0.4
Goat	Cap h_milk	33.69	28.92	4.9	0.4	0.3	Nil	0.9
Mare	Equ c_milk	2.17	Nil	1.9	Nil	Nil	Nil	0.4
Sheep	milk Ovi a_milk	36.23	46.88	8.7	Nil	1.0	0.45	2.0

Case I was strict Vegans and refused animal milk, Case 2, 3, 4, 5 &7 challenged successfully with mares' milk in office setting and were put on mares 'milk while Case VI tolerated goat's milk. Measurements in kUA/L.

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Conflicts of interest: The authors did not specify any links of interest.

000112 | The natural history of egg allergy and predictors of early tolerance among IgE-mediated type egg allergic children

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Background: Egg allergy is a common cause of food allergy in children. There are few studies regarding the natural history and risk factors for early tolerance of egg allergy in Asia. This study aims to assess the age of resolution of IgE-mediated egg allergy and to identify clinical predictors for early tolerance.
Method: Children diagnosed with IgE-mediated egg allergy either by positive oral food challenge (OFC) test to egg white or history of IgE-mediated reaction and positive egg white-specific IgE (sIgE) and/or skin prick test results were included. Patients were considered to have egg tolerance if they passed heated egg white OFC or tolerated heated egg white during home challenge.
Results: A total of 84 patients were recruited (median current age 79.6 months). The median age of onset of egg white allergy, and tolerance were 7 months (IQR 6–9.7), and 54 months (IQR 27–123), respectively. Majority of them (73.8%) had multiple food allergy (egg yolk 59.5%, wheat 45%, shellfish 16.7%). Sixty-five patients (77.4%) had concomitant atopic dermatitis, with the median onset at 3 months (IQR 2–4). Egg allergy resolved in 7% at 1 year of age, 20% at 2 years of age, 35% at 3 years of age, 52% by 5 years of age and 73% by 10 years of age. Egg white-sIgE at 5 kUA/L at the onset were determined to be the best cut-off value and demonstrated the best accuracy to predict egg tolerance before 54 months of age. In multivariate logistic regression analysis, sIgE for egg white ≤5 kUA/L and not having allergic rhinitis as comorbidity were independent factors for early tolerance before 54 months (OR 12.36; 95%CI 2.73–55.83, $p = 0.048$ and OR 4.53; 95%CI 1.01–20.21, $p = 0.001$, respectively). History of egg anaphylaxis and had concomitant atopic dermatitis were not found to be a risk factors for later tolerance.
Conclusion: In IgE-mediated egg allergy, the median age of tolerance was 54 months. Early tolerance was predicted by initial egg white-sIgE ≤5 kUA/L and absence of concurrent allergic rhinitis.
Conflicts of interest: The authors did not specify any links of interest.

000719 | Onion allergy: Case reports and allergen identification

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Background: Edible plants belonging to the *Allium* genus, such as onion, garlic, leek and shallot, are widely consumed. However, allergic reactions to these foods seem to be rare.
Three main onion allergens have been described so far: Alliin lyase (an alliinase, which is also the major garlic allergen), All c 3 (an LTP), and All c 4 (a profilin).
Method: Patient #1: a 22-yr-old woman, with a history of seasonal rhinoconjunctivitis and OAS to kiwi, avocado and melon. She presented facial angioedema and erythema, tachycardia and hypotension, immediately after eating tuna fish with grilled onion. She has tolerated tuna fish later.
Patient #2: a 58-yr-old woman, with a history of seasonal rhinoconjunctivitis and nut allergy. She presented a generalized erythema and oropharyngeal discomfort one hour after eating a salad with onion. She has tolerated the same salad without onion later.
Results:

- **Skin-prick-tests**. Patient #1: positive for pollens (plane and olive tree, grass), and profilin. Patient #2: positive for pollen (olive tree), nuts, and LTP.
- **Prick-by-prick tests**. Patient #1: positive for raw onion and negative for both raw leek and garlic. Patient #2: positive readings for both raw onion and garlic.
- **Serum IgE**. Patient #1: total IgE 1225 (kU/L); specific IgE (kUA/L): Onion 1.55, rPru p 3 0.06, rPhl p 12 1.14. Patient #2: total IgE 141; specific IgE: onion 1.66, garlic 0.51 peanut 4.77, hazelnut 6.27, rPru p 3 20.8.
- **SDS-PAGE inmunoblotting assay**. Patient #1: IgE recognized a 55 kDa band in extracts of onion, garlic, leek, and shallot; and other 12 kDa band only in onion. Patient #2: IgE recognized a 55 kDa band in extracts of onion and garlic; and a 12kDa only in onion. Both patients recognized no bands in asparagus extract.
- **Immunoblotting-inhibition assay**. The onion 55 kDa band, but not the 12kDa, was inhibited by preincubating with the garlic extract.
- **Protein identification:** peptide mass fingerprinting and tandem mass spectrometry was used for identification of reactive bands in onion extract. The 55 kDa band was identified as an alliinase, while the 12 kDa band revealed a mix of two lectins and one trypsin-inhibitor.

Conclusion: We report 2 cases of onion allergy, identifying a 55 kDa alliinase as a common allergen in *alliacea* plants, and a new onion-specific 12kDa allergen, which seems to be either a lectin or a trypsin-inhibitor.
Conflicts of interest: The authors did not specify any links of interest.

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000848 | Sensitization rates for Jug r 1 and Ana o 3 in preschool children with food allergy in Japan: A multicenter retrospective study

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Background: Over the last decade, the rate of allergic reactions and anaphylaxis caused by walnuts and cashews in young children have increased in Japan. We investigated the sensitization rates and risk factors for walnut and cashew nut components (Jug r 1 and Ana o 3) in preschool children under 6 years of age with food allergies.
Method: We recruited 100 children under 6 years of age (0–2 years; $n = 46$, 3–4 years; $n = 29$, 5–6 years; $n = 25$) who were followed by specialized allergy centers in Chiba Prefecture between April 2022 and January 2023. Participants had food allergies such as hens' eggs or cow's milk, and undiagnosed walnut and cashew allergies. Their Jug r 1-specific IgE (sIgE) and Ana o 3-sIgE were measured to investigate allergen sensitization rates and risk factors. Specific IgE antibodies were considered as positive above 0.35 UA/ml.
Results: The positive sensitization of Jug r 1 and Ana o 3 were 6.5% and 6.8% at 0–2 years, 34.5% and 6.1% at 3–4 years, 16% and 11.1% at 5–6 years, respectively. The number of patients over 3 years old with sensitization to walnut was significantly more than that with sensitization to cashew nuts, and about 80% of them had high levels of specific IgE ≥ class 3 (≥3.5 UA/ml). Most patients with high walnut-sIgE also had non-remitting food allergies with multi-antigens or severe atopic dermatitis.
Conclusion: Our findings of sensitization rates were similar to the previous result indicating the high prevalence for tree nut sensitization among preschoolers in Japan. Children with food allergies from infancy or the presence of severe atopic dermatitis might be at risk for developing walnut or cashew nut allergy. We recommend that they should be tested and instructed to avoid anaphylaxis before starting consumption.
Conflicts of interest: The authors did not specify any links of interest.

000835 | Identification of allergenic orthopteran species in food

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Background: Within the EU market, insect-based products are certainly one of the prominent examples of novel foods. Their attractive nutritional profile combined with their reduced environmental footprint make them a sustainable alternative to traditional meat. Nonetheless, insects are known for their ability to trigger allergy, and to contain some pan-allergens common to other invertebrates, such as crustaceans, molluscs and nematodes, thus posing a potential threat to some categories of allergic individuals, specifically to those sensitized to crustaceans and to house dust mites. Some insect species have already been identified as able both to trigger an allergic reaction, and to primarily sensitize new individuals. The interest of the food industry in opening up insects as a new source of protein can bring new potential sources of food allergens to the market, therefore updated analytical methods of detection are urgently required. The most commonly eaten species include the crickets, grasshoppers and locusts, all members of the orthopteran.
The aim of this study was to apply real-time PCR-based methods to the species-specific identification of two crickets (*Acheta domesticus* and *Gryllodes sigillatus*) and one locust (*Locusta migratoria*) in foods. Moreover, an over-arching method for the simultaneous detection of all members of the orthopteran order was set up. The study was carried out in the frame of the ALLERGEN-PRO project, financed by the German Federal Ministry of Food and Agriculture (BMEL).
Method: All the systems employed were either in house developed (*A. domesticus*, *G. sigillatus*, Othoptera), or adapted from the literature (*L. migratoria*). Two examples of processed model foods (cookies and canned meat) incurred with different amounts of insect powder were prepared in house and analyzed. Moreover, different commercial foods were included in the analysis.
Results: All species-specific systems displayed good levels of specificity and sensitivity. The Orthoptera "universal" was able to recognize different species of orthopteran taxonomically distant from each other, while it displayed negative results when tested on most of the other insect groups. However, cross-reactivity with the Order of cockroaches (Blattodea) was registered. All the systems showed their applicability when tested on model and commercial foods.
Conclusion: Overall, the systems could be used in combination to detect and identify the source of insect-derived material in complex food matrices.
Conflicts of interest: The authors did not specify any links of interest.

000039 | Clinical profile of sensitization in adults with LTP syndrome

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Background: Patients with LTP syndrome are sensitized to foods and aeroallergens presenting clinical symptoms to various plant foods. As a result their management is changeling. The wide distribution and diversity of expression prompted us to systematically review patients with the aim of recording detailed sensitization profiles.
Method: 61 patients were included with clinical history of food allergy and LTP syndrome. Skin prick tests (SPTs) were performed to airborne allergens, SPTs και prick-to-prick to foods (including peach).

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The diagnosis was based upon clinical history, skin tests and the detection of sIgE and/or CRDs (Immunocap ή/και MacroArrayDX).

Results: The majority of the patients (44/61–72%) had an anaphylactic reaction, followed by urticaria/ angioedema (24.6%) and OAS (6.5%). Forty four percent of patients (27/61) reported episodes after consumption of Rosaceae fruits, most common of whom were peach (14/61–23%), apple (18%) and almond (15%). After these, patients also mentioned episodes with foods from diverse phylogenetically families like wheat (Poaceae-20%), walnut (Jugladaceae-18%), banana (16%), sunflower seed (Asteraceae-15%), peanut (13%) and hazelnut (11%). Cofactors were ascertained in 29/61 (47.5%) patients. Most frequently reported was exercise (26/29), followed by empty stomach (6/29), NSAIDS/alcohol consumption (4/29). Atopic co morbidities were present in 40/61 (AR ± A ± AD) patients, almost all of them had allergic rhinitis (38/40), and more specifically mild allergic rhinitis (26/38). CRDs were tested for 42 patients. Positive results observed most frequently were Pru p 3 (38), Cor a 8 (15), Ara h 9 (14), Jug r 3 (12), Mal d 3 (11). Finally, 52 patients were tested for SPT, RAST. Sensitizations to airborne allergens were observed: mugwort (35/52), grasses (32/52), olea (30/52), parietaria (30/52), cypress (24/52), platanus (24/52). No correlation was found between SPT diameter, level of Pru p 3 sIgE, nsLTP sensitization, and the grade of anaphylactic reaction.

Conclusion: Differentiation in patients' sensitization was observed with the already known bibliographic data. The representation of sunflower seed, banana and sesame was increased. On the contrary, apricot cherry, plum and kiwi were much lower compared to studies from Spain and Italy. Olea and parietaria judaica was higher, while cypress and grasses found in lower percentage in comparison to other Mediterranean countries. Minimizing unnecessary dietary restrictions is of major importance, especially in the presence of co-factors.

Conflicts of interest: The authors did not specify any links of interest.

IMMUNE DEFICIENCIES AND AUTOIMMUNITY

000901 | Patients with hereditary angioedema receiving C1 inhibitor (human) for the treatment or prevention of angioedema attacks in routine clinical practice

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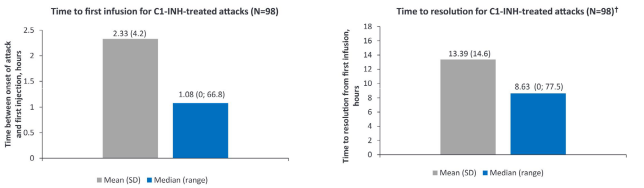
Background: C1 inhibitor (human) (C1-INH, Cinryze, Takeda) is approved for the treatment, pre-procedure prevention, and routine prevention of angioedema attacks in hereditary angioedema (HAE) patients in Europe and other countries, and for routine prophylaxis of attacks in the US. The Icatibant Outcome Survey (IOS, NCT01034969) is an ongoing, prospective, observational registry in patients with HAE and includes patients receiving only C1-INH from 19/01/2017. We report interim safety and effectiveness outcomes in patients who received C1-INH as prophylaxis against and acute treatment of HAE attacks.

Method: Enrolled patients had a diagnosis of ≥1 of: HAE Type I or II, HAE with normal C1 inhibitor, idiopathic angioedema, acquired angioedema or other diagnoses and had received ≥1 dose of C1-INH. Primary endpoints were the incidence of treatment-emergent adverse events (TEAEs), occurrence of severe and laryngeal attacks and exposure to C1-INH. Secondary endpoints included time to treatment for HAE attacks and to complete resolution of attacks, and total duration of attacks.

Results: At the 31/10/2022 data cut-off, of 237 patients (female, 69.6%; median age at enrolment, 40.4 years), 108 patients received C1-INH for long-term prophylaxis and 129 for on-demand treatment or other reasons. Overall, 115 (48.5%) patients had a total of 373 TEAEs, of which 3 were reported as probably related to C1-INH (abdominal pain upper, paraesthesia, rash maculo-papular). Sixty-one patients reported 147 (39.4%) serious TEAEs; infections and infestations ($n = 21$ [14.3%]) were the most common system organ class of serious TEAE. Before receiving C1-INH, 380 (17.5%) attacks were severe and 33 (1.5%) very severe; 23 patients reported 72 laryngeal attacks. Overall, 2205 C1-INH infusions were administered to 98 patients as primary treatment for 2170 attacks. Median time to complete resolution and duration of attacks for patients treated with on-demand C1-INH were 8.6 and 10.8 h, respectively (Figure). Median number (range) of C1-INH infusions required per attack was 1 (1–3). Of 1860 attacks, most (95.4%) were treated with self-administered C1-INH (in 72 patients). Median duration of attacks was shorter for self-administered C1-INH versus C1-INH administered by a healthcare provider (11.00 vs 18.21 h).

Conclusion: Interim long-term data from the IOS are consistent with the established safety and effectiveness profiles of C1-INH, and further support its use in patients with HAE.

Figure. Time to treatment and time to complete resolution† for attacks treated with C1-INH in patients with HAE‡



†Time to complete resolution of attack was defined as the time between the first injection of treatment and the complete resolution of all symptoms. ‡Patients had a diagnosis of HAE Type I/II, nC1-INH-HAE or 'other'.
HAE, hereditary angioedema; nC1-INH-HAE, HAE with normal C1 inhibitor; SD, standard deviation

Conflicts of interest: I Martinez-Saguer: honoraria, research grants, consultancy fees, travel grants and/or advisory boards (BioCryst, CSL Behring, Pharming and Takeda). A Grumach: honoraria or speaker/consultancy fees (CSL Behring and Takeda); research grants (Takeda). E Aygören-Pürsün: research grants, honoraria and/

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or consultancy fees (BioCryst, Biomarin, CSL Behring, Centogene, KalVista, Pharming, Pharvaris and Takeda). I Andresen: current employment (Takeda Pharmaceuticals International AG); current equity in publicly traded company (Takeda). J Botha: current employment (Takeda Pharmaceuticals International AG); current equity in publicly traded company (Takeda). S Wietek: current employment (Baxalta Innovations GmbH, part of Takeda).

001035 | Access and barriers to genetic testing for inborn errors of immunity (IEIs) in Europe: Results of a blinded survey

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Background: Primary immunodeficiencies (increasingly known as IEIs) are a group of 485 rare genetic disorders, estimated to have affected up to 6 million people globally in 2013. Although definitive diagnosis through genetic testing is possible for several IEIs, diagnostic delay remains prevalent. This study aimed to determine the accessibility of and barriers to genetic testing amongst physicians in Germany, France, Italy, Spain and the UK.
Method: A blinded survey was conducted with immunologists (IMs), paediatric immunologists (PIMs), haematologists (HAs), haematologic oncologists (HOs), general internists (GIs) and other specialties (Os) who were working in centres managing patients with IEIs and had spent ≥2 years in their current role. Questions covered experience of management of patients with IEIs as well as accessibility of and barriers to referral for genetic testing.
Results: Survey participants ($N = 151$, $n \geq 30$ per country) were 46% IMs, 17% GIs, 11% HOs, 10% HAs, 7% PIMs and 9% Os; the majority (68%) worked mainly at academic hospitals. Most participants (88%) had used genetic testing in patients with suspected IEIs in the last 12 months – most often gene panel sequencing (75%), karyotype tests (72%) and single gene sequencing (66%). In total, 61% of participants reported that referring patients for genetic testing was "very easy" or "quite easy", whilst 39% found referrals "quite difficult" or "very difficult". Fewer PIMs reported referral as difficult compared to other specialties (18% vs 34% HAs, 35% GIs, 41% HOs, 44% IMs and 46% Os). Access to genetic testing was denied to 12% of participants who had made referrals in the last 12 months, for reasons including cost burden to the workplace (31% of these participants), institution policy (19%), lack of timely access to a testing facility (19%) and cost burden to the patient (13%). Frequently reported barriers to genetic testing included lab pricing (44%), capacity issues (37%), requirement for a second geneticist consultation (33%), and that a specific genetic diagnosis would not change treatment options (22%); however, results varied by country (Figure 1).
Conclusion: Although genetic testing is commonly used by physicians encountering IEIs in Europe, barriers to referrals exist, which have the potential to delay or hinder diagnosis. Therefore, improving access to genetic testing by removing these barriers is important to aid rapid diagnosis and potentially improve patient outcomes.
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Main factors	All N=151	Germany n=30	France n=30	Italy n=31	Spain n=30	UK n=30
Lab pricing	44%	47%	40%	29%	67%	37%
Capacity issues (i.e. lack of timely access to a testing facility)	37%	17%	30%	52%	47%	40%
Requirement for second consultation with a clinical geneticist	33%	27%	43%	35%	30%	30%
Difficulty of interpreting results requiring further investigation	30%	27%	23%	26%	47%	30%
Institution/place of work policy	28%	13%	17%	26%	33%	50%
Varying costs between different types of genetic tests	26%	30%	10%	19%	27%	43%
Cost burden for the patient/insurance policies	25%	40%	7%	29%	13%	37%
Lack of change to existing therapies for IEIs	22%	23%	23%	29%	10%	23%
Symptomatic therapy approach	21%	17%	27%	13%	23%	27%

0–10% 11–20% 21–30% 31–40% 41–50% 51–60% 61–70%

Figure 1. The most common perceived factors that could deter genetic testing referrals for patients with a suspected IEI, by country.

Figure shows the proportion of survey participants that selected each factor in response to the question "In general, what do you think are the main factors that could currently deter referring primary immunodeficiency patients for genetic testing?". Main factors selected by ≥20% of all participants are included in the table. Main factors selected by <20% of all participants include prior knowledge of immunophenotype (17%), homogenous treatment for all IEI patients (13%), not sure (5%), other (4%) and use of prophylactic IgGs (3%).
Abbreviations: IEI: inborn error of immunity; IgG: immunoglobulin G.

Conflicts of interest: EM, JL and IH are employees of Pharming Group, N.V.

001137 | Infections and immunodeficiency in down syndrome: A single center experience

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*Presenting author: L. Lamara Mahammed

Background: Defects in immunological parameters in down syndrome (DS) have been reported and postulated as explanations for the increased severity of infections seen in DS children. The aim of this work was to describe the main infections and the immunological characteristics of a pediatric cohort of Algerian patients with DS.
Method: This study was conducted on 31 children with DS who were investigated for complete blood count, serum immunoglobulins levels and lymphocyte subsets immunophenotyping by flow cytometry.
Results: The mean age at onset of infections was 8.9 ± 16.2 months. Most of patients (93.5%) had bronchopulmonary infections requiring hospitalization in 86.2% of cases. On blood count, anemia was

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found in 38.7% of cases, mainly normochromic normocytic anemia (58.3%). More than half of the patients (61.3%) had a normal or even increased level of immunoglobulins. B cells and TCD4+ lymphopenia were found in 80.6% and 71% of cases respectively. The study of naive and memory T cells revealed a normal rate of Recent thymic emigrant cells in 73.33% of cases with predominance of the memory phenotype for LTCD8 +. Switched memory B cells were within the normal range in more than half of the cases (54.5%).

Conclusion: Bronchopulmonary infections are the main reason of hospitalization of children with DS. Immunoglobulins measurement and lymphocyte immunophenotyping are necessary to assess the immune status of these patients in order to initiate adequate therapeutic measures.

Conflicts of interest: The authors did not specify any links of interest.

001464 | Approaches to diagnosis of rare inborn errors of immunity: Results of a case vignette-based physican survey

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*Presenting author: J. Luscombe

Background: Activated phosphoinositide 3-kinase delta syndrome (APDS) is a rare primary immunodeficiency/inborn error of immunity (IEI). While clinical manifestations (e.g., recurrent sinopulmonary infections, bronchiectasis and lymphadenopathy/lymphoma) and laboratory findings (e.g., immunoglobulin and B/T cell abnormalities) can raise clinical suspicion of APDS, definitive diagnosis requires genetic testing. This survey evaluates diagnostic approaches among physicians managing patients with IEIs.

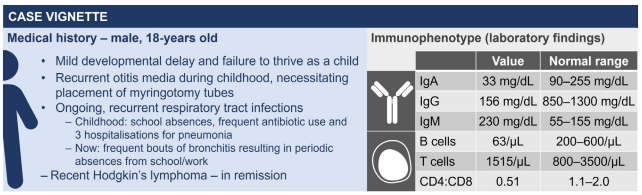
Method: A blinded, case vignette-based email survey, describing a patient with manifestations and laboratory findings consistent with APDS (**Figure**) and querying diagnostic decisions, was developed in collaboration with a clinical expert in APDS. The survey was fielded between Nov–Dec 2022 to immunologists (IMs) and haematologic oncologists (HOs) practicing in Europe (France, Germany, Italy, Spain and UK) and the US, who had managed ≥1 patient with an IEI in the past year.

Results: A total of 243 responses (Europe, 161; US, 76) were received from 122 IMs and 121 HOs, managing 94 and 41 patients (mean) with an IEI, respectively. The most frequently suspected immunodeficiencies listed as differential diagnoses for the case vignette (**Figure**) were common variable immunodeficiency (85%), hyper-IgM (46%), (severe) combined immunodeficiency (37%), IgA deficiency (27%) and human immunodeficiency virus/acquired immunodeficiency syndrome (26%); only 7% of respondents listed APDS in their differential. In total, 85% of respondents (109 IMs; 98 HOs) would order genetic testing to evaluate the patient; however, 17% of respondents were unsure of which genetic test to use. In the 15% of respondents (13 IMs; 23 HOs) who would not order genetic testing, the most common reasons were need for further evaluation/referral before genetic testing and genetic testing not felt to be necessary at this time. When informed that genetic testing confirmed an APDS diagnosis in this case, 34% of respondents indicated that they had experience of diagnosing or managing APDS. Of those respondents without APDS experience, 26% had never heard of it, 42% had heard of it but were unfamiliar and 32% were familiar but had never encountered a patient.

Conclusion: A greater awareness of rare IEIs, such as APDS, and a better understanding of genetic testing for IEI diagnosis might facilitate increased and earlier diagnoses of rare IEIs, potentially leading to improved patient outcomes.

Conflicts of interest: JH is an employee of Pharming Healthcare Inc. EM, JL, SG and IH are employees of Pharming Group, N.V.

MED-DE-APDS-230003 February 2023.
Case vignette presented in email survey.



001626 | Neurosarcoidosis: Descriptive analysis of a cohort from two Italian referral centers

A. De Conti[1,2]; B. Labella[3]; R. Scarpa[1,2]; B. Piazza[1,2]; A. Dell'edera[4]; I. Volonghi[3]; C. Abriani[2]; R. Manara[2]; F. Cinetto[1,2]

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*Presenting author: A. De Conti

Background: Sarcoidosis is a multisystem granulomatous disease of unknown etiology. Neurological involvement is rare, with an estimated prevalence of 5–10% of the affected population. Glucocorticoids are the first-line agents, whether or not in association with conventional DMARDS. Biologics, such as antiTNFα agents, are generally used as third line treatments in patients with refractory or relapsing disease.

Method: We descriptively analyzed a cohort of patients with sarcoidosis followed at the Referral Centers of Treviso and Brescia from October 2017 to October 2022, focusing on neurosarcoidosis (NS).

Results: Out of 386 patients diagnosed with sarcoidosis, 55 had neurological involvement; of these 41 at onset, whereas in 14 neurological symptoms had a 32-month median latency since disease onset. 14 patients were diagnosed with isolated NS. Patients often showed systemic symptoms such as fever, myalgia and asthenia (20/55) and lung (28/55) or lymph node involvement (18/55 thoracic, extra-thoracic in 15/55). CFS analysis was performed in 40. Median value of CSF-proteins and cell counts were 0.68 g/L and 55 cells/uL, respectively. 7 cases showed mild hypoglycorrhachia,

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with microbiological studies tested negative. CSF oligoclonal bands resulted positive in 13. CSF-CD4/CD8 lymphocytes ratio was performed in 16 patients, resulting increased in 7. CNS involvement was found in 43 cases, while peripheral nervous system in 24. The most common findings at MRI were brain parenchymal abnormalities (29/55); myelopathy was found in 16 patients. 21 patients presented with cranial neuropathies and facial nerves were the most affected. CNS biopsy was performed in 7 patients; in 34 cases extra-neurological involvement became crucial for achieving a correct histopathological diagnosis. All patients were treated with corticosteroids as first line-treatment, MTX was used in 30 cases, HQC in 9, AZA in 5, Ciclophosphamide in 5 and antiTNFα agent in 14. A sub-group analysis performed on 39 NS patients showed a medium monthly prednisone cumulative dose, from disease onset to the last follow-up, of 442 mg/months.

Conclusion: Neurosarcoidosis can be a life-threating disease's localization, often requiring high glucocorticoid dose. Early use of DMARDS and anti-TNFα, at least as steroid-sparing option, should be considered in NS. No evidence-based criteria are currently available to define the best time to start such treatment.

Conflicts of interest: The authors did not specify any links of interest.

000788 | Preference in administration method of immunoglobulin replacement therapy in CVID patients

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Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

*Presenting author: H. P. Pereira

Background: For patients with Common Variable Immunodeficiency (CVID) immunoglobulin replacement therapy (IgRT) is the mainstay of treatment as it significantly reduces both the frequency and severity of infections. The formulations and delivery methods of immunoglobulin have evolved over time. The 3 currently available delivery methods of IgRT administration in our Department are: intravenous (IVIg), subcutaneous (SCIg) via pump administration and SCIg via rapid push (RP). Either for economical, pandemic or personal reasons most patients have tried all of these treatment alternatives. The aim of this study was to compare IgRT administration preference options in CVID patients.

Method: Observational study of CVID patients followed in our Allergy and Clinical Immunology Department, who have been treated with the three available IgRT options. Patients were asked to choose and justify their preferred IgRT administration method. Demographic and clinical data of patients was also collected.

Results: A total of 37 patients were included (mean age 53.5 ± 16.39 years, 57.1% male). Regarding current IgRT route of administration, 28 patients are with SCIg (mean age 45.7 ± 16.70 years, 50% male), 8 of those had switched from IVIg during the pandemic, and have been stable regarding infections on their current IgRT route. Currently, out of those 28, 19 (67.8%) patients are under RP. Nine patients are on IVIg reposition (mean age 45.3 ± 16.71 years, 66.7% male). Five were previously on SCIg and had to restart IVIg due to the worsening of their condition. Regarding patients preference in IgRT administration route, 7 (18.9%) preferred IgIV, 12 (32.4%) preferred SCIg via pump, while 18 (48.6%) selected RP as their favorite treatment option. Demographic, clinical data and reasons patients listed regarding IgRT preference are represented on Table 1. The most listed reasons for preferring the IgIV method were better disease control and the frequent contact with health professionals. The most listed reasons for preferring RP (especially when compared with pump-delivered SC administration) were commodity and time consumption. Regarding clinical data, we highlight that patients currently under SCIg pump reported more overall infections/year versus the SCIg RP and/or IVIg. These differences are probably due to CVID phenotypes.

Conclusion: RP IgRT was the preferred method in our cohort, with the main reason listed being commodity and/or schedule flexibility. Since IgRT is a lifelong treatment in these patients, individualization of treatment is of paramount importance, which has to continuously be under evaluation by the physician alongside their clinical and analytical parameters.

TABLE 1 Demographic, clinical data and reasons patients listed regarding IgRT preference.

Current Ig route of administration	IVIg	SCIg pump	SCIg RP
Total	9	9	19
Age, year; mean (SD)	55.3 (16.1)	42.3 (15.2)	41.1 (18.2)
Sex (male); n (%)	6 (66.7)	3 (33.3)	10 (52.6)
Time (years) from CVID diagnosis; mean (SD)	14.5 (11.3)	16.9 (11.1)	17.7 (7.2)
Diarrhea. episodes-year; mean (SD)	3.9 (2.9)	4.8 (2.7)	2.4 (1.7)
Sinusitis. episodes-year; mean (SD)	2.7 (1.7)	3.9 (1.7)	2.4 (2.1)
Otitis. episodes-year; mean (SD)	0.7 (1.4)	0.5 (1.0)	0.4 (1.2)
Pneumoniae. episodes-year; mean (SD)	0.4 (0.8)	0.2 (0.5)	0.3 (0.2)
All infections. episodes-year; mean (SD)	5.3 (3.2)	9.1 (2.8)	3.4 (2.2)
Reasons listed as factors influencing preferred Ig treatment			
Low compliance with treatment (n)	2	0	0
Time spent at hospital (n)	1	5	10
Apprehension on side effects at home (n)	7	1	2
More schedule flexibility/Commodity (n)	1	7	12
Less hospital visits (n) (e.g. transportation costs, fear of infections, etc.)	0	3	2
Fewer medical assessments (n)	6	3	4
Better control of self-administration (n)	0	4	11
Less side effects (n)	1	2	4
Time consumption (n)	3	3	5
Disease Control (n)	7	3	9

Conflicts of interest: The authors did not specify any links of interest.

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001346 | On-demand treatment with Icatibant and long-term prophylaxis with Lanadelumab for acquired angioedema and diagnosis of normal C1-inhibitor acquired angioedema: A case series

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*Presenting author: A. Talmon

Background: Acquired angioedema is rare and caused by autoantibodies against C1-inhibitor deficiency (AAE-C1-INH). This report assesses the efficacy of on-demand Icatibant treatment and the diagnosis of normal C1-INH AAE.

Method: This report describes 3 cases of patients diagnosed with AAE and treated with on-demand Icatibant. Of these, two patients received prophylactic treatment with Lanadelumab. Two of the patients had normal levels of C1-INH during the attacks.

Results:

Patient 1: 49 YO female diagnosed with SLE 17 years before the diagnosis of AAE. The patient suffered three episodes of spontaneous "anaphylactic shocks" during SLE flairs manifested by laryngeal angioedema and refractory shock mandate intubation, ventilation, and vasopressors therapy. AAE was suspected, albeit normal C1- INH level and function during attacks. A subsequent episode of laryngeal angioedema preceded by erythema marginatum was successfully treated with Icatibant.

Patient 2: 50 YO female experienced laryngeal angioedema necessitating intubation. C4 level and C1-INH level and function were normal. Investigation for underline disease revealed thyroid cancer. Subsequent episodes were treated successfully with Icatibant. Due to a high frequency of attacks, prophylactic treatment with Lanadelumab was started. Upon initiation of treatment, no additional events occurred.

Patients one and two underwent whole exome sequencing, which did not reveal a mutation known to cause HAE.

Patient 3: 54 YO female suffering from recurrent episodes of abdominal pain and vomiting for 2.5 years. C4 and C1-INH levels were low. The patient was diagnosed with AAE secondary to Monoclonal B cell lymphocytosis (MBL). Subsequent episodes of intestinal angioedema were treated successfully with Icatibant. Furthermore, the attacks completely aborted after starting prophylactic Lanadelumab.

Conclusion: On-demand Icatibant treatment is an effective option for treating acute attacks of acquired angioedema secondary to solid malignancies, hematological malignancies, and autoimmune diseases. Long-term prophylactic treatment with Landelumab effectively prevented attacks secondary to acquired angioedema, even if the underlying disease was not cured.

AAE is a clinical diagnosis that does not mandate low levels of C1-INH. Besides C1-INH, the contact activating system contains a set of different proteins that may have auto-antibodies yet to find, causing the pathological formation of bradykinin.

Conflicts of interest: The authors did not specify any links of interest.

000486 | Short-term prophylaxis with sebetralstat, an investigational oral on-demand treatment for hereditary angioedema, in KONFIDENT-S

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*Presenting author: J. Bernstein

Background: For people living with hereditary angioedema (HAE), guidelines recommend short-term prophylaxis (STP) with an intravenous (IV) C1-inhibitor (C1-INH) before medical, surgical, or dental procedures. However, access to and administration of IV C1-INH may be challenging. Sebetralstat, an investigational oral plasma kallikrein inhibitor, is currently being evaluated in a phase 3 trial (KONFIDENT) for the on-demand treatment of HAE attacks. As part of a planned 2-year open-label extension (KONFIDENT-S), the safety and effectiveness of sebetralstat as a potential STP treatment will be evaluated.

Method: Approximately 150 patients aged ≥12 years with HAE will be enrolled in KONFIDENT-S. In consultation with their study physician, patients will administer a single dose of sebetralstat prior to a planned procedure, followed by 2 additional doses (once every 6–8 hours). If an attack starts within 24 hours of procedure start, it should be treated with conventional on-demand therapy. If an attack begins >24 hours after the procedure, sebetralstat may be used as on-demand treatment.

Results: The proportion of procedures employing sebetralstat for STP that do not result in an attack within 24 and 48 hours will be assessed. Safety will be monitored by adverse event reporting and laboratory tests. For any HAE attacks treated with conventional therapy (<24 hours) or sebetralstat (>24 hours), patients will complete timed assessments over 48 hours from attack onset.

Conclusion: The KONFIDENT-S trial will provide open-label data evaluating the use of sebetralstat as a potential oral STP therapy to prevent HAE attacks that may be triggered by medical, surgical, or dental procedures.

Conflicts of interest: JB has received grants or contracts from KalVista Pharmaceuticals, BioCryst, CSL Behring, Ionis, and Takeda (Shire); received consulting fees from KalVista Pharmaceuticals, BioCryst, CSL Behring, Escient, Ionis, Ono, Pharming, Pharvaris, and Takeda (Shire); received payment or honoraria for presentations or manuscript writing from BioCryst, CSL Behring, Pharming, and Takeda (Shire); and serves leadership or fiduciary roles with the Angioedema Centers of Reference and Excellence, American Academy of Allergy, Asthma & Immunology, HAEA.org, and the Joint

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Task Force for Allergy Practice Parameters. MAR has received grants or contracts from KalVista Pharmaceuticals, BioCryst, Biomarin, CSL Behring, Ionis, Pharvaris, and Takeda; received consulting fees from KalVista Pharmaceuticals, Astria, BioCryst, CSL Behring, Cycle Pharma, Fresenius-Kabi, Ipsen, Ono Pharma, Pfizer Inc, Pharming, Pharvaris, REGENXBIO, Sanofi/Regeneron, and Takeda; received payment or honoraria for presentations or manuscript writing from Grifols, Pharming, and Takeda; and serves a leadership or fiduciary role with the US Hereditary Angioedema Association. WRL has received grants or contracts from KalVista Pharmaceuticals, BioMarin, CSL Behring, Grifols, Ionis, Takeda (Shire), and Teva; received consulting fees from KalVista Pharmaceuticals, Astria, BioCryst, Biomarin, CSL Behring, Express Scripts/CVS, Fresenius Kabi, Intellia, Magellan, Optum, Pharming, Pharvaris, and Takeda (Shire); received payment or honoraria for presentations or manuscript writing from Astra Zeneca, BioCryst, CSL Behring, Grifols, GSK, Optinose, Pharming, Sanofi/Regeneron, and Takeda (Shire); and serves a leadership or fiduciary role with the US Hereditary Angioedema Association. PKA, MDS, and CMY are employees and shareholders of KalVista Pharmaceuticals.

001566 | A case of adult onset lymphoproliferative syndrome (ALPS)

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*Presenting author: I. Claudi

Background: Autoimmune lymphoproliferative syndrome (ALPS) is a primary immune regulatory disorder characterized by derangements of apoptosis with consequent benign or malignant lymphoproliferation and autoimmunity. It typically occurs in childhood; adult onset is rare. Here we describe a case of adult-onset ALPS.

Method: A 64-year-old Caucasian woman was diagnosed with systemic lupus erythematosus (SLE) ten years prior. She presented with worsening symptoms including progressive fatigue, anemia, and thrombocytopenia. During examination, splenomegaly and lymphadenopathy were noted. Testing revealed hemolytic anemia, thrombocytopenia, and polyclonal hypergammaglobulinemia. Although ANA, anti-ENA, and dsDNA-antibodies were negative, a CT-scan showed significant lymphadenopathies and splenomegaly. Additionally, elevated levels of IL-10 were found, as well as an increased proportion of Double Negative T cells (DNT, 7.4% of total CD3+ cells) on peripheral blood lymphocyte phenotyping and resistance to Fas-induced apoptosis.

Results: The findings were aligned with the diagnosis of adult-onset ALPS. Further investigation through a bone marrow biopsy and splenectomy ruled out hematological disorders. The patient began treatment with a low dose of prednisone and achieved remission of hemolytic anemia and thrombocytopenia. After 18 months of monitoring, the patient displayed stable condition with no sign of cytopenias and a mild reduction in lymphadenopathies as shown on a CT-scan.

Conclusion: ALPS is an uncommon condition in adults. Its clinical expression can vary greatly, leading to delayed diagnoses in adulthood or misdiagnosis in childhood. To our knowledge, the patient is the second oldest ALPS one reported in the literature, and she had a diagnostic delay of almost a decade.

Conflicts of interest: The authors did not specify any links of interest.

001571 | A case report of CVID associated granulomatous disease

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Background: Common variable immunodeficiency (CVID) is a heterogeneous disease. The onset can be characterized by recurrent infections. Due to variable clinical expression, patients often receive a delayed or wrong diagnosis. We here report a peculiar case of CVID onset.

Method: A 54-year-old female patient came to our Centre due to arthromyalgia, chronic diarrhea, and painful not itchy erythematosus skin lesions at lower limbs. At the physical examination, we documented generalized lymphadenopathy, II grade splenomegaly and erythematosus infiltrated lesions at lower limbs.

Results: Laboratory tests revealed lymphopenia and hypogammaglobulinemia (IgG 375, IgA 24, IgM <18 mg/dl), LDH/beta2microglobulin within limits. HIV, HBV, HCV, CMV, EBV, HHV8, Mantoux test, anti-Bartonella and anti-Borrelia antibodies, parasitological stool exam, stool bacterial culture, Widal-Wright tests were negative. Anti-tetanus IgG at baseline and two weeks after vaccinations were not protective. Fecal calprotectin was increased.

Total body CT confirmed splenomegaly and generalized lymphadenopathy. Colonoscopy showed eosinophilic microscopic colitis. Bone marrow biopsy ruled out a lymphoproliferative disorder. Patient underwent laparotomy for interaortocaval and iliac lymphoadenectomy with histologic evidence of folliculo-hyperplastic lymphadenitis with epithelioid granuloma. Skin biopsy of erythematous lesions showed nodular vasculitis with granuloma.

Conclusion: Based on ESID criteria we diagnosed CVID, associated to chronic granulomatous disease sarcoidosis-like (generalized lymphadenopathy, splenomegaly, erythema nodosum) and microscopic eosinophilic colitis. The patient was treated with prednisone 1 mg/kg on a tapering schedule for the granulomatous disease and

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replacement therapy for CVID with SCIg (40 ml/week); budesonide and mesalazine for eosinophilic colitis, with benefit.

Conflicts of interest: The authors did not specify any links of interest.

001553 | Clinical features of adult patients with selective immunoglobulin a deficiency

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Background: Selective IgA (sIgA) deficiency is defined when serum IgG and IgM levels are normal after other causes of hypogammaglobunemia are excluded, while IgA level is below 7 mg/dl in a patient over 4 years old. The aim of this study is to contribute to increase awareness about this issue by revealing the clinical characteristics of patients with sIgA deficiency followed in an adult immunodeficiency center.

Method: The 16 adult patients (20 to 54 years of age, 4 males and 12 females) who were diagnosed with sIgA deficiency between January 2017 and January 2020 were included in this study. Their complaints, disease diagnoses, laboratory tests, imaging methods and treatments were retrospectively reviewed. Laboratory tests contained biochemical tests, immunoglobulin levels and lymphocyte subsets.

Results: While 4 of these patients directly applied to our outpatient clinic, 12 of them applied to our outpatient clinic with the consultation of other polyclinics. The patients' most frequently complaints were sore throat (7 patients) and diarrhea (6 patients) and they used antibiotics for the treatment of sinusitis (7 patients), pharyngitis (5 patients), and gastroenteritis (4 patients). Four patients did not state any complaints. Immunological tests revelaed all of the patients had low IgA and normal IgG and IgM values, low IgG1 and low CD19+B lymphocyte percentage in one patient, low IgG2 and CD19+B lymphocyte percentage in one patient, and low CD3+CD16+56+NK lymphocyte percentage in one patient. Ten patients were offered prophylactic antibiotic therapy because of frequent infections. All patients were invited to come control visits annualy. During the follow-ups, 2 patients' IgA levels normalized and 1 patient turned into common variable immunodeficiency.

Conclusion: sIgA deficiency is usually detected incidentally and 65–70% of patients are asymptomatic. Some of these patients can suffer from infections, autoimmune or allergic diseases. Twenty five percent of our patients were asymptomatic. sIgA deficiency is a primary immunodeficiency disease with the best prognosis, but there is a risk of conversion to other immunodeficiencies. Patients with frequent infections should be given prophylactic antibiotic therapy and should be followed periodically.

Conflicts of interest: The authors did not specify any links of interest.

000207 | Phenotypic presentation and follow-up of patients with common variable immunodeficiency

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Background: Common Variable Immunodeficiency (CVID) is included in the group of disorders associated with antibody deficiency, with different phenotypic clinical presentations. It mainly affects adults between 20 and 40 years of age.

Objective: To describe the sociodemographic and clinical characteristics of patients with IDCV.

Methods: All patients with IDCV seen at an outpatient clinic were included, describing sociodemographic data, clinical history and test results.

Results: 14 patients were included, mean age 42.14 ± 11.48 years, 57% female, 57% white, half with superior education, mean onset of symptoms at 18.75 ± 16.4 years, and mean age of diagnosis and treatment with immunoglobulin at 26.41 years. The mean time between onset of symptoms and diagnosis was 8 years. 16.7% have consanguinity, 21.4% have a family history. The main complaints of infection were: chronic sinus disease (92.9%), 69.2% pneumonia, otitis (61.55%), infectious diarrhea (46.2%), tonsillitis (28.6%), pyoderma (15.4 %) urinary infection (7.7%). One patient had vulvar CA at diagnosis. 57.1% reported symptoms suggestive of atopy/allergy. 57.1% with bronchiectasis, 35.7% with autoimmune disease, 50% with splenomegaly, 33% with hepatomegaly, 23.8% portal hypertension, 15.4% inflammatory bowel disease. The mean duration of treatment was 10.61 years. Mean IgG at diagnosis was 40.4 ± 34.50 mg/dl, CD4 569.6 cells/mm^3, CD8 1257.2 cells/mm^3. Patients with bronchiectasis at diagnosis had CD4/CD8 inversion.

Conclusion: IDCV is more susceptible to sinopulmonary infections, with predisposition to malignancy, autoimmune diseases, allergies and enteropathies, secondary to immune dysregulation. Unfortunately, the late diagnosis contributes to a worse prognosis of the disease.

Conflicts of interest: The authors did not specify any links of interest.

000210 | Efficacy of icatibant in type I and II acquired angioedema

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Case report: So far, we do not have guidelines for the treatment of acquired angioedema due to C1 inhibitor deficiency (AAE-C1-INH), as in

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hereditary angioedema. Objective: to report the response to prophylaxis and treatment of attacks in two female patients with AAE-C1 -INH type I and II. The first, 30 years old, with episodes of peripheral, facial and airway angioedema, diagnosed with Monoclonal Gammopathy of Undetermined Significance. She was medicated with tranexamic acid without improvement and after Danazol, with a reduction in frequency but keeping its severity. It was replaced by oxandrolone, with worsening. She needed to be treated with fresh plasma and venous tranexamic acid twice. She has been using Icatibant for severe attacks involving the face and larynx, with improvement of total edema in one hour and without the need for a second application. The other patient, 19 years old, diagnosed with Systemic Lupus Erythematosus, being treated with prednisone, hydroxychloroquine and Azathioprine. Tranexamic acid was started, also with partial improvement in frequency of symptoms. In one of the crises, she was medicated with 3000 units of a C1 esterase inhibitor, without improvement, and was admitted to a hospital unit for fresh plasma transfusion, presenting a reaction with generalized pruritic erythema, in less than an hour. She also has been using Icatibant for severe attacks involving the face and larynx, with a great improvement in one hour. It was requested Lanadelumab for both. In both cases, we did not observe a reduction in the severity and frequency of symptoms with long-term treatment with androgens and/or anti-fibrinolytics. In addition, it was not possible to measure anti-C1 inhibitor antibodies. Studies show variable responses to these drugs in the treatment of AAE-C1-INH, including icatibant.

JM case reports session: 18243

Conflicts of interest: The authors did not specify any links of interest.

000464 | Real-world patient experience of Ig pre-filled syringes in Wales

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Background: Treatment for primary (PID) and secondary immunodeficiency (SID) includes regular long-term immunoglobulin (Ig) replacement therapy (IgRT), adminstered either intravenously (IVIg) or subcutaneously (SCIg). Pre-filled syringes (PFS) offer an alternative method of SCIg delivery to conventional vials. Here, we discuss real-world patient use of Ig PFS to help understand how this delivery method affects patients' experience.

Method: Case studies from the Cardiff and Vale University Health Board between 2020–2022 were identified to illustrate different perspectives of Ig PFS use.

Results: Patients generally regarded PFS to be a simple-to-use mode of SCIg administration. For example, a 38-year-old patient with PID and reduced manual dexterity preferred PFS over conventional vials due to fewer steps required for drug preparation. Some patients felt more independent using PFS. An 87-year-old patient with SID chose PFS during the COVID-19 pandemic because it gave him the ability to independently self-administer his treatment at his care-home, enabling him to avoid mandatory self-isolation and allowed him to continue socialising. In another example a 42-year-old patient with PID who previously self-administered IVIg at home but switched to SCIg PFS due to difficulties with cannulation, felt totally independent using PFS as he no longer required his wife to assist with infusions. A 33-year-old patient with SID described how PFS allowed her to reduce burden of treatment and progress in her journey of detaching herself from the health care settings of her original cancer treatment. Additionally, some patients found PFS to be a convenient and time-efficient process, with some patients perceiving fewer side effects and wear-off compared with conventional weekly SCIg. Not all patients preferred PFS, particularly those whose dose was initially set to daily PFS infusions. In one case, the reality of PFS was the opposite of the patient's expectations, with more frequent, more difficult, and longer infusions compared with conventional SCIg.

Conclusion: Analysing perspectives of patients receiving PFS SCIg highlighted attributes contributing to patient preference for PFS over other methods of IgRT, including simplicity of administration, greater independence, reduced treatment burden and greater convenience. These real-world insights into the impact of PFS on patient journeys could help guide treatment decisions, reduce treatment burden and improve patient outcomes.

Conflicts of interest: The authors did not specify any links of interest.

000501 | Annual rates of activated PI3K delta syndrome manifestations using physician-derived survey data

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*Presenting author: A. Harrington

Background: Activated PI3K delta syndrome (APDS) is a rare primary immunodeficiency. Patients with APDS experience a range of manifestations. Annual rates of these manifestations are unknown; current literature only provides overall prevalence. This survey aims to estimate the annual rate of APDS-associated manifestations. Understanding these rates will provide insight into the needs of patients with APDS.

Method: A survey comprehensively assessing manifestations of APDS was developed using targeted literature review to draft the list; qualitative interviews with clinical experts confirmed accuracy, completeness. Participants were clinical experts with experience treating patients with APDS. For each manifestation, participants were asked to think of all the patients diagnosed with APDS, and assumed to be treated, they knew of and to provide an estimated annual rate among these patients. For recurrent manifestations, participants were asked to report the number of times on average

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patients experienced the manifestation within a year. Interim data are presented as weighted averages.

Results: Survey responses were received from 6 experts in the US currently treating patients with APDS ($N = 27$; range, 2—8 patients per respondent). Interim results indicate the annual rate of minor infections was 72% (median, 65%); rate of major infections was 29% (median, 28%). Annual rate of chronic sinusitis was 56% (median, 45%), pneumonia was 36% (median, 32%), interstitial lung disease was 12% (median, 10%), bronchiectasis was 48% (median, 37%). Rate of otitis media was 34% (median, 30%) with patients experiencing 2 episodes/y (median, 3); 18% (median, 5%) of patients who experienced otitis media were reported to have permanent hearing loss. Rate of severe or persistent herpesvirus infection was 24% (median, 19%) with patients experiencing 2 episodes/y (median, 2). Rate of any type of malignancy was 8% (median, 5%), any type of lymphoma was 7% (median, 5%).

Conclusion: These preliminary annual rates of APDS-associated manifestations support the current understanding of the magnitude of disease burden in these patients and the variability in the prevalence of their clinical presentation. These results highlight the need for therapies to modulate the disease and its manifestations. To our knowledge, these are the first annual rates of manifestations reported for patients with APDS.

Conflicts of interest: Aggarwal - Consultant with Pharming Healthcare Inc. Rider - Advisory board and steering committee member at Pharming Healthcare Inc. Wu - Advisory board and steering committee member at Pharming Healthcare Inc. Hartog - Advisory board and steering committee member at Pharming Healthcare Inc. Harrington - Employee of Pharming Healthcare Inc.

000508 | Annual rates of treatment for activated PI3K delta syndrome using physician-derived survey data

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*Presenting author: A. Harrington

Background: Activated PI3K delta syndrome (APDS) is a rare primary immunodeficiency with no FDA-approved treatment. Patients with APDS receive not only treatments to manage its various manifestations but also immunosuppressive and prophylactic therapies. The estimated annual prevalence of these treatments is unknown, as current literature only provides overall treatment prevalence. This survey aims to estimate the annual rate of APDS-associated treatment use to gain insight into current treatment patterns.

Method: A survey to assess treatment use in APDS was developed from a targeted literature review to identify treatments. Qualitative interviews with clinical experts confirmed the accuracy and completeness of the treatment list. Survey participants were clinical experts with experience treating patients with APDS. For each treatment included in the survey, participants were asked to think of all the patients diagnosed with APDS, and assumed to be treated, they knew of and to provide an estimated annual rate of treatment used. Participants were also asked to report whether treatments were used as maintenance therapies or in acute scenarios. Interim results are reported as weighted averages.

Results: Survey responses were received from 6 experts in the US currently treating a total of 27 patients with APDS (2–8 patients per respondent). Interim analysis revealed that commonly reported treatments included immunoglobulin replacement therapy (weighted average, 82% of patients; median, 88%) and prophylactic antibiotics (weighted average, 60%; median, 55%). Respondents reported prescribing steroids to their patients with APDS in acute scenarios (weighted average, 26%; median, 13%) more often than as maintenance therapy (weighted average, 9%; median, 2%). The average rate of hematopoietic stem cell transplantation was 16% (median, 13%). Surgical interventions and biopsies were also reported. The most common procedures annually included tympanostomy tube insertion, tonsillectomy/adenoidectomy, bronchoscopy, lymph node biopsy, colonoscopy, and liver biopsy.

Conclusion: These preliminary annual treatment rates for APDS reveal that many treatments are used to manage APDS-associated manifestations and that treatment patterns have significant heterogeneity. These interim results highlight the unmet need for a disease-specific treatment.

Conflicts of interest: Aggarwal - Consultant at Pharming Healthcare Inc. Rider - Advisory board at Pharming Healthcare Inc. Wu - Advisory board and steering committee at Pharming Healthcare Inc. Hartog - Advisory board and steering committee at Pharming Healthcare Inc. Harrington - Employee of Pharming Healthcare Inc.

001593 | Successful recovery from acute disseminated encephalomyelitis in a patient with systemic lupus erythematosus and a combined immunodeficiency

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Background: Systemic lupus erythematosus (SLE) is a complex autoimmune disorder characterized by chronic systemic inflammation

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that can affect almost any organ. It is associated with an increased risk of infection due to intrinsic immunological abnormalities and immunosuppressive treatment.

Case presentation: A female patient was diagnosed with SLE at the age of 12 initially presenting with skin, joints and hematological manifestations. At the age of 13 she developed biopsy-proven lupus nephritis successfully treated with pulse doses of methylprednisolone (MP) and six cycles of cyclophosphamide (CYC). At the age of 17, she was diagnosed with neurolupus after presenting with weakness in the hand. Another six cycles of CYC (9 g in total) were given and therapy continued with prednisone, hydroxychloroquine, and mycophenolate mofetil. In October 2022, at the age of 19, she was admitted to the ER due to unconsciousness and fever. Cerebrospinal fluid analysis was suggestive for neuroinfection (high leucocytes, elevated proteino- and normal glycorrhachia). However, liquor culture and PCR analyses for viruses, bacteria, fungi and parasites did not reveal a causative pathogen. Antineuronal and myelin oligodendrocyte glycoprotein antibodies were negative. Brain MRI showed diffuse lesions of supra- and infratentorial localization characteristic for CNS vasculitis and massive white matter changes suggestive for the parainfectious phenomenon - acute disseminated encephalomyelitis (ADEM). She was treated with polyvalent antimicrobial therapy, intravenous immunoglobulins (2 g/kg BW in total) and MP pulsed doses that led to complete clinical recovery. That was the first time that very low $CD4^+$ T-cells count (113/μL) was noticed. Further analysis revealed presence of a combined immunodeficiency affecting the innate (low complement system activation by the alternative route, low NK cells), cellular and humoral immune response (low IgG-6.3 g/L and IgM-0.6 g/L). Sulfamethoxazole trimethoprim was added to the therapy. Two months later control brain MRI showed marked improvement with rare supra- and no infratentorial brain changes.

Conclusion: Diverse clinical manifestations of SLE present a never-ending challenge to the clinician. Timely recognition of neuroinflammation of any cause and appropriate treatment are essential since there is huge potential for full recovery. Evaluation for immunodeficiencies affecting different parts of immune system should be performed in SLE patients.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001045 | Awareness of activated phosphatidylinositol 3-kinase delta syndrome (APDS) amongst European physicians: Results of a blinded survey

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*Presenting author: E. Munro

Background: APDS is a rare primary immunodeficiency (increasingly known as an inborn error of immunity [IEI]), fully characterised in 2013, which leads to both immune deficiency and immune dysregulation and has no licensed therapy available. Genetic testing is required for a definitive diagnosis of APDS. This study aimed to determine APDS awareness and thresholds for referral for genetic testing amongst physicians in France, Germany, Italy, Spain and the UK.

Method: A blinded survey was conducted with immunologists (IMs), paediatric immunologists (PIMs), haematologists (HAs), haematologic oncologists (HOs), general internists (GIs) and other specialities (Os) who were working in centres managing patients with IEIs and had spent ≥2 years in their current role. Questions covering experience of management of patients with IEIs, APDS awareness and symptom severity thresholds for genetic testing were included.

Results: Survey participants ($N = 151$, $n \geq 30$ per country) were 46% IMs, 17% GIs, 11% HOs, 10% HAs, 7% PIMs and 9% Os; the majority (68%) worked mainly at academic hospitals. Only 13% of participants reported experience of managing patients with APDS, compared to 67%, 56% and 38% for common variable immunodeficiency, lymphoproliferative disease and hyper immunoglobulin M syndrome, respectively. HAs and IMs were more likely to have had experience managing a patient with APDS (20% and 16%, respectively), compared to GIs (12%), Os (8%), HOs (6%) and PIMs (0%). Only 2% of participants said they were "extremely familiar" with APDS; familiarity was highest in the UK and lowest in Germany (Figure 1). Participants not "extremely familiar" with APDS (98%; $n = 148$) were queried on what symptom severity thresholds would trigger a referral for genetic testing. A higher proportion of these participants would consider referral for patients presenting with mild-to-moderate splenomegaly (56%) or lymphadenopathy (51%) than for mild-to-moderate autoimmune disease (44%) or lymphoma (42%). In total, 73% of participants reported that availability of a licensed APDS therapy would increase their likelihood of referral for genetic testing.

Conclusion: Awareness of APDS was low, with very few of those experienced in managing APDS reporting that they were "extremely familiar", suggesting a lack of familiarity amongst those involved in patient care. Genetic testing would likely increase if a licensed therapy were available.

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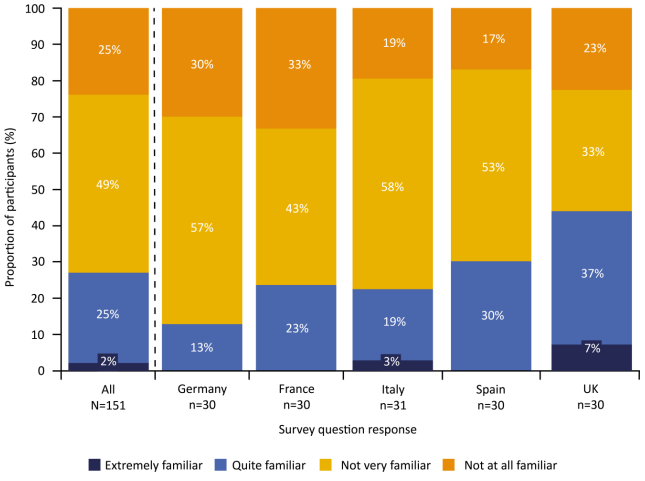

Figure 1. Familiarity with APDS amongst European physicians, by country.

Participants were asked "How familiar are you with PI3-kinase disease/APDS?" with response options of "extremely familiar", "quite familiar", "not very familiar" or "not at all familiar".
Abbreviations: APDS: activated phosphatidylinositol 3-kinase delta syndrome; PI3: phosphatidylinositol 3.

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Conflicts of interest: EM, JL and IH are employees of Pharming Group, N.V.

001223 | Quality of life and measures of well-being of Canadian patients with HAE based on data from the 2020 national survey

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*Presenting author: J. Badiou

Background: Hereditary angioedema (HAE) is a genetic disorder characterized by severe, acute skin and mucosal episodes of angioedema due to bradykinin-induced increases in vascular permeability. Most patients have deficient or dysfunctional C1 inhibitor (HAE C1INH), but a significant percentage have other mutations causing similar episodes of angioedema with normal C1INH (HAEnC1INH).
Method: Data was acquired from an online survey sent to all members of HAE Canada who self-reported HAE C1INH or Acquired Angioedema (AAE) and HAEnC1INH. Responses related to burden of illness were collated and expressed as a percent of respondents.
Results: Forty-five respondents reported having HAEnC1INH, 106 reported having HAE C1INH and 4 AAE. HAE C1INH and AAE were combined for analysis. Age of onset (mean, range) was higher for HAEnC1INH (25, 1–58) years than for HAE C1INH (18, 0.25–77) years. In the prior year, those with HAEnC1INH were more likely have had attacks (90% vs 78% and more likely to have >12 attacks per year (50% vs 27%) than those with HAE C1INH. More HAEnC1INH patients reported a high impact on personal (54% vs 26%) and financial (50% vs 17%) well-being and ability to work full-time (50% vs 20%) than those with HAE C1INH. Overall, those with HAEnC1INH had more concerns; specifically, a higher percentage were worried about interference with relationships (40% vs 21%) and social isolation (38% vs 11%). Depression was common (46% vs 41%) for both but more of those with HAEnC1INH felt powerless (72 vs 45%) with a lack of control of their disease (72 vs 42%).
Conclusion: Although genotyping is available for some types of HAEnC1NH, there are no biomarkers available to measure disease activity in HAEnC1INH. Diagnosis is difficult and access to treatment is limited since there are no drugs approved for HAEnC1INH. Compared to the combined responses of HAE C1INH and AAE patients surveyed, HAEnC1INH patients suffered more frequent attacks with a significant impact on their quality of life and measures of wellbeing.
Conflicts of interest: The authors did not specify any links of interest.

000546 | Bronchiectasis in pediatric patients with inborn errors of immunity

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*Presenting author: A. Murillo

Background: Inborn errors of immunity (IEI) are frequently associated with bronchiectasis. Currently, the diagnostic performance of IEI has improved because the association of some these entities with progressive airway damage, is better known with certainty. This has allowed the recognition and appropriate intervention, reducing the decrease of lung function and quality of life. Our aim was to characterize patients with IEI and bronchiectasis in a high-level institution in Cali, Colombia.
Method: Patients between 0 and 17 years old evaluated between 2013 and 2022, were included. Sociodemographic variables, microbiological isolation in bronchoalveolar lavage, and confirmation by a genetic study of suspected IEI were described.
Results: Fifteen patients were included; ten (66.6%) were male. The median age at diagnosis of IEI was 7.9 years (3.9–13.3), the median age of the diagnosis of bronchiectasis was 11 years (10–15). All patients had a finding of bronchiectasis in the thoracic scan, and six patients (40%) had genetic confirmation of IEI. Patients had several overlapping diagnoses prior the suspicion of IEI; eleven patients (73.3%) had recurrent pneumonia at diagnosis. Of those, two had severe pneumonia, three uncontrolled asthma, three chronic cough, and two recurrent sinusitis. Two (13.3%) patients had ataxia associated with chronic cough and two (13.3%) had cardiomyopathy with chronic cough. Four patients were diagnosed with asthma or early wheezing associated with chronic cough or recurrent pneumonia. One patient had recurrent suppurative otitis media, recurrent sinusitis, chronic cough, and uncontrolled asthma. In the follow-up, two (13.3%) patients died and seven (46.6%) were lost from follow-up. Five (33.3%) patients continue to receive management with immunoglobulin replacement and two (13.3%) with standard management for bronchiectasis. Of those patients receiving replacement with immunoglobulin, four have had adequate evolution without evidence of worsening of their lung condition, while one were suspected of granulomatous and lymphocytic interstitial lung disease (GLILD).
Conclusion: We present fifteen cases of patients with bronchiectasis and confirmed or suspected IEI in which early onset of bronchiectasis is evident. This data indicates the importance of early diagnosis and management of IEI in order to prevent lung deterioration.
Conflicts of interest: The authors did not specify any links of interest.

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MICROBIOME

001437 | Multiplatform metabolomics of cow's milk-allergic infants, their mothers, and grandmothers reveals changes in faecal amino acids, bile acids and branched-chain fatty acids

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Background: The prevalence of cow's milk allergy (CMA) is one of the highest in young infants, and a link with the gut microbiota has been proposed in the literature. A novel approach for studying this hypothesis is metabolomics, due to the high relevance of metabolic alterations in pathologies, especially in food allergy. In the case of the gut microbiota and CMA, faecal metabolomics is the technique of choice. Thus, to gain further understanding of the pathology, an ambitious longitudinal case-control study was developed, where faecal samples of infants with CMA were obtained, as well as those from their mothers and grandmothers, and compared to the respective control groups. In short, this work aims to study the relationship between microbiota and the onset of CMA through metabolomic analysis of the faeces of the patients from our study.
Method: After the patient recruitment and sample collection stages, 213 participants were included in the study – 48 case infants (0–6 months old, suggestive clinical history of IgE-mediated CMA and positive SPT to cow's milk or any of its fractions) and 23 control infants tolerating milk, both groups with their respective mothers and grandmothers. Samples were analysed by metabolomics with a multiplatform approach, measuring various metabolite classes: fatty acids of diverse chain lengths, including short-chain fatty acids (SCFAs) and branched-chain fatty acids (BCFAs); bile acids (BAs); amino acids, and other metabolites from the host-gut microbiota co-metabolism.
Relevant variables from the patients were inquired via detailed questionnaires, including birth mode, antibiotic use, and allergic history.
Results: We detected 162 metabolites of host-gut microbiota co-metabolism, including 4 SCFAs, 5 BCFAs, 15 amino acids, and 26 BAs. After statistical analysis, allergic infants had significantly higher levels of proline, valine and serine, and lower levels of lysine. Secondary BAs metabolism was also altered. In addition, BCFAs were significantly lower in children born by C-section, which could be due to the distinct bacterial colonization caused by their mode of birth. We also correlated these results with bacterial taxa obtained by 16S rRNA gene sequencing.
Conclusion: It appears there are distinct metabolites that discriminate between the different situations and that point to novel mechanisms of the interaction between microbiota and CMA. These data will be further analysed and integrated with shotgun metagenomics data to get a more complete picture of the pathology.
Conflicts of interest: The authors did not specify any links of interest.

000768 | Composition, structure, function, and interactions of the nasal bacteriomes in allergic rhinitis patients with or without comorbid asthma

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Background: Allergic rhinitis (AR) and Asthma (AS) are major public health concerns, responsible for relevant health care and social costs worldwide. Although previous studies indicated that bacterial communities residing in the respiratory airways (i.e., airway bacteriome) play a significant role in AS onset, development, and severity, little is known about nasal bacteriome dysbiosis during AR (alone or associated with AS comorbidity – ARAS).
Method: Nasal swabs were collected from patients (ARAS = 183; AR = 53; AS = 12) and healthy controls (CT = 99) attending the Immuno-Allergology outpatient clinic at Hospital de São João (July 2018 - January 2020) and were subjected to 16S rRNA high-throughput sequencing. AS and AR diagnosis was confirmed by an allergy specialist based on current symptoms and complementary testing (e.g., skin prick, specific IgE, bronchodilator responsiveness to salbutamol).
Results: One to three of the most abundant phyla (Actinobacteriota, Bacteroidota, Firmicutes, and Proteobacteria) and five to seven of the dominant genera (*Corynebacterium*, *Dolosigranulum*, *Haemophilus*, *Lawsonella*, *Moraxella*, Neisseriaceae, *Staphylococcus*, and

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Streptococcus) in the nasal mucosa significantly differed ($p = 0.021$) among all groups tested. One phylum (Firmicutes) and two genera (*Anaerococcus* and *Staphylococcus*) also varied significantly ($p = 0.036$) between AR and ARAS groups. AR showed the highest intra-group diversity, while CT showed the lowest diversity. Alpha-diversity significantly changed ($p < 0.01$) between rhinitic (AR and ARAS) and CT groups. Beta-diversity (Unifrac, Bray-Curtis, and Jaccard distances) significantly differed ($p < 0.011$) between respiratory disease phenotypes (AS, AR, and ARAS) and CT. Bacteriomes of rhinitic and CT participants showed 72 differentially expressed ($p < 0.05$) metabolic pathways each (PICRUSt2), mainly associated with degradation and biosynthesis processes. A network analysis (SPIEC-EASI) of AR and ARAS bacteriomes depicted more complex webs of interactions among their members than among those of healthy controls.

Conclusion: The present study expands our understanding of the relationships between nasal bacteriomes and airways inflammation, demonstrates that the nose harbors distinct bacteriotas during health and respiratory disease, and identifies potential taxonomic and functional biomarkers in allergic respiratory diseases.

Conflicts of interest: The authors did not specify any links of interest.

001535 | Mouse colon length changes upon cigarette smoke exposure

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*Presenting author: J. Schramm

Background: Asthma is a chronic lung disease that affects millions of people worldwide and places a burden on both the economy and healthcare system. Although genetic and environmental factors contribute to its development, exposure to cigarette smoke has been identified as a major risk factor for developing the disease. In addition to that, smoking is also known to induce gut dysbiosis and therefore not only influences the lung but also the gastrointestinal tract. As dysbiosis can lead to intestinal dysfunction, we investigated if exposure to cigarette smoke leads to a dilatation of the colon. This study adresses the interplay between smoking, epigenome, and the gut-lung axis in disease development. The objective is to achieve a deeper understanding of the underlying causes of asthma and develop new strategies for prevention and treatment.

Method: C57BL/6 mice are exposed to mainstream cigarette smoke (CS) (21 cigarettes/day; 3R4F, University of Kentucky) or room air (RA) for 1 h/day for 24 consecutive days and total particulate matter has been detected by photometric measurement using the MicroDust Pro device (Casella UK). Every third day, bodyweight development was monitored. Cyp1a1 and Ahr mRNA expression level has been quantified by qPCR. Furthermore, total colon length has been measured and analyzed in Fiji (ImageJ).

Results: CS-exposed mice showed significantly lower gain in bodyweight compared to RA-exposed mice independent of sex ($p < 0.05$). Photometric measurements of total particulate matter showed a mean value of ~6000 mg/m^3 within one hour of CS exposure. In CS-exposed mice, Cyp1a1 mRNA expression level was significantly higher ($p < 0.0001$) than in RA-exposed mice in both male and female. Ahr mRNA expression level did not differ between CS- and RA-exposed mice in male and female. Colon length significantly decreased in CS-exposed females compared to males ($p < 0.01$).

Conclusion: Mainstream CS exposure influences bodyweight gain as well as Cyp1a1 mRNA expression after 24 days of exposure. These findings proof a sufficient exposure with cigarette smoke. Differences in colon length of CS-exposed females compared to male mice and the corresponding air group leads to suggesting that CS-exposure has a higher impact on the physiology of the gastrointestinal system in females than males. As a next step, a link between microbial composition in gut and lung will be investigated.

Conflicts of interest: The authors did not specify any links of interest.

001474 | The link between anxiety and lactose intolerance: A study on the interplay between gastrointestinal and psychological disorders

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Background: Lactose intolerance (LI) is a common enzyme-defect intolerance caused by the lack of the beta-galactosidase enzyme, which breaks down lactose. LI causes gastrointestinal symptoms such as bloating, pain, diarrhea and nausea when lactose-containing foods are consumed. The worldwide prevalence of LI is 57% and it is more common in people of African, Asian, Hispanic, Mediterranean and southern European backgrounds. Recent studies have shown a connection between psychiatric disorders, such as anxiety, and gut health, as well as a link between stress and changes in the gut microbiota. The purpose of our study is to analyze possible links between anxiety and presence of LI, in particular about their frequency and correlation.

Method: The study was conducted on 214 Caucasian outpatients suffering from gastrointestinal symptoms selected from the Allergology and Clinical Immunology department of 'Mazzini Hospital' in Teramo (Italy). All patients underwent lactose hydrogen breath test (LBT) to detect lactose intolerance and DASS 21 test to assess level of anxiety. Breath test was positive when the hydrogen production, measured from the patient's breath by a clinical gas chromatograph, was more than 20 ppm above the baseline; patients were considered "anxious" with a DASS-21 score greater then 7 in questions about anxiety field.

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Results: Of the 214 patients enrolled in the study, 124 (57.9%) resulted positive for lactose malabsorption and 124 patients for anxiety, while 86 (69%) were positive for both tests. A weak but statistically significant correlation was observed between anxiety and positive lactose hydrogen breath test (LBT) resulted with a *p*-value of less than 0.05, as evaluated through Pearson's correlation coefficient (r).

Conclusion: Our study emphasizes the significance of the connection between LI and psychological states like anxiety, and its possible impact on the individual's overall health and well-being. Further studies are required to completely understand the causes implicated in this relation and to investigate a common strategic therapy.

Conflicts of interest: The authors did not specify any links of interest.

ONE HEALTH

001398 | H1-, but not H2-antihistamine intake blunts muscle glycogen resynthesis after interval exercise

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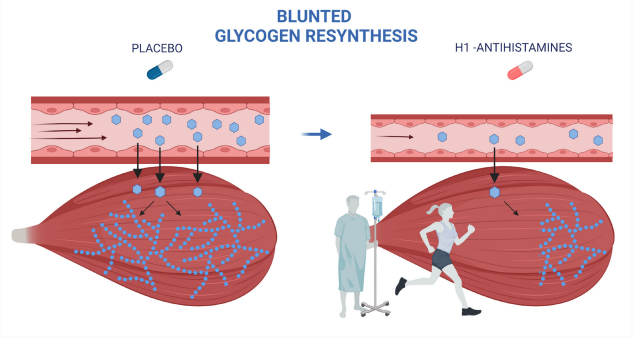
Background: Intake of antihistamine medication during a 6-week cycling training period results in marked impairments in training adaptations. An underlying mechanism could be a blunted muscle glycogen resynthesis during recovery, since taking this medication reduces post-exercise skeletal muscle glucose and glycogen is the main energy source during interval exercise. Therefore, in the current study, we investigated the effect of H1- or H2-antihistamines on glycogen resynthesis during recovery from intense exercise in humans.

Method: Fourteen healthy men and women performed a high-intensity interval training session on a cycling ergometer on 3 different days. Subjects ingested placebo (control), 540 mg fexofenadine (H1-antihistamine) or 40 mg famotidine (H2-antihistamine) 1 hour before the exercise bout. Muscle biopsy samples of the vastus lateralis were collected before exercise, after 0 and 3 hours of recovery. Muscle glycogen was measured spectrophotometrically after acid hydrolysis. The underlying mechanism was investigated by determining glycogen synthase activity.

Results: Before exercise, glycogen content was not different between control (520 mmol/kg), H1- (511 mmol/kg) or H2-antihistamines (474 mmol/kg) ($p = 0.47$). Glycogen depletion during exercise was also not different between placebo (−297 mmol/kg), H1- (−238 mmol/kg) or H2-antihistamines (−216 mmol/kg) ($p = 0.17$). During the 3 h recovery period, glycogen resynthesis was lower with H1- (+25 mmol/kg, $p = 0.02$), but not with H2-antihistamines (+67 mmol/kg, $p = 0.74$) compared to placebo (+125 mmol/kg). Glycogen synthase activity was higher immediately after exercise (+57%, $p < 0.001$) and after recovery (+100%, $p < 0.001$) compared to before exercise, but was not different between the 3 conditions ($p > 0.05$).

Conclusion: Intake of H1-antihistamines blunted glycogen resynthesis during recovery from interval exercise. This data suggests an important contribution of the histamine system to metabolic recovery of muscle from acute exercise, which does not seem to be mediated by glycogen synthase activity. Additionally, this could negatively impact recovery in people taking H1-antihistamines. A possible mechanism could be glucose and insulin delivery through sustained elevation of post-exercise muscle perfusion, which is blunted by antihistamine intake.



Conflicts of interest: The authors did not specify any links of interest.

000081 | What unmet needs do patients with type 2 inflammatory diseases have in common?

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Background: Type 2 inflammation (T2i) encompasses chronic dysregulation of both adaptive and innate cell types that produce several T2 cytokines, with IL-4 and IL-13 as key and central drivers across multiple T2i diseases. T2i drives T2i diseases such as atopic dermatitis (AD), asthma (AS), chronic rhinosinusitis with nasal polyps (CRSwNP), and eosinophilic esophagitis (EoE) that often coexist. These pathologies are associated with substantial disease burden and symptoms that negatively impact patients' quality of life (QoL). The Spanish project "Type 2 Inflammation Network", formed by a patient advisory committee, HCPs, and experts in care quality, aims to obtain a cross-sectional view of common challenges in T2i-related diseases and their impact on QoL in order to increase visibility of these diseases and promote a paradigm shift in the Spanish health system. The first phase of the project has addressed the identification of the common challenges that these patients face by means of a patient advisory board (PAB).

Method: A PAB consisting of 9 representatives of different Spanish patient associations belonging to T2i diseases (AD, AS, COPD, CRSwNP, CU, EoE, FA, PN)* was established. Each PAB member

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completed a pre-work that included an off-line brief and an individual interview about T2i diseases. They then participated in a 3-hour session to select and structure the qualitative criteria discussed to jointly find common challenges.

Results: Insights to each T2i disease patient experience were gathered from the PAB, identifying 9 common challenges impacting QoL: physical limitations in daily life, lack of sleep, absenteeism, unpredictability, psychological impact, diagnosis and referral, burden of treatments, hospitalization and lack of a multidisciplinary approach. The analysis suggested that (a) psychological impact was perceived as the most relevant issue among patients with T2i; (b) the greatest impact on QoL was generated by the unpredictability of the pathology, sleep deprivation and disease-related physical limitations; (c) the easiest challenge to solve would be the lack of a multidisciplinary approach. After discussion, the overall board contribution proposed a framework action plan based on the need to (1) create safe and trigger-free environments to increase productivity and reduce absenteeism; (2) conduct training in T2i knowledge for healthcare professionals (diagnosis, assessment of comorbidities and referral protocols) and the integration of specialized psychological assistance; (3) improve the healthcare professional-patient interface by considering patient associations as reliable partners providing information, treatment recommendations and support; (4) encourage the development of a multidisciplinary committee/job position within the healthcare system to coordinate T2i cases to assess multi-drug reconciliation.

Conclusion: Spanish patients' representatives stated their common challenges and emphasized that increasing awareness of T2i diseases could help them face it more efficiently. A holistic and coordinated approach between different specialties is crucial.

* COPD: Chronic Obstructive Pulmonary Disease; CU: Chronic Urticaria; EoE: Eosinophilic Esophagitis; FA: Food Allergy; PN: Prurigo Nodularis.

Conflicts of interest: M. García-Vitoria; S. Perea-Ruiz & J. Oliveras-Paula are Sanofi employees and may hold shares and/or stock options in the companySanofi A.M Bosh: Consultant and Alira Health employee.

000484 | A case of chronic urticaria and chronic rhinosinusitis with nasal polyps comorbidity: Two diseases, one successful therapy

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*Presenting author: T. Schill

Introduction: For the treatment of chronic rhinosinusitis with nasal polyps (CRSwNP) and chronic spontaneous urticaria (CSU), several new therapies with biologics have been developed in recent years. The aim is to achieve a maximum remission of the diseases to improve the quality of life of our patients in the long term. Pathophysiological similarities exist due to the involvement of type 2 inflammatory signaling pathways and the involvement of eosinophils, basophils, and mast cells.

Case: We report on a 47-year-old female with chronic spontaneous urticaria lasting over ten years. She also suffered from recurrent CRSwNP. The urticaria was inadequately treated by standard therapy with antihistamines up to 4 times the daily dose. The main symptoms of comorbid CRSwNP were rhinorrhea, nasal congestion, cephalgia, hyposmia with significantly impaired quality of life. Prior therapies included topical and systemic corticoids, and five functional endoscopic sinus surgeries (FESS) were performed after rapid recurrence. Despite the patient's high disease burden, the nasal polyp score (NPS) did not reach the level that warrants therapy with a biological according to international guidelines (EPOS2020/EUFOREA). However, based on the severe antihistamine treatment refractory CSU, a therapy with omalizumab (300 mg s.c) could be initiated. Already after 3 months, the CSU was well controlled. The UCT improved from an average of 5 to 12 points. The UAS7 decreased from an average of 23 to 7 points. The DLQI improved from 15 to 1 point. The CU-Q2oI improved from 59.8 to 31.5 points. Thus, the skin-related quality of life and the urticaria-specific quality of life showed significant improvement. Although a body weight and IgE-dependent dosage of 600 mg omalizumab would have been necessary for CRSwNP (had the eligibility criteria been met), the patient nevertheless showed a good response in terms of nasal polyp score (NPS 2/8->0/8) and quality of life (SNOT-22:64->53), as well as a slight improvement in smell, under the fixed dose of 300 mg omalizumab used for CSU.

Conclusion: By selecting a suitable biologic, therapeutic effects can also be achieved in concomitant diseases with pathophysiological similarities. In this manner, the disease-related quality of life can also be improved for concomitant diseases for which the in-label criteria for a biologic therapy are not adequately fulfilled. This reflects the relevance of interdisciplinary, individualized medicine.

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Conflicts of interest: The authors did not specify any links of interest.

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001514 | Cough severity, physical impact, and impact on everyday life. A study on patients with refractory or unexplained chronic cough

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*Presenting author: B. Julia De Paramo

Background: Validated questionnaires assess the severity and impact of chronic cough (CC) on quality of life but are time-consuming. The Visual Analogue Scale (VAS) is a valuable tool for performing a quick and easy evaluation of cough severity, but its relation to the impact of cough in everyday life has not been widely studied. In this work, we explore the relationship between patients' VAS score and the impact of cough on everyday life in patients with refractory/unexplained CC (RCC/UCC).

Method: Adult patients with RCC/UCC >1 year duration completed a survey including the VAS scale for cough severity (from 0 to 100 mm, higher score meaning more severity), questions on the physical impact of cough perceived by patients (with 5 Likert scale options from never to always), and on the impact of cough on different aspects of everyday life (with 7 Likert scale options from not at all to an extreme amount). Patients were stratified in tertiles of VAS score. Linear-by-linear tests were used for comparisons.

Results: A total of 189 patients (148 women and 41 men), 70 UCC and 119 RCC were divided into VAS tertiles (0–50 mm, $n = 69$; 60–70 mm, $n = 69$; and 80–100 mm, $n = 51$). Patients' responses suggest a relevant impact of cough, as reflected by the percentages reporting sometimes/frequently/always in tiredness (46.6%), interference with meals (35.4%), or stress urinary incontinence (31.7%), or who declared quite a bit/very much/an extreme amount in impact on quality of life (57.1%), mood or emotions (41.9%), sleep (36.4%), everyday activities (36.6%) or sport/physical activity (37.0%). The percentages who reported sometimes/frequently/always in all items related to the physical impact of cough were significantly higher in upper VAS tertiles except for faints caused by cough (table). Likewise, for items on the cough-related impact on everyday life, except for cough-related sick leave, the percentages who declared quite a bit/very much/an extreme amount were significantly higher in upper VAS tertiles (table).

Conclusion: The study reflects the impact of cough on patients' everyday life and describes a greater impact in those with higher VAS score, suggesting VAS may be a valuable tool to perform an overall assessment of the severity of cough in RCC/UCC patients. Further studies are needed. This study was funded by MSD Spain.

Percentage of patients who reported sometimes/frequently/always to items on cough-related physical impact, and quite a bit/very much/an extreme amount to items on cough-related impact on everyday life, stratified by VAS

		Visual Analogue Scale			
	All patients (n=189)	0-50 mm (n=69)	60-70 mm (n=69)	80-100 mm (n=51)	p
Physical impact of cough					
Cough makes the patient feel drained or tired	46.6	34.8	43.3	68.6	<0.001
Cough makes the patient feel breathless or wheezy	28.0	18.8	22.4	47.1	0.001
Cough makes patient faint	2.1	0.0	4.5	2.0	0.535
Cough makes the patient unable to speak fluently	58.0	45.6	53.7	80.4	<0.001
Cough interferes with meals (need to eat slowly or stop eating for a while)	35.4	26.1	29.9	56.9	0.001
Cough provokes urinary incontinence (urinary loss)	31.7	21.7	29.9	47.1	0.004
Impact of cough on everyday life					
Cough impacts patient's quality of life	57.1	47.8	47.8	84.3	<0.001
Cough impairs patient's sleep	36.4	18.8	40.6	49.0	<0.001
Cough affects the patient's mood or emotions	41.9	25.5	37.7	68.6	<0.001
Cough makes the patient feel anxious or depressed	28.3	17.4	27.5	45.1	0.001
Cough affects everyday activities (i.e., work, children or relatives care, householding)	36.6	18.8	36.2	62.7	<0.001
Cough has conditioned the patient's professional development (difficulties in finding a suitable job, needing more time to do work due to cough)	17.7	6.1	17.5	34.0	<0.001
At work, the patient needs extra pauses or works slower due to cough	15.3	8.1	11.1	33.3	0.006
The patient has been on sick leave due to cough (with no other concurrent disease	11.6	8.5	10.2	18.2	0.144
Cough affects the patient's relationship with others (i.e., close friends, relatives)	23.3	11.6	20.3	44.9	<0.001
Cough limits hobbies or leisure (going to the cinema, theatre, restaurants)	32.8	18.8	31.9	55.1	<0.001
Cough limits the patient's capacity to do some sport or physical activity	37.0	21.7	34.8	63.3	<0.001
Cough limits the patient's capacity to perform activities requiring concentration, like driving or riding a bike	21.4	10.4	13.0	49.0	<0.001
Patient's cough affects the quality of life of closer relatives (i.e., spouse, family)	27.7	17.4	25.0	46.9	0.001
The patient's cough affects the sleep of closer relatives	30.3	15.9	31.8	50.0	<0.001
Cough affects the patient's caring for his/her children	18.8	9.1	11.3	42.5	<0.001

This study was sponsored and funded by MSD Spain

Conflicts of interest: This study was funded by MSD.

000897 | Prevalence of allergic diseases in a random adult population: A need for establishment of a patient organization in RN Macedonia

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*Presenting author: D. Mijakoski

Objective: To evaluate prevalence of allergy in a random adult population in RN Macedonia and to demonstrate the need for establishment of a patient organization.

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Method: During September, 2022, a short survey was distributed online to a general population by the means of electronic communication through different platforms and social media. The study included 346 adults aged 19–70 years (mean age 38.5 ± 10.3 years). The study questionnaire was constructed for the purposes of the actual survey.
Results: The prevalence of allergic diseases (including asthma, rhinitis, conjunctivitis, skin allergy, allergy to food, drugs, or insect sting) in the examined respondents, according to their opinion, was about 61% ($n = 211$). In 158/211 participants (74.9%), the allergy was diagnosed by a physician. On the other hand, 84/211 study subjects (39.8%) reported that, according to their opinion, they have food allergy. In 51/84 participants (60.7%), the food allergy was diagnosed by a physician. Among the adults with self-reported food allergy ($n = 84$), the highest frequency of allergy was registered for hazelnut (20.2%), milk (19.05%), peanut (17.9%), cereals (16.7%), fish (15.5%), walnut (13.1%), and fruits (13.1%).
Conclusion: When analyzing the data obtained, it is important to take into consideration the possible bias because it is more likely that the patients with allergies would respond to the survey on allergic diseases. However, the actual data clearly demonstrated the high frequency of allergic diseases in this random population. Despite the dimensions and importance of the problem, there is still no organization of patients with allergies in RN Macedonia. The actual study showed that there is an urgent need for the establishment and development of such organization.
Conflicts of interest: The authors did not specify any links of interest.

AEROBIOLOGY AND POLLUTION

100514 | Validation of an environmental exposure chamber for allergy to grass pollen

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*Presenting author: D. Antolin-Amerigo

Background: During the last three decades Environmental Exposure Chambers (EEC) have been developed allowing the study of cause-effect allergy symptoms in a controlled environment.
Method: At Ramon y Cajal Allergy department a new EEC has been developed with a clean room of 15.6 m2. During the technical validation the patients exposure conditions were simulated during 15 sessions, simulating a homogeneous distribution of allergen with a TOPAS allergen disperser and monitoring both particles concentration and pollen grains with a SOLAIR Boulder Counter device and a Burkard air sampler. Temperature, pressure and humidity values were also registered.
After confirming correct functioning of the EEC, its clinical usability was checked for exposure to grass pollen (Phleum Pratense). 12 volunteers were recruited, of which 2 were controls (a non-allergic subject and a patient sensitized to Cupressaceae pollen) and 10 were cases diagnosed with allergic rhinitis (AR), with or without asthma, sensitized to grass pollen. Volunteers were exposed during a maximum time of 90 minutes, according to a series of nasal (TNSS≥6, VAS≥5, PNIF drop≥40%), ocular (TOSS≥3) and bronchial (PEF drop≥15%, FEV1 drop≥20%) positivity criteria.
Results: After 15 pollen dispersion sessions, both the stability of particle concentration (1170 ± 120 particles/m3) and the sampled pollen concentration (920 ± 190 grains/m3) were guaranteed , as well as temperature stability and reproducibility (23.2 ± 0.02°C), relative humidity (22.9 ± 0.2%) and differential pressure (−14.6 ± 0.8 Pa).
Regarding volunteers subjected to exposure, neither of the two controls presented any symptoms, while among the 10 cases, 2 were classified as negative, 3 presented an early asthmatic reaction and 8 presented AR clinic. Volunteers classified as negative remained in the EEC for 90 minutes, while positive cases remained for an average of 53.6 ± 19.1 minutes.
Conclusion: The use of the EEC has proven to be useful in obtaining a more precise diagnosis in allergic patients, since it allows confirming their sensitization to allergens more accurately than traditional methods, in addition to being a promising advance for the study of currently vailable allergy treatments.

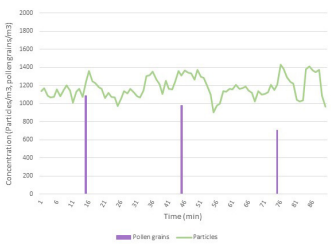

Figure 1: mean particle and pollen grain concentration achieved at the HURyC EEC.

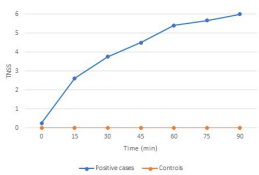

Figure 2: mean TNSS obtained from positive allergic rhinitis cases and control individuals.

FIGURE 1 Mean particle and pollen grain concentration achieved at the HURyC EEC; Figure 2: mean TNSS obtained from positive allergic rhinitis cases and control individuals.

Conflicts of interest: The authors did not specify any links of interest.

100218 | Understanding the hybrid automated algorithm design for real-time pollen monitoring in the Southern Spain (Córdoba)

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*Presenting author: C. Galan

Background: The monitoring of airborne pollen depends on the precise and reproducible detection of pollen. The classical method for pollen monitoring is based on the volumetric Hirst standardized method in in Europe (EN 16868:2019). This method requires skilled staff, and it is time-consuming task. Furthermore, the method produces a temporal delay of the data registered of 5–10 days. That is why the need of new automatic methodologies to solve those problems. Even though some significant work has been done with various degree of success, there are still some problems in automatic pollen

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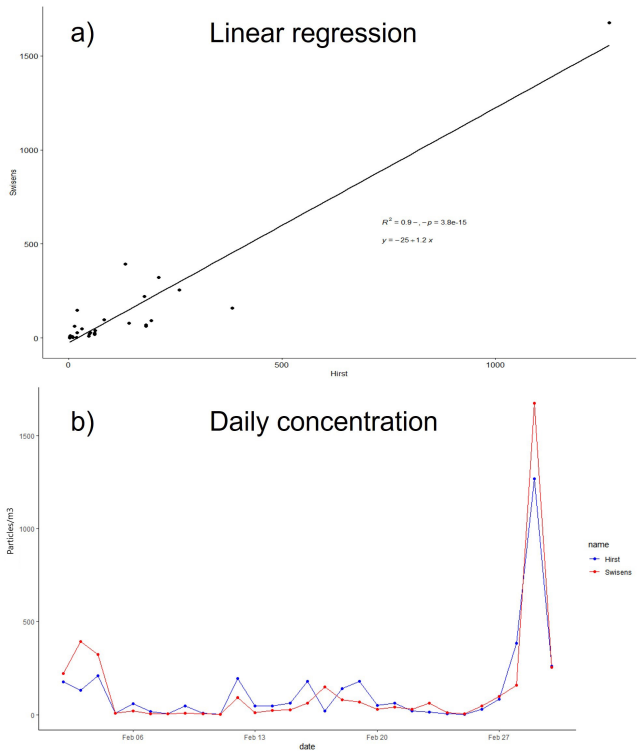
monitoring. The main aim of the current study was to improve the performance of the automatic devices as well as to evaluate the insight about the representativity of their measurements.

Method: To evaluate the quality of the retrieved concentrations from SwisensPoleno Mars by comparison with parallel measurements made with a hirst-type trap. We tested the ability of automatic imagen/holography-based sensors in a monitoring hotspot in Cordoba, Spain (Southern Europe). The campaign was carried out during 2023 (from 02/02/2023 to 02/03/2023), the relevant covered specie was *Cupressus*. This is the first location for automatic pollen monitoring comparison in a Mediterranean area, where the extreme conditions could lead to malfunction. To quantify the relationship between them, we determined the correlation coefficient, coefficient of determination and we comapared the seasonality parameters (such as pollen season start, peak and end).

Results: The SwisensPoleno Mars is identifying pollen concentrations in real time data with stable measurements in the city of Cordoba. Similar concentrations for *Cupressus* between Swisens Poleno Mars and Hirst have been observed. The slope of the relationship Poleno/Hirst was 1.12, meaning a comparable concentration given by both devices. The coefficient of determination was 0.9 with *p*-value <0.001. The Pearson's correlation coefficient was 0.95.

Conclusion: We expect a better relationship during the pollen season and after the training of the automatic device with local pollen types by following more in-depth discrimination efforts. We had started the pollen measurement campaign from February 2023 and so far, collected the fresh pollen of *Cupressus arizonica*, *Thuja occidentalis*, *Fraxinus excelsior* etc. to training the machine. We expect representative measurement by retrieved concentrations from automatic sampler with parallel measurements made with a manual Hirst-type trap.



Conflicts of interest: The authors did not specify any links of interest.

100521 | Airborne fungal spores of *Alternaria* across Bavaria, Germany: Spatiotemporal distribution patterns, and the influence of latitude, altitude and local meteorology

M. Plaza[1,2]; J. Oteros[3,4]; V. Leier-Wirtz[1]; F. Kolek[1]; J. Buters[4]; C. Traidl-Hoffmann[1,2,5]; A. Damialis[6]

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*Presenting author: M. Plaza

Background: *Alternaria* sp. spores are one of the most relevant aeroallergens with high allergenic potential and known to be responsible for numerous cases of chronic rhinitis, rhinoconjunctivitis and severe asthma. However, larger-scale spatial and temporal studies on *Alternaria* are insufficient and this paucity of information on fungal spores leaves an important gap with respect to biodiversity and health. This study provides a regional assessment of *Alternaria* fungal spore abundance across Bavaria, South Germany, at multi-resolution temporal and spatial scales.

Method: Airborne *Alternaria* spore concentration has been examined in a dense pollen monitoring network of 23 manual volumetric samplers across Bavaria, Germany, during 2015 on a 2-hourly basis. Differences among bioclimatic zones across Bavaria were investigated.

Results: The total seasonal fungal index (SFI) of *Alternaria* spores varied significantly between sites. It oscillated from 16646 in Bamberg to 279 in Viechtach. The maximum daily spore concentrations show a gradient from south to north that is positively correlated with latitude, maximum wind speed and average temperature. The mean diurnal pattern of *Alternaria* spore concentrations showed a peak from 10:00 to 16:00, however, the average changed significantly during the day in different sites. While in most sites, e.g. Munich and Viechtach, the peak occurred in the afternoon, in Augsburg, Bamberg and Gaissach there is a clear peak during the evening, and likewise at stations at higher elevations, near the Alps. This pattern was persistent regardless of the bioclimatic zone or land used involved.

Fungal spores of *Alternaria* seem to be more abundant when temperature is lower at higher latitudes and lower longitudes. The combination of all factors influences the fungal spore abundance in a complex way.

Conclusion: The biological pollution by *Alternaria* spores in Bavaria, Germany, was high and correlated with temperature. Daily concentrations of *Alternaria* exceeding 100 spores m^{-3}— which is considered as a health relevant threshold for respiratory allergy risk — were detected up to nearly 30 days in the season. The random differences in *Alternaria* spore production highlight the importance of having a

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sampling and information network that includes allergenic spores to warn of high-risk exposure.

Conflicts of interest: The authors did not specify any links of interest.

100479 | Can carpets be asthma & allergy friendly?

G. Cunniffe; J. Whelan; A. Byrne; J. Mckeon

Allergy Standards Ltd, Dublin, Ireland

*Presenting author: G. Cunniffe

Background: Carpet has traditionally been considered a concern for people with asthma and allergies, due to its ability to act as a repository for pollutants, which may then become airborne during activity. Blanket advice to remove carpet is not practical when there is sometimes a need – e.g. in the case of some public buildings – to use a textile-based flooring. There is also evidence to suggest that textile flooring reduces airborne allergen by trapping it, meaning that if allergen can then be effectively removed it would contribute to healthier spaces. The objective of Allergy Standards Ltd (ASL)'s Certification Program is to identify products that have been scientifically demonstrated to reduce triggers of asthma and allergy, leading to healthier indoor air. The aim of this project was to evaluate if a Certification Standard could be developed to test and certify suitable textile flooring products.

Method: A thorough review of literature and relevant data was conducted to establish rigorous criteria and testing thresholds for the asthma & allergy friendly® Certification Program. Testing in a controlled environment introduced a known quantity of dust containing 3 commonly found allergens (Der p1, Fel d1, Phl p5) and quantified the ability to remove this dust and allergen burden, prevent particles from becoming airborne and ensure the emission of VOCs were below threshold levels. Two products were then tested under this Standard; **A:** Colormap, **B:** Aftermath II.

Results: Testing demonstrated that it is possible for allergen test dust to be efficiently removed from textile flooring products using simple vacuuming. During product testing, the reduction in allergen levels post-vacuuming was A:99.2±0.3%, B:98.5±0.4% (Der p 1), A:98.4±0.4%, B:97.5±0.3% (Fel d 1) and A:99.9±0%, B:99.8±0.2% (Phl p 5). In addition, the allergens could be retained by the vacuum, and particle count measurements taken in the environment before, during and after vacuuming showed airborne particle levels were below the set threshold amount (<200,000 counts/m^3 detected over 60 minutes). VOCs emitted by the installed floor covering over 14 days also met strict criteria.

Conclusion: Testing demonstrated that it is possible to remove allergen from textile flooring. It should be noted that the flooring tested was low-pile, with a backing that prevents allergen build-up under the flooring. Further testing on traditional residential carpet as well as aged textile flooring would be useful.

Conflicts of interest: The company whose products were tested, Tarkett Inc., paid the costs of testing. Allergy Standards Ltd. receives licensing fees from clients of its Certification Program.

100516 | Olea pollen count and emergency visits referring respiratory symptoms in a Spanish hospital

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*Presenting author: C. De Castro

Background: Respiratory symptoms are a typical reason for consultation in the Emergency Departments. Olea pollen sensitization is the main etiology in our patients referring respiratory symptoms during spring. Our objective was to describe the incidence of respiratory consultations from April to June 2019 and its relationship with Olea pollen count in our city.

Method: Patients (more than 14 years old and living in Cordoba) referring respiratory symptoms that came to our Hospital Emergency Department from April to June 2019 were selected. Olea pollen counts were evaluated too and we studied the relationship between them. Patients referring symptoms as fever, greenish-thick mucus, myalgias or some symptoms that can induce a viral or bacterial infection were excluded.

Results: A total of 711 patients were selected (247 in April 2019, 299 in May 2019 and 165 in June 2019). Total Olea pollen counts were positive from 5th April 2019 to 29th June, and the total Olea pollen peak was 14091 grains per mm^3 (3rd May 2019). Comparing total Olea pollen count and Emergency visits, we can see more visits during the peak of Olea grains (from 28th April to 10th May 2019).

Conclusion:

- Olea pollen levels are a good biomarker of severity of symptoms, using the Emergency Unit visits as the main ítem.
- These Olea pollen counts could be a good biomarker to predict the severity of symtoms.
- Patients could improve their quality of life during spring knowing this information.

Conflicts of interest: The authors did not specify any links of interest.

ALLERGEN IMMUNOTHERAPY

100233 | Oral immunotherapy impacts the immunological and metabolic profile of peanut-allergic young children

I. Badolati[1]; C. Uhl[2,3]; C. Nilsson[2,3]; A. Asarnoj[4,5]; E. Sverremark-Ekström[1]

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*Presenting author: I. Badolati

Background: In recent years, oral immunotherapy (OIT) has shown promising results in the treatment of peanut allergy, leading to

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successful desensitization in the majority of patients, in particular young children. Still, little is known on *how* the desensitization occurs and what immunological and metabolic changes are associated with the treatment's success. In this study, we aimed to investigate eventual alterations in the immunological profile, with a focus on T helper (Th) cells and dendritic cells (DCs), as well as in the circulating metabolites in peanut-allergic young children, after 1 year of OIT.

Method: PBMCs and plasma samples were analyzed from 20 peanut-allergic children, aged 1–3 years, 10 of which received peanut OIT while 10 avoided peanut, as part of our larger study named SmaChO (Small Children OIT). Flow cytometry and ELISA were used to evaluate the frequency of different Th subsets and their cytokine responses, as well as to examine the expression of FcεRI on DCs. Metabolomics was instead performed by liquid chromatography-tandem mass spectrometry. Two time-points were compared: baseline and after 1 year of OIT (or peanut avoidance).

Results: Increased frequencies of RORγT$^+$ (Th17), GATA3$^+$ (Th2) and Tbet$^+$ (Th1) cells were observed after 1 year in the peanut avoidance group, while FoxP3 expression showed a tendency to increase as compared to baseline in the OIT group. At the same time, the expression of FcεRI on DCs was significantly reduced after 1 year of OIT, while the opposite trend was observed for the peanut avoidance group. Changes over time were also detected in plasma metabolites, particularly in bile acids and fatty acids, where a clear decrease for several metabolites could be seen between baseline and the 1 year follow-up in the children avoiding peanut. In contrast, the OIT group showed less variation, and there was rather a tendency towards increased levels of such metabolites at the 1 year time-point.

Conclusion: OIT affects the immunological and metabolic profile of peanut-allergic young children already after 1 year, and seems to counteract the increase in parameters linked with sustained allergy development that is typically seen early in life.

Conflicts of interest: The authors did not specify any links of interest.

100098 | Adherence to pre-seasonal short-term subcutaneous immunotherapy versus perennial sublingual immunotherapy over 3 years of treatment: Real-world data for mct (MicroCrystalline Tyrosine) associated pollen allergoids

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*Presenting author: R. Van Weissenbruch

Background: Allergen immunotherapy (AIT) effectiveness is highly affected by patient's adherence. However, adherence rates are lower than assumed by physicians. They can be as poor as only 7% of patients taking sublingual tablets completing the recommended 3-years of treatment. Adherence on AIT can be influenced by many factors, including routes of administration. Guidelines advise to consider this information when selecting AIT, and insufficient adherence can be a contraindication to initiate treatments. Moreover, the available evidence is heterogeneous, also due to the lack of standardization of adherence measures which can result in a distortion of the recommended posology in the official product information (SmPC).

Method: We aim to compare real-world adherence of pre-seasonal short-term subcutaneous injections (SCIT: MicroCrystalline Tyrosine (MCT)-associated tree and grass pollen allergoids) vs perennial sublingual tablets (SLIT: single-grass pollen), using a pharmacy dispensing database (Dutch Foundation for Pharmaceutical Statistics (SFK)) in accordance with the Health Care Market Regulation Act in the Netherlands. Definition of adherence: patients are adherent if they complete ≥ 1 treatment course (6 pre-seasonal administrations per year) for SCIT; and ≥ 310 tablets (85% of the total recommended tablets per year, i.e. missing two months of treatment) for SLIT.

Results: 2714 eligible patients were included (n_{SCIT} = 962, n_{SLIT} = 1458) with a follow-up of 3 years (2017–2020). For both routes of administrations, adherence decreased over the treatment course. Adherence rates were much higher in the SCIT group from the very first year of treatment: 100% vs 47.5% in the 1st year, 71% vs 20% in the 2nd year and 52% vs 7% in the 3rd year, SCIT vs SLIT respectively. These results were not influenced by baseline characteristics. Regarding age groups, comparing with the overall adherence, adherence for SCIT was higher in younger patients (0–12 years old), while for SLIT in older patients (40+ years old).

Conclusion: This adherence analysis demonstrates that patients are substantially more adherent to pre-seasonal short-term SCIT compared to perennial SLIT. Similar to previous findings, only 7% of the SLIT starters (vs more than 50% of SCIT) completed the recommended 3-year treatment which can significantly affect treatment success. This real-world data should be considered when a treatment decision is being taken in the light of current AIT clinical guidelines.

Conflicts of interest: The analysis was funded by Allergy Therapeutics Netherlands B.V. J. Raab, M.F. Kramer and J. Moreira are employees of Allergy Therapeutics/Bencard Allergie.

100271 | Designing hypoallergenic variants of Ara h 1 and Ara h 2 for safer and effective immunotherapy

E. Rotem; M. Ben-David; G. Diamant; A. Chuprin; Z. Biron-Sorek; Y. Ofran
Ukko, Rehovot, Israel
*Presenting author: E. Rotem

Background: Peanut allergy is a potentially life-threatening condition affecting a significant number of people worldwide. While oral immunotherapy with whole peanuts is the current gold standard for treatment, it poses a risk of adverse events that can deter patient participation and compliance, ultimately reducing treatment efficacy. Therefore, there is an urgent need for safer and more effective alternatives. Our primary objective is to develop a novel immunotherapy for peanut allergy that is both safe and effective.

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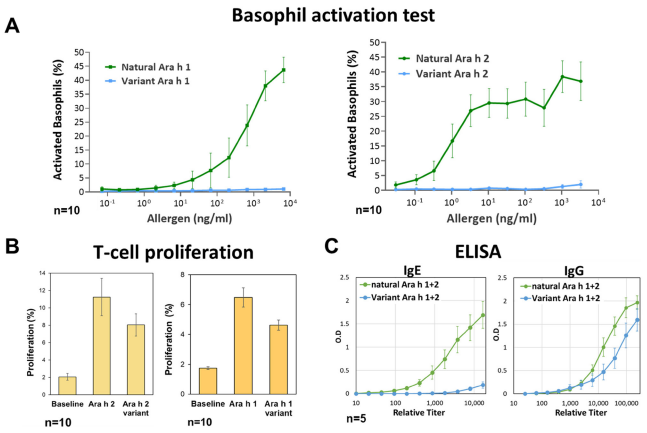
Method: Our study focused on the major peanut allergens, Ara h 1 and Ara h 2. We used patient sera from diverse population of over 1000 patients, to map IgE epitopes. Linear epitopes were mapped using peanut protein peptide arrays. To map conformational epitopes, we isolated patient-derived allergen-specific mAbs through single B cell sorting and used yeast surface display libraries of allergen variants, followed by deep sequencing. Based on these findings, we engineered hypoallergenic variants of Ara h 1 and Ara h 2 that have significantly reduced binding to patient IgE antibodies, while maintaining the bulk of IgG binding and T-cell activation. To assess the safety and efficacy of these promising variants, we analyzed them using ex-vivo and in-vitro assays with patient tissue, as well as a peanut sensitized murine model.

Results: The engineered Ara h 1 and Ara h 2 variants have significantly reduced allergenic potential manifested by reduced IgE binding across a broad range of patient samples. We observed reduced IgE binding in ELISA as well as a >10^4-fold reduction in reactivity in RBL and BAT assays compared to the natural allergens (Figure 1A). The reduced allergenicity was illustrated *in-vivo* using peanut sensitized mice, that were challenged with increasing doses of the hypoallergenic Ara h 2 variant. The mice showed no anaphylactic reaction, in contrast to mice challenged with natural Ara h 2. While the allergenicity of the proteins was dramatically reduced, we show that these variants maintain T cell immunogenicity, which supports their potential as immunotherapeutic agents (Figure 1B) and that the impact of modifications on binding patient IgG is minor compared to the reduction in IgE binding (Figure 1C).

Conclusion: We have designed hypoallergenic variants of Ara h 1 and Ara h 2 that exhibit significantly reduced allergenicity, while retaining most of their immunogenic properties. These variants hold great promise as safe and effective therapeutic agents for allergy immunotherapy.



Conflicts of interest: The authors did not specify any links of interest.

100240 | Safety of subcutaneous and sublingual immunotherapy with carbamylated monomeric allergoids in children: A real-life pharmacovigilance study

F. Frati[1]; N. De Beni[2]; L. Marastoni[2]; E. Compalati[2]
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*Presenting author: F. Frati

Background: Allergen-specific immunotherapy (AIT) is the only causal therapy for allergic diseases, as it changes their natural history. AIT is usually administered by sublingual (SLIT) or subcutaneous (SCIT) route. AIT is commonly effective and safe in adults, as documented by many studies; however, very few data are available on the safety of SCIT and SLIT in children in real life. Therefore, the present pharmacovigilance study aimed to determine the number and the type of adverse drug reactions (ADRs) for SLIT and SCIT with carbamylated monomeric allergoid (CMA) in children relying on real-life data.

Method: For the first time, this pharmacovigilance study analyzed real-world postmarketing reports for over ten years, collected from a safety database, of sublingual and injective therapy with CMA. These therapies were based on chemically modified allergen extracts. The study included Italian children and adolescents with allergic rhinitis and/or asthma.

Results: From January 2009 to September 2022, 26,107 doses of SCIT with CMA were administered in children: only two non-serious related ADRs (incidence 0.0077 %) were reported, including erythema and skin reactions, both completely resolved. Regarding SLIT, in the same period, the results showed that only 12 spontaneous ADR reports (9 for of house dust mites, 2 for grass pollen, and 1 for olive chemically allergen modified extract) were reported out of almost 3,000,000 tablets administered (incidence 0.0004 %). None of these ADRs were classified as serious.

Conclusion: These data showed the excellent safety profile of both SLIT and SCIT allergoids, confirming that carbamylated monomeric allergoid may represent a safe therapeutic option in children with respiratory allergic diseases.

Conflicts of interest: The authors are Lofarma employees.

100254 | An innovative approach to cultural dissemination about AIT for young residents in allergology and clinical immunology in Italy

F. Frati; N. De Beni; C. Ferrero; L. Ladina; L. Gentile; E. Compalati
Lofarma S.p.A., Milano, Italy
*Presenting author: F. Frati

Background: During the university courses, allergen immunotherapy (AIT) is often approached in a theoretical way, far from clinical practice. In absence of a dedicated teaching path about AIT for residents in most Allergology and Clinical Immunology schools, alternative educational methods to integrate theoretical knowledge with

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clinical practice competences are needed. This survey explores the impact of a training project dedicated to future allergists, focused on AIT-related topics - from the diagnostics roadmap to the treatment of the allergic patient, as well as the management of possible side effects.

Method: In 2021 was founded *Lofarma Academy*, a training course dedicated to future allergists, consisting of webinars and meetings, held by national experts in the field, about clinical themes and real-practice cases in the context of AIT, free from commercial influences. This pilot project included 18 out of the 21 Italian specialization Schools of Allergology and Clinical Immunology, for a total of 191 residents. After completing Academy's lessons, residents were asked to answer a brief web-questionnaire, in order to collect their feedback regarding their learning experience.

Results: Almost all participants completed the survey. The large majority (80%) expressed being highly satisfied with the formative experience in Lofarma Academy, considering it an excellent educational tool that can support the traditional academic path, in order to acquire more in-depth and practical knowledge about AIT. Among the proposed activities, discussion of clinical cases and nasal cytology were the most appreciated. All participants have valued the possibility of comparison with residents from other Schools of Italy and experts in the field, and would recommend this educational path to other colleagues.

Conclusion: The current findings underline the relevance of an innovative teaching approach for future allergists, useful to support the traditional academic path in order to increase practitioner expertise in the field of AIT, to allow them to optimize the management of allergic patients in clinical practice. The sharing of pharmaceutical companies know-how in cultural partnership with institutions, like scientific societies and academy, may represent a future perspective to optimize the existing educational paths in support of AIT, keeping in view learners' needs.

Conflicts of interest: Authors are Lofarma employeers.

100206 | Cow's milk immunotherapy

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*Presenting author: J. Janković

Background: Cow's milk protein allergy is the most common food allergy in infants and young children. Allergic reactions can be different, from immediate reactions, potentially life-threatening, to delayed reactions that can significantly affect the quality of life of patients.

Oral immunotherapy is a form of treatment in which increasing doses of milk protein are gradually given to sensitive people, until a maintenance dose is reached, with the aim of reducing the reactivity threshold or completely eliminating the allergic response. The published protocols usually have a very long duration. Increasing the dose is usually done on a weekly basis, and during the following week, the patient takes the same dose of milk every day.

During the implementation of the protocol of oral immunotherapy with milk, adverse reactions often occur. Adverse reactions may be mild and require only patient observation, without intervention, after which the protocol continues. In the case of moderate and severe reactions, the use of antihistamines or even adrenaline in case of anaphylaxis is indicated. The patient is maintained at the dose he tolerated next week as well, and only after the second week of taking the same dose, the amount of milk intake increases.

Method: At the University Children's Hospital in Belgrade, immunotherapy was carried out in 15 children aged 4 to 11 years. Before the start of immunotherapy, IgE-mediated milk allergy was diagnosed in all patients. Immunotherapy was carried out according to the protocol for all patients, lasting between 6 and 40 weeks.

Results: Eleven patients successfully completed oral immunotherapy with milk, reaching the tolerance threshold for milk in the amount of 200 mL, daily. In the 13th week of therapy, a titer of blocking IgG4 antibodies to casein was found in all patients. On the basis of immunotherapy control Spec. IgE to milk was decreasing.

Conclusion: Milk immunotherapy is a form of treatment for cow's milk protein allergy that is based on the cause of the disease and potentially modifies the disease.

To conclude with, despite the difficulties of oral immunotherapy, it can provide a better quality of life for patients. Therefore, in adequate institutions, with careful patient monitoring, oral immunotherapy can be a safe treatment option, even in patients with a history of anaphylaxis.

Conflicts of interest: The authors did not specify any links of interest.

100219 | Potential of IgE-receptor expression measurements as biomarker in Hymenoptera venom allergy

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Background: Insect venom allergy (eg. against bee or wasp) can lead to severe, sometimes even fatal systemic reactions upon insect sting. To assess these allergies, Prick-Tests with diluted venom, measurements of specific IgE or basophil activation tests are available for routine diagnostics. However, these tests do not correlate well with clinical severity of the allergic reactions. Our study aims to investigate the high affinity receptor (FcεR1) density on the surface of basophil granulocytes as biomarker.

Method: So far, we have collected and analysed 11 patient blood samples with known insect venom allergy and analysed the surface density of IgE –bound and non-occupied FcεR1 receptors

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on basophils. This was determined by quantitative FACS analysis. Samples from people without insect venom allergies served as control.

Results: In our cohort, insect venom allergic patients presented slightly but not significantly higher levels of total FcƐR1 receptors on basophils compared to healthy controls (median 184283/cell vs. 131112/cell, $p = 0.557$). Total receptor density was significantly correlated with total IgE serum levels ($r = 0.84$, $p = 0.001$) and age of the patients ($r = 0.677$, $p = 0.022$). Low receptor density was associated with more severe anaphylaxis and reactivity of the basophil activation test already at lower venom concentrations.

Conclusion: Preliminary results suggest that there is a strong link between the above presented clinical and serological marker and that the FcƐR1 surface expression could be a valuable marker for risk assessment of anaphylaxis severity. In the ongoing study, we plan to increase patient numbers for robustness of data.

Conflicts of interest: The authors did not specify any links of interest.

100093 | Early manifestation of effective allergen-specific immunotherapy (ASIT) in children

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Background: ASIT reduces allergy symptoms and the need for medications. Novel formulations of specific sublingual (SLIT) or subcutaneous immunotherapy (SCIT) used in children over 5 years old show promising results, including the quality of life.

Case reports: Hereby we present several allergy cases in children that manifested clinical improvement and reduction of allergy medication within the first year of ASIT.

1. A 13-year-old boy experienced moderate to severe perennial allergic rhinitis (AR) symptoms for many years, preceded by infantile atopic dermatitis (AD). The symptoms were more frequent indoors. In the beginning, the patient showed an amelioration after treatment with local corticosteroids and antihistamines. Recently, none of the medications was effective and SLIT for house dust mites was recommended. Surprisingly, the patient manifested clinical improvement after the immunotherapy introduction, needing no other medicines.
2. A 6-year-old boy came to our clinic with a cough. Lately, the cough was much more intensive, and despite the add-on therapy with anti-leukotrienes, the cough continued. Also, the antecedent use of nebulizing corticosteroids, antihistamines, and inhalation corticosteroids didn't show the expected improvement. The patient experienced symptom improvement since he began SLIT, showing also reduced need for medications. After 5 years of SLIT, the patient had rarely allergy symptoms.

The following table summarizes data from 4 different children who had clinical improvement in perennial respiratory allergy within the first year of ASIT.

Age (year old)	Diagnosis	Treatment	SIT	Time of symptoms improvement	Therapy after SIT
6	Bronchial asthma and allergic rinoconjuctivitis (ARC)	LTRA/CS nebulization/ Anti-H1/ INCS	SLIT	Immediate improvement, after 7 months no cough	LTRA/ CS for nebulization and Anti H1 when needed
13	AR	Anti-H1/INCS/ INCS-AZE	SLIT	Immediate improvement	No need for regular treatment
7	ARC	Anti-H1/CS; LTRA/CS nebulization	SCIT	Symptoms improvement (allergic conjunctivitis) after 7 months	Anti-H1 when needed
5	ARC+AD	Anti-H1/CS	SLIT	Improvement of ARC after 8 months	No need for medication

Discussions and conclusions: ASIT improves the allergic symptoms not only gradually as a long-term effect, but also can induce an early effect within the first year among patients with uncontrolled symptoms like AR.

JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

100296 | Increased respiratory effort (RE) during sleep as an early indicator of allergic rhinitis to alternaria alternata decreases after sublingual immunotherapy (SLIT) to alternaria alternata. Sleep disorders resolve along to the decrease of the RE during sleep

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Background: The physio pathology relating to allergic rhinitis (AR) and sleep disorders has not been explored.

Objectives: To explore if respiratory effort (RE) during sleep could be an indicator of AR and the mediator to the sleep disorders in an allergic child. To explore if the Sublingual Immunotherapy (SLIT) could be effective to decrease RE and the sleep disorders.

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Methods/Results: A 13 year to 10 month old girl proceeds to allergy consultation because she can't support to smell any perfumes or coffee, as they provoke to her rhinitis without any other associated signs. These clinical signs persist for a two-year period. She reports no eczema, however on the clinical examination we notice a very dry skin and mild lesions of eczema on the hands. She suffers no asthma, nor otitis or conjunctivitis. Not only that, but she reports a very agitated sleep. Furthermore, she moves a lot during her sleep. She has a very loudly, heavy respiration during daytime on the rest without being sick. Family history: Father allergic to grasses and ash, a grandmother eczema. Lifestyle: no pets, no tobacco, no humidity. Skin Prick Tests for common pneumallergens: positive for Alternaria Alternata (AA): 6 mm, positive control (histamine): 4 mm. Specific IgE: AA m229: 0.13 Ku/L, m6: 0.11 Ku/L, negative for the rest of common respiratory allergens. A Respiratory Polygraphy (PG) at home, reveals an increased RE:25.3%, Estimated Respiratory Arousal Index (RAI): 14.3 n/h. The increased RE and RAI are not explained by respiratory events. Apnoea Hypopnea Index (AHI) is 2.3 n/h and the Oxygen Desaturation Index (ODI): 1.1 n/h, Respiratory Disturbance Index (RDI): 5.4 (Figure, upwards part). A SLIT for AA is initiated. Control PG at home three months after SLIT initiation and maintenance dose of 20 drops of 300IR. The RE has decreased to normal values (6.9%), AHI: 0.9 n/h, ODI: 0.4 n/h, RDI: 1.2 n/h (Figure, downwards part). Only the RAI remains moderately increased at 13 n/h. The child sleeps better, and her sleep is much less agitated. She no longer has a heavy, loud respiration, she breathes quietly.

Conclusions: Allergy to AA could be at the origin of an increased RE during sleep, which provokes a sleep fragmentation and an increase in RAI. SLIT to AA achieves to decrease the RE during sleep and the sleep fragmentation.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

ALLIED HEALTH AND PRIMARY CARE

100359 | Children at war—Pediatric medical care during the Russian invasion

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Background: Russian aggression in Ukraine has caused numerous casualties among civilians, including children. Military actions directly or indirectly lead to increased adult and child morbidity, and chronic stress, especially in children.

Method: Our focus is on chronic diseases, including asthma and other allergic diseases. Among the children seen in the refugee centers, we saw a significant deterioration in the health status of children with asthma, which was most likely due to the following reasons:

Results:

- internally displaced persons have difficult access to medical care and impaired disease monitoring. In particular, in many regions, such children do not have access to a children's allergist, to diagnostic procedures (spirometry, allergy tests);
- difficult access to medicines and inhalers (devices). Younger children receive inhalation therapy through a nebulizer at home. In the absence of other means for inhalation and the absence of electricity, such children do not receive therapy, and this is life-threatening;
- being in a crowded room contributes to viral infection;
- staying in the basement - the shelter promotes sensitization to mold and domestic animals in persons prone to this, aggravation of allergies in already sensitized children and vitamin D deficiency;
- exposure to combustion products, chemical emissions;
- staying in a cold room for a long time became a heavy burden with the onset of cold, wet weather in connection with the impact of Russian rockets on civilian infrastructure and energy supply facilities, and the lack of heating in homes.

Between October-December 2022, significant electricity and heat supply disruptions occurred due to missile attacks on civilian critical infrastructure and energy sources. As a result of the energy supply disruptions, online classes are being denied, so children are physically attending school again. In case of air raid alerts, students are forced to stay in the basements of schools, which have been adapted as temporary shelters. In Kyiv alone, during air raids and shelling, we witnessed that such rooms may accommodate up to 200–400 schoolchildren in one room for 1 to 5 hours at a time, depending on the duration of the raid. Therefore, we are already seeing an increase in acute viral respiratory infections, asthma exacerbations, and panic attacks among children.

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Conclusion: The following is an update and description of the problems of providing medical care to children in Ukraine who are suffering from the multifactorial effects of war with focus is on asthma and allergic diseases.

Conflicts of interest: The authors did not specify any links of interest.

100472 | Preliminary global assessment of the knowledge and confidence in managing allergic disorders amongst primary care paediatricians across Europe

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*Presenting author: J. Trujillo

Background: Paediatricians are often the first point of contact for children in Primary Care (PC).

Primary care paediatricians (PCPs) see more patients with allergic problems than other PC professionals and have higher self-reported confidence in basic mechanisms and management but still perceive (https://doi.org/10.11/pai.13907), gaps in allergy knowledge. We wished to determine knowledge gaps and educational needs in paediatricians across healthcare systems in Europe.

Method: A multinational survey was circulated to medical professionals who care for children and adolescents with allergy problems in PC by the EAACI Allergy Educational Needs in Primary Care Task Force (EAACI-AENPCP-TF) during February to March 2023.

Results: Final respondents included of 1,991 PCPs from Ukraine ($n = 422$), Italy ($n = 402$), Spain ($n = 393$), Portugal ($n = 153$), France ($n = 105$), Germany ($n = 101$), Switzerland ($n = 50$), Belgium ($n = 49$), Austria ($n = 46$), Slovenia ($n = 31$), Sweden ($n = 29$) and others within Europe ($n = 568$). Area of practice: Allergist+Paediatric Allergist 64 (3.5%); Generalist Physician 178 (9.7%); Paediatrician 1,452 (79.5%); Primary Care Paediatrician with special interest in allergology 133 (7.3%). Main employer: Contracted to State or District Health Service 1,301 (65.3%); Private Practice 380 (19.7%); University, College or Equivalent 72 (6.7%); Retired, not currently working 18 (0.9%); Other 27 (1.4%).

61.7% had awareness of guidelines for onward allergy referral in their countries but only 22.3% were aware of the EAACI competencies document for allied health professionals for allergy.

Up to 58.4% have access to allergy investigations but 6.2% don't have access to them. 1,151 (57.8%) consider that the patient's condition could be diagnosed and treated and 1,063 (67.6%) perform immunotherapy follow-up in their practice or by referring to a specialized service. Some 5.7% stated there were no allergy specialists in their health care system.

1,208 (62.6%) reported seeing between 0 and 10 patients per week and 546 (28.3%) 11–25 patients whose main complaint was an allergic problem, and the majority of them (91.9%) assess patients with allergic pathology. Respondents felt most confident in the management of eczema/atopic dermatitis (87.4%) and rhinitis/asthma (86.2%), and least confident in latex allergy (30.8%). 868 (43.6%) and 1,117 (46.1%) received allergy training as undergraduates and postgraduates respectively. 908 (45.7%) and 906 (45.5%) prefer traditional and e-Learning and assessment, respectively.

Conclusion: This study exploring the confidence to manage and refer patients with allergy in PCPs, demonstrated knowledge gaps and allergy educational needs for their clinical practice. It detects areas in need of urgent improvement especially in latex allergy. It is important to disseminate allergy guidelines and supporting EAACI documents since the majority of PCPs lack awareness of them.

Conflicts of interest: Levin has received speakers/advisory board honoraria: Organon, ECN, Cipla, Abbvie, Glenmark, Sanofi, Pharmadynamics, Bayer.

ASTHMA 1

100025 | Blood sphingolipid profiling of obese and lean asthmatic children from Middle East and North Africa (MENA) region

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Background: Asthma is one of the most common significant chronic diseases affecting children worldwide and children with obesity are at an increased risk for developing asthma. Studies have shown that obesity alters both early onset atopic asthma and leads to the development of late-onset non-atopic asthma. Dysregulated sphingolipid metabolism has been associated with airway hyperreactivity and asthma. The aim of this study was to investigate whether sphingolipid metabolism is altered in childhood obesity-related atopic and non-atopic asthma.

Method: In this cross-sectional pilot study 50 patients from five study groups, lean-atopic asthmatic, obese-atopic asthmatic, obese non-atopic asthmatic, obese non-asthmatic, and healthy controls ($n = 10$ each, age 6–18 years, Qatar residents) were recruited. The parents of all children enrolled were asked to provide signed informed consent form. Erythrocytes from blood samples were analyzed to determine the concentration of 26 individual sphingolipids, including sphingomyelins (SM), ceramides (Cer), and dihydroceramides (DiCer) by liquid-chromatography-triple quadrupole mass spectrometry. The sphingolipid concentration values were analyzed

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by single-factor ANOVA and those lipids with $p < 0.05$ were analyzed further by t-test.

Results: Significant differences in certain sphingolipids were found between atopic-obese asthma compared to healthy control (24:1SM, 24Cer, 24DiCer, and 24:1Cer $p < 0.05$; 16:1SM and 24:1DiCer $p < 0.005$) while no significant differences were found between non-atopic obese asthma and healthy control. Additionally, several significant differences were found between obese-atopic asthma and lean-atopic asthma group, of which, 24Cer and 24:1DiCer were of most importance ($p < 0.0005$). These same two lipids were not significantly different when comparing obese non-asthmatic and healthy control.

Conclusion: The results of our study indicate that sphingolipid metabolism is altered in different types of pediatric asthma. Atopic-obese asthma and non-atopic obese asthma show different sphingolipid profiles and the levels of 24Cer and 24:1DiCer are affected by having obesity and atopic asthma in combination. These altered sphingolipid profiles indicate that these lipids may serve as biomarkers and targets for developing personalized medicine for different asthma endotypes.

Conflicts of interest: The authors did not specify any links of interest.

100084 | Longitudinal trajectories of childhood asthma phenotypes and allergic comorbidities in Korean childhood asthma study (KAS)

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*Presenting author: J. Yoon

Background: Asthma is a heterogeneous airway disease with various clinical phenotypes accompanied with other allergic comorbidities in children. Little is currently known about longitudinal clinical features of asthma and allergic comorbidities in children. The aim of this study was to define and validate clinical asthma phenotypes and other allergic diseases using cohorts of Korean children from their birth to adolescent period.

Method: This study enrolled 958 children with physician-diagnosed asthma from the Korean childhood Asthma Study (KAS) cohort. Questionnaires regarding subjects' baseline characteristics, laboratory tests, pulmonary function and bronchial provocation tests were performed to assess allergy and airway inflammation at the time of enrollment. Children with asthma were classified by hierarchical cluster analysis. Participants' past medical records of diagnosis and treatments relating asthma, allergic rhinitis (AR), and atopic dermatitis (AD) were acquired from the Health Insurance Review & Assessment Service.

Results: Of the 958 patients in the KAS cohort, about half of patients had a history of atopic dermatitis before in infancy, and the prevalence gradually decreased toward adolescence. The prevalence of allergic rhinitis increased in school age as we expected. Among those children, 794 were included in cluster analysis. Four phenotypes were identified in the KAS cohort with distinct clinical trajectories of allergic comorbidities. Cluster 1 was "Male dominant atopic asthma". Cluster 2 had an "early onset atopic asthma with AD" with persistent AD until adolescence. Cluster 3 was a "Puberty onset female dominant atopic asthma" phenotype with low pulmonary function and low remission rate asthma and progressing AR. Cluster 4 had a "Early onset less atopic asthma" with the lowest comorbidities of AD and AR.

Conclusion: Identification of asthma phenotypes and their allergic comorbidities based on baseline cluster analysis may facilitate prediction of prognosis and response to treatment. Clear differentiation of clinical phenotypes can provide better asthma management and prediction of prognosis.

Conflicts of interest: The authors did not specify any links of interest.

100089 | A survey of the parental experience of colour-coded written asthma management plan for home-based parent-led asthma care

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Background: Asthma is the most common chronic disease in children. Both morbidity and mortality are significant and are increasing across the globe. Poorly managed asthma could result in lost school days and increased unscheduled hospital visits. Effective communication is the critical component of parent-led home care. Successful paediatric asthma management requires good communication and an in-depth parental understanding of management strategy. Several modes of purpose-built written and electronic communication tools are already available.

The study aims to find the parental (User) experience using a structured written asthma management plan with colour coding. The

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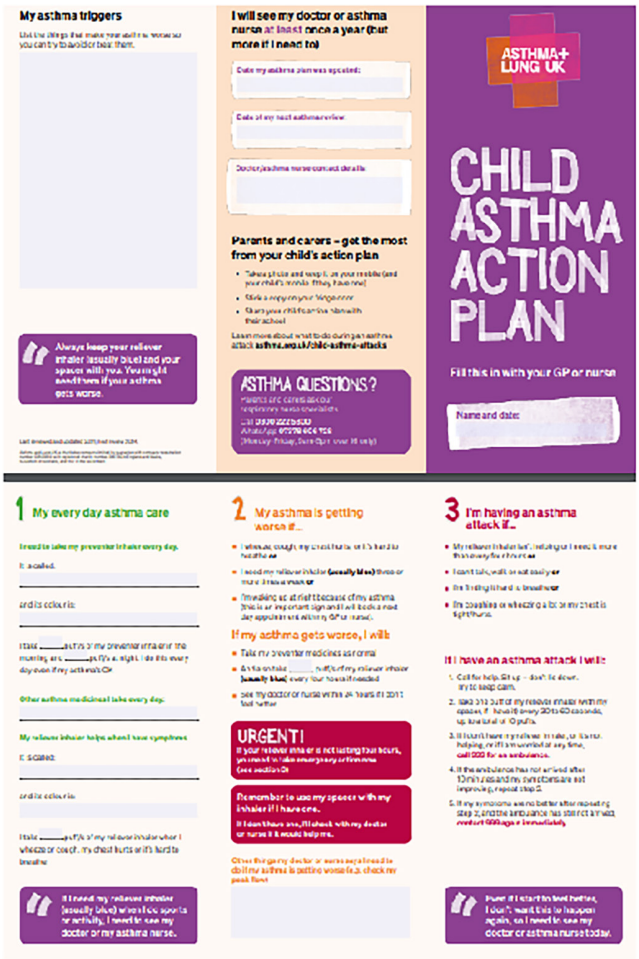
study was conducted in an allergy and asthma clinic at a District General Hospital in the UK.

Method: The study duration was over six months. This project was part of a quality improvement exercise. The structured survey questionnaire allows parents to share their experience of the 'written' asthma management plans. The written asthma plan used for this project was a freely available open-source document on the Asthma+Lung UK website. We collected the survey feedback on the second visit. A total of 25 parents were selected and followed up over nine months. None of the parents had prior knowledge, experience or familiarity with any form of a written asthma management plan.

Results: All parents felt that the written asthma management plan is easier to understand and way better than verbal instruction. 80% of parents mentioned that colour coding is a valuable adjunct during acute attack management at home.90% of parents suggested that the written asthma management plan should be implemented universally in primary care to prevent mixed messages on asthma management.75% of parents reported that the colour-coded plan reduced out-of-hours attendance in the primary care or A&E because of better understanding, parental confidence and ability to stratify risk in the home environment.55% of parents said they felt less anxious when their children attended school. 65% reported less number of telephone calls from school when parents shared the written asthma management plan with the school nurse.85% of parents felt empowered to participate and make safe decisions while managing acute asthma exacerbation at home.

Conclusion

1. Parents prefer a written management plan over verbal communication for parent-delivered home-based asthma care.
2. We suggest universal implementation of a written management plan for effective parent delivered asthma care at home.



Conflicts of interest: The authors did not specify any links of interest.

100097 | Prevalence of bronchial asthma in children and adolescents in Poland

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*Presenting author: D. Konwant

Background: Bronchial asthma is one of the most common chronic diseases in the pediatric population, which undoubtedly poses a challenge to healthcare systems. Asthma exacerbations can lead to many complications. It is therefore important to constantly monitor risk factors that may adversely affect the course of the disease such as the SARS-CoV-2 pandemic or environmental factors. Stabilization of the patient's condition in case of complications may represent an additional financial burden on the system through increased consumption of healthcare services.

Method: Material and methods: The material consisted of data obtained from the report of the National Health Fund on the prevalence of asthma (J45, J46 according to ICD-10) in Poland in 2013–2019 in the scope of provided health care services financed by the public payer of health premiums. The author's statistical processing of the

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report's data was performed using Microsoft Excel and Statistica 13.1.

Results: The highest prevalence of registered asthma per 100 thousand was recorded in 2019 in the age range of 6–10 years, in both male (15.2) and female (10.6) populations. This group accounted for the largest percentage in the number of pediatric patients (118.5 thousand) who received health services at various levels of treatment. The value of reimbursement for services provided with a principal diagnosis of asthma among children and adolescents up to 17 years of age decreased by 2.9% in 2019 (PLN 63.4 million) compared to 2013 (PLN 65.3 million). Costs incurred for rehabilitation reimbursement in 2019 (PLN 0.3 million) also halved compared to 2013 (PLN 0.6 million).

Conclusion: Secondary prevention should be continually carried out among patients and caregivers to reduce the risk of complications due to chronic disease persistence and exacerbations.

Conflicts of interest: The authors did not specify any links of interest.

100123 | Things to keep in mind in the differential diagnosis of severe asthma: ABPA and EGPA

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*Presenting author: Ş. özden

A 49-year-old male patient. He has asthma for 28 years and rhinosinusitis for 25 years. He had been operated 3 times for nasal polyps before. He applied to the pulmonary diseases outpatient clinic due to increased dyspnea. He had a history of almost complete hearing loss in the left ear and hearing loss in the right ear 30 years ago. He underwent mite immunotherapy between 1998 and 2000. Omalizumab was started 3 years ago with the diagnosis of severe asthma + nasal polyp. He had myocardial infarction 1.5 years after starting omalizumab treatment. No known history of hyperlipidemia. There is no family history of coronary artery disease. Adverse effect was accepted and omalizumab was stopped.

The patient states that he has been receiving uncontrolled oral steroid treatment from time to time with the complaints of asthma attacks and nasal congestion.

In the examinations, biochemical parameters were normal, ANA, p-ANCA, c-ANCA were negative. Spot urine was normal, pro BNP and troponin were high and Aspergillus fumigatus specific IgE was positive (79 kU/L).

Peripheral blood eosinophil value (May 2022:470 cell/μL; Feb 2023:1540 cell/μL) and Total IgE (Feb 2022:717 IU/mL; Nov 2022:1978 IU/mL) tend to increase.

On physical examination there is no palbabl purpura, peripheral neuropathy, no gastrointestinal complaints. After neurology consultation requested EMG and cranial MR were normal. No pathology was detected in the septum biopsy performed after otolaryngology consultation. FIP1L1, PDGFRA, PDGFRB gene mutations were negative in the patient who was also evaluated by hematology and myeloproliferative or lymphoproliferative disease was not considered.

After cardiology consultation cardiac examination was reported as consistent with coronary arteritis. We diagnosed EGPA with 11 points according to 2022 American College of Rheumatology/European Alliance of Associations for Rheumatology classification criteria. So 1 mg/kg methylprednisolone treatment started. In addition, due to aspergillus-specific IgE positivity, total IgE>1000 IU/ml, and uncontrolled asthma, a diagnosis of ABPA was made and itracanazole treatment was started (loading dose 3 × 200 mg for the first 3 days, then maintenance dose 2 × 200 for at least 16 weeks).

Cardiac involvement associated with vasculitis is very important for the diagnosis of EGPA in ANCA negative patients.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100181 | Effects of climatotherapy on quality of life in children with asthma

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Background: Based on the Global Initiative for Asthma (GINA) guidelines, children with asthma should participate in physical exercises, which is considered to be an important part of the nondrug prevention and treatment strategy for children with asthma. However, the effectiveness of climatotherapy on quality of life (QoL) in children with asthma is not clear.

Method: The study group consist of 130 children aged 7–15. Two equally numerous groups (50 children) were treated in the low mountains (Rabka Zdrój, Istebna), and one (30 children) on the Baltic coast (Kołobrzeg Zdrój). Quality of life indicators were assessed using the Pediatric Asthma Quality of Life Questionnaire (PAQLQ) with assessment domains for symptoms, activities and emotions. Lung function assessment included the following indicators: FEV1%, FVC and FEV1/FVC ratio.

Results: The analysis showed the improvement of the quality of life after 4 weeks of climatic therapy in children with bronchial asthma depended on the child's age ($p < 0.043$) and BMI ($p < 0.014$). In turn, the improvement of the activity and emotion domain score was dependent on the number of household members ($p < 0.0005$). Drinking treatments (crenotherapy) with bicarbonate waters showed a beneficial effect on the improvement of the PAQLQ score in the symptoms domain ($p < 0.001$). The "nord walking" physical training on the beach had a significantly beneficial effect on improving the PAQLQ activity domain score in children treated at the Baltic coast ($p < 0.001$). The temporary elimination of passive smoking of e-cigarettes had a positive effect on the improvement of FEV1% and FEV1%/FVC results in all examined children, regardless of the child's place of stay (low mountains, Baltic coast).

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Conclusion: The results will provide information on the effectiveness of climatotherapy on QoL in children with asthma.

Conflicts of interest: The authors did not specify any links of interest.

100257 | Usability and parental satisfaction of a digital wheeze detector supporting the self-management of childhood wheeze

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Background: Wheezing is a common condition in pre-school children, whose adequate recognition and proper treatment is often challenging for caregivers. Digital health technologies, such as cough or wheeze detectors, have the potential to aid the at home management of wheezing disorders among pre-schoolers. However, to ensure their usability and clinical efficacy, large multicenter randomized controlled trials in different cultural and environmental contexts are necessary. The objective of the study is to evaluate the usability of a commercially available, digital wheeze detector (WheezeScan, Omron Healthcare, Kyoto, Japan) among children suffering from wheeze and their caregivers.

Method: A multicenter randomized controlled trial was conducted in Berlin, London and Istanbul. Children with a doctor´s diagnosis of recurrent wheezing aged 4–84 months were included. The intervention group (IG) received the WheezeScan device and were instructed to use it whenever parents felt the need of digital support while the control group followed usual care. After a monitoring period of 90 days, parents of the intervention group were asked to fill out a questionnaire regarding their satisfaction and the handling of the device. At both baseline and follow-up visits parents of both groups completed clinical questionnaires on disease control, quality of life and self-efficacy.

Results: One hundred sixty-seven children with a mean age of 3.29 months (SD 1.6) were included (116/167, 69.5% male). Out of the families who were randomized to the intervention group, 78 completed the T1 follow-up visit. Among these families, 81% (63/78) reported a use of the device without complications. Meanwhile, only 14 families reported finding it difficult to use the device, with the most common problem being the challenge of keeping the child calm during the measurement. Approximately 64% (50 out of 78) of parents subjectively perceived a benefit from using the device, with 48 (61%) of them expressing interest in using it again in the future.

Conclusion: The use of a digital wheeze detector among pre-school children was described as easy and subjectively beneficial by the majority of participating families. Its objective impact on disease management remains to be evaluated.

Conflicts of interest: Wim van Aalderen received funding from Boehringer Ingelheim for participation in the medical advisory board and for the preparation of educational materials for OMRON Healthcare. Paolo Matricardi received personal fees from OMRON Healthcare as a consultant not related to the present project. Further, he received speaker's fees from TPS Productions S.r.l. Stephanie Dramburg received personal fees from OMRON Healthcare. Jonathan Grigg received personal fees from OMRON Healthcare. The other authors declare that they have no competing interests.

100372 | Reliability of the asthma quality of life questionnaire in the Republic of Kazakhstan

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Background: In the structure of general morbidity in the Republic of Kazakhstan, respiratory diseases (pneumonia, bronchitis, emphysema, asthma, etc.) occupy the first place. The incidence of asthma in the Republic of Kazakhstan per 100,000 population over the past 10 years has increased by almost 3 times (43.9 in 2011, 126.1 in 2020). For the first time in the Republic of Kazakhstan, a multicenter study of asthma patients in the Kazakh population is being carried out with the study of clinical, immunological, genetic aspects, respiratory functions, and an assessment of the quality of life using the Asthma Quality of Life Questionnaire.

The aim of our study was to examine the validity and reliability of the Asthma Quality of Life Questionnaire in patients with asthma in the Kazakh population. The quality of life is one of the important parameters for assessing the condition of patients and the effectiveness of the treatment.

One tool for assessing the quality of life of patients with asthma is the Asthma Quality of Life Questionnaire. The questionnaire consists of 32 questions, allows you to assess the symptoms of asthma, activity limitation, emotional sphere, environmental influences.

Method: We studied 228 patients with asthma aged 12 to 65 years (mean 30.15 ± 13.1), diagnosed with asthma in the cities of Almaty and Astana, taking basic anti-inflammatory therapy. The severity and level of control of the disease were determined. We carried out the Kazakh adaptation of the AQLQ questionnaire.

Results: In the study group, women prevailed - 62.3%, men, respectively - 37.7%. The Cronbach-α scores were: for activity domains (0.97), symptoms (0.98), emotions (0.95), and environment (0.92) and were found to be very reliable. The correlation coefficients of the subject and the total score varied: for the activity domain from 0.84 to 0.85; for the domain of symptoms 0.84–0.88, for the domain of emotions from 0.78 to 0.88, for the domain of the environment 0.74–0.76.

Conclusion: The results of the study showed that the Kazakh version of the questionnaire on the quality of life of patients with asthma has good structural characteristics and is a reliable and valid tool that can be used to measure the quality of life of patients in the Republic of Kazakhstan.

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Internal consistency (Cronbach alpha values) of the Asthma Quality of Life Questionnaire

Domain (number of items)	Question numbers	Cronbach alpha
Activity (11)	1	0,98
	2	0,87
	3	0,86
	4	0,84
	5	0,83
	11	0,67
	19	0,68
	25	0,80
	28	0,86
	31	0,87
	32	0,86
Symptoms (12)	6	0,99
	8	0,93
	10	0,85
	12	0,78
	14	0,86
	16	0,78
	18	0,83
	20	0,80
	22	0,86
	24	0,81
	29	0,83
	30	0,86
Emotion (5)	7	0,98
	13	0,85
	15	0,84
	21	0,75
	27	0,76
Environment (4)	9	0,89
	17	0,68
	23	0,70
	26	0,75

Conflicts of interest: The authors did not specify any links of interest.

BASIC IMMUNOLOGY

100202 | Beta-lactoglobulin with zinc engages innate immune cells via lipocalin-interacting membrane receptor (LIMR) in the anti-inflammatory farm effect against allergies

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*Presenting author: H. Mayerhofer

Background: Besides consumption of raw cow milk, inhalation of cattle stable dust is a major contributor to the allergy-protective farm effect. We recently detected beta-lactoglobulin (BLG) complexed with zinc as an abundant compound in dust and ambient air of cattle farms. We have previously demonstrated that BLG has strong immunomodulatory potential depending on ligand load. Here we aimed to analyze its effect on *in vitro* immune responses focusing on the role of zinc, and further investigated a potential receptor and cellular pathway for BLG.

Method: PBMC of healthy donors were incubated with zinc-BLG or BLG depleted of zinc (apo-BLG), and proliferation as well as cytokine responses were determined via flow cytometry. Lipocalin-interacting membrane receptor (LIMR) expression was analyzed on PBMC subsets of healthy human donors via flow cytometry. NFkB activation after stimulation with apo-BLG and zinc-BLG was assessed in a monocytic luciferase reporter cell line with NFkB response element (THP1-Lucia™ NFkB Cells).

Results: Stimulation of PBMC with zinc-BLG resulted in lower cell proliferation and lower release of Th2-cytokines IL-4, IL-5 and IL-13, but a higher IFN-g release than with apo-BLG. LIMR expression was found on human CD14+ monocytes and CD56+ NK cells, with the highest expression on CD56+dim NK cells. Stimulating THP-1 with increasing concentrations of BLG decreased LIMR expression. NFkB activation was significantly lower when THP-1 cells were incubated with zinc-BLG than with apo-BLG.

Conclusion: BLG acts immune-modulatory depending on its complexation with zinc. Together with this binding partner, it counterbalances Th2 immune responses by dampening the pro-inflammatory NFkB pathway via LIMR. Our data also propose that zinc-BLG from stable dust predominantly engages innate immune cells in the allergy-protective farm effect.

Support: Bencard Allergie, AllergyCare®, Austrian Science Fund FWF (SFB F4606-B28) and Biomedical Int. R+D GmbH, Vienna, Austria. HM was supported by AllergyCare, Vienna, Austria. The study was in part supported by the Danube Allergy Research Cluster (DARC), project #08 of the Karl Landsteiner University, Krems, Austria.

Conflicts of interest: EJJ is shareholder in Biomedical Int. R+D GmbH, Vienna, Austria and inventor on patent EP 2894478 A1.

100366 | Mast cell proliferation and disordered microbiota in testicular tissues impact infertility in azoospermia

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Background: Testicular immunity is characterized by immune privilege, avoiding autoimmune attacks against proteins expressed by spermatozoa. The correlation between microbiota and proliferation of mast cells in the parenchyma of the testicles and the urogenital tract was assessed for a possible role of mast cells in the pathogenesis of inflammation and infertility in men with azoospermia.

Method: 33 patients with impaired spermatogenesis with obstructive and non-obstructive forms of azoospermia were studied.

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Testicular tissues and urogenital tract tissues were investigated by high-throughput sequencing and immune morphology methods assessing the degree of disordered spermatogenesis, and the condition of the seminiferous tubules and intertubular structures. Immunohistochemical assessment included assaying numbers of Leydig cells, fibroblasts, macrophages, and mast cells along with the microbiota of the testicular parenchyma.

Results: Pronounced expression of mast cells in the intertubular stroma occurred in almost 83% of cases with up to 17% cases showing moderate proliferation in patients with azoospermia with disordered microbiota. Rare expression of mast cells was noted in 68% of cases in tubular structures and complete absence of mast cells in these structures occurred in 32% cases.

Conclusion: Men with infertility revealed the absence of an extensive microbial landscape, differing from the diverse testicular microbiome seen in fertile patients. Microbiome disorders correlated with a high increase in mast cells numbers which may be a factor in infertility of men with azoospermia. The increase in local mast cell proliferation in correlation with microbiota disorders may be important factors leading to inflammation and infertility in men with azoospermia.

Conflicts of interest: The authors did not specify any links of interest.

100074 | The structure of entire receptor-bound IgE reveals conformations and the dynamics of hinge flexibility

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Background: IgE is a key driver of allergic responses, but also supports the immune response against parasites and venoms. Structural and biophysical studies have defined the conformation and dynamic properties of the IgE Fc bound to the FcεRIα. How these prior studies translate to the full antibody-receptor complex remains unknown.

Method: Recombinant IgE, its derivatives and the FcεRI soluble domains were obtained from mammalian cells. Structural and biophysical studies were performed using cryoEM, negative stain EM, and SAXS. Effector cell activation and facilitated antigen binding were assessed in hexosaminidase release assays and ELIFAB analyses.

Results: In this study we show that IgE bound to the FcεRIα adopts two distinct defined conformations. In a cryo-EM structure of the IgE FcεRIα complex, IgE adopts a T-like conformation where the antigen binding Fab arms may be parallel to the cell membrane. A second Y-like conformation captured in negative stain EM features a different arrangement with two Fab arms likely to orient away from the membrane. Solution studies suggest the two receptor bound IgE conformations to be present in a 2:1 ratio. Introduction of flexibility in the Fab-Fc hinge diminishes the biological activity of IgE demonstrating a functional role for the observed defined Fab-Fc hinge conformations.

Conclusion: The structures of entire IgE alone and in complex with the FceRI provides deep molecular insights into the organisation of the immunoglobulin and highlights the dynamics if its hinge region. The insights and the dissection of IgE conformations will contribute to our understanding of recognition at the interface of receptor-bound IgE and allergen and boost potential intervention approaches.

Conflicts of interest: The authors did not specify any links of interest.

BIOMARKERS

100444 | Quantitative analysis of the *SERPING1* gene in the diagnosis of hereditary angioedema

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Background: Hereditary angioedema (HAE) is a rare autosomal dominant disorder of vascular permeability associated with heterogeneous clinical manifestations. The most common cause of HAE involves either a deficiency (type I) or dysfunction (type II) of C1-inhibitor (C1-INH), which caused by germline alterations in the *SERPING1* gene. HAE type I characterized by low antigenic and functional C1-INH levels, HAE type II – by normal or elevated antigenic but low functional C1-INH levels. The aim of this study was to test and submit a method for HAE diagnosis based on quantitative analysis of *SERPING1* gene copies.

Method: Patients with hereditary angioedema type I ($n = 13$), patients with hereditary angioedema type II ($n = 7$) and control group ($n = 50$) were evaluated in this study. Antigenic C1-INH levels were measured by nephelometric method using "N Antiserum to Human C1-Inhibitor" kit. Quantitative analysis of *SERPING1* gene copies was performed by real-time PCR with own design plasmid standards. The results are presented as a median (25%; 75%). All subjects consented to the study.

Results: Median copies of the *SERPING1* gene relative to the copies of the *CD64* gene among the groups was: in patients with hereditary angioedema type I – 371359 (229317; 446328) copies; in patients with hereditary angioedema type II – 757991 (644201; 1041336) copies; in control group – 708830 (559830; 1076100) copies. The median of antigenic C1-INH levels among patients with hereditary angioedema type I, hereditary angioedema type II and the control group was 0.053 (0.045; 0.064) g/l, 0.324 (0.316; 0.388) g/l, and 0.278 (0.241; 0.308) g/l respectively. The results obtained had a high correlation relationship ($r = 0.844$; $p < 0.001$).

Conclusion: Quantitative analysis of copies of the *SERPING1* gene in peripheral blood cells can become a useful biomarker in the diagnosis of hereditary angioedema.

The work was carried out in accordance with the Science-intensive technologies and equipment program "Chemical products and

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molecular technologies" of the ministry of health of the Republic of Belarus (r.n. 20213494).

Conflicts of interest: The authors did not specify any links of interest.

100458 | Complement lectin pathway proteomics and genomics in ischemic stroke

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Background: Allergic reactions, including anaphylaxis, can sometimes occur after intravenous thrombolysis in patients with acute ischemic stroke. Also, allergic reaction itself may trigger cardiovascular complications. On the other hand, it is known that complement lectin pathway plays a crucial role both in allergic and cardiovascular inflammation due to the ability to recognize not only the foreign pathogens but also the damaged host cells. Thus, the aim of current study was to reveal the role of the complement lectin pathway in ethiopathogenesis of ischemic stroke on the genomic and proteomic levels. We enrolled in this study 250 ischemic stroke patients and 300 healthy volunteers.

Method: We enrolled in this study 250 ischemic stroke patients and 300 healthy volunteers. TRIFMA and ELISA analyses were used for the measurement of protein levels in plasma samples. RT-PCR and SSP-PCR were applied for the genotyping of the selected polymorphisms in studied genes.

Results: The results of genotyping analysis showed that the rs10120023polymorphism in FCN1 gene is associated with ischemic stroke. Further, the rs3203210polymorphism in MASP1 gene and the rs147270785 polymorphismin MASP2 gene are also associated with ischemic stroke. The linkage disequilibrium (LD) analysis detected one LD block in MBL2 gene, on in FCN1 gene, two LD blocks in FCN2 gene, and one LD block in MASP1 gene in both studied groups, The levels of M ficolin, L ficolin and H ficolin, as well as MASP-1, MASP-2, MASP-3 were altered in blood plasma of patients with ischemic stroke compared to healthy subjects ($p < 0.05$). Moreover, the association of the studied polymorphisms with the plasma levels of their encoded proteins were also observed.

Conclusion: This study emphasizes the important contribution of alterations of complement lectin pathway components on genomic and proteomic levels to the pathomechanisms of ischemic stroke at least in Armenian population. They may be associated with ischemic stroke development risk and as well may participate in pathological events leading to post-ischemic brain damage. Thus, it is necessary to study the potential therapeutic effect of complement lectin pathway components and/or their targets to increase the effectiveness of the therapeutic strategies in ischemic stroke treatment and recovery, as well as prevention from perspective of genomics and individualized medicine.

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Conflicts of interest: The authors did not specify any links of interest.

DERMATOLOGY 1

100008 | Eating increases and exercise decreases disease activity in patients with symptomatic dermographism

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Background: Eating can increase disease activity in patients with symptomatic dermographism , the most common subtype of chronic inducible urticaria, but it is unclear how common this is. The effects of exercising on symptomatic dermographism disease activity have also not yet been determined. This study aimed to assess the impact of exercise and nonspecific carbohydrate-rich food intake on the severity and intensity of symptomatic dermographism after exercise and nonspecific carbohydrate-rich food intake.

Method: We assessed disease activity by FricTest provocation testing in 75 symptomatic dermographism patients before and after eating, exercising, or both. We determined the rates of food-dependent (FD) symptomatic dermographism and food-exacerbated (FE) symptomatic dermographism. By comparing post- and pre-exercise FricTest scores, we identified complete responders: that is, patients with a negative FricTest response after exercising and partial responders. Finally, we evaluated whether exercise protects patients with FD-symptomatic dermographism or FE-symptomatic dermographism from eating-induced worsening of symptomatic dermographism.

Results: Of 64 symptomatic dermographism patients, eight had FD-symptomatic dermographism (13%), 42 had FE-symptomatic dermographism (66%), and 14 patients showed no negative impact of eating on disease activity (21%). Physical exercise reduced FricTest skin provocation test responses in 83% of 58 patients. Exercising protected patients with FD/FE-symptomatic dermographism from worsening of symptomatic dermographism owing to eating in half of cases, with higher rates for exercise after eating (67%) compared with exercise before eating (35%).

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Conclusion: Our study shows that eating often worsen symptomatic dermographism symptoms, and exercise often improves it. Our findings might aid patients in controlling symptoms better.

Conflicts of interest: The authors did not specify any links of interest.

100122 | Four-week total IgE/baseline total IgE ratio – Biomarker for omalizumab good response in CSU real-life patients

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*Presenting author: A. Bernardino

Background: Recent literature points to a possible role of total IgE as a predictor of response to omalizumab (OMZ) in chronic spontaneous urticaria (CSU) patients'. This study's aim was to assess the role of the ratio between 4-week total IgE/baseline total IgE (w4IgE/bIgE ratio) in OMZ response prediction.

Method: Portuguese single-center, retrospective study of CSU patients treated with OMZ for at least 6 months, between 2015 and 2022. Patients were grouped in 2 according to response to OMZ in the first 16 weeks of treatment: responders (UAS7<7) vs partial (UAS7 = 7–15) plus non-responders (UAS7>15). Total IgE, eosinophils (eos) and basophils (bas) at baseline (T0), after 4 weeks (T1) and 6 months of OMZ (T6) were analyzed. $p < 0.05$ was considered statistically significant (SPSS® v25.0).

Results: A total of 96 patients (80% female) were included, with a mean age of 49 ± 14 years [range 22–81]. CSU duration pre-OMZ was 5 ± 6 years [range 0.6–20] and mean OMZ duration was 3.7 ± 2.3 years [range 0.5–7.7]. Thirty-eight (40%) had also chronic inducible urticaria. Angioedema was present in 72 (75%), atopy in 35 (36%) and an autoimmune disease in 15 (16%). Regarding response to OMZ 300 mg 4/4 weeks, 58 (60%) were responders and 38 (40%) were partial/non-responders.

Responders had significantly higher median values of total IgE at T1 than partial/non-responders (476 vs 142 U/mL; $p = 0.01$). A higher w4IgE/bIgE ratio was significantly associated with good response to OMZ ($p < 0.001$). Considering patients who doubled total IgE value at 4 weeks of OMZ ($n = 73$), 68 (93%) had at least a partial response by the 16-week mark.

A cut-off >2.27 for w4IgE/bIgE ratio was obtained, ROC curve (AUC 0.72 [IC 95% 0.61–0.83, $p < 0.001$] with 84.5% sensibility and 43.7% specificity to predict OMZ good response. The ROC curve obtained for median total IgE at T1 had no discriminative capacity (AUC = 0.65).

Median baseline values of studied laboratory parameters didn't demonstrate significant differences between responder's vs partial/non-responders: total IgE (96.8 vs 96.5 U/mL; $p = 0.793$), eos (120 vs 125/mm^3, $p = 0.866$) and bas (20 vs 20/mm3, $p = 0.515$). No significant differences were showed in eos and bas at T1 and T6, nor in total IgE at T6.

Conclusion: In our study, doubling of the total IgE value at 4 weeks of OMZ was associated with at least partial response in 93% of patients at 16 weeks. A high w4IgE/bIgE ratio may be a predictor of good response to OMZ, with a cut-off >2.27 corresponding to a better response.

Conflicts of interest: The authors did not specify any links of interest.

100146 | Clinical and laboratory characterization of chronic urticaria – A 13 years study

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Background: Chronic urticaria (CU) is a common disease defined as recurrent of wheals and/or angioedema for more than 6 weeks. CU is classified as spontaneous (CSU) and inducible (CIndU). The clinical manifestations of different CU are very wide with a considerable impact on quality of life. The aim of this study is to analyze clinical and analytic findings of patients with CU.

Method: Retrospective observational study of patients followed from 2009 to 2022. Clinical features and laboratory findings were obtained from the records.

Results: A total of 746 patients were included, 75.3% female. Mean age at first appointment was 42 (±22) years (7.5% pediatric age). Fifty one percent had CSU, 41.2% CIndU and 8.3% CSU+CIndU. More frequent CIndU were: demographic urticaria (55.3%), cholinergic urticaria (24.4%), delayed pressure urticaria (22.8%) and cold urticaria (16.3%). In contrast to CIndU, CSU has been associated with an infectious trigger ($p = 0.003$). Generalized urticaria was present in 53.4% and angioedema in 25.3% of patients, significantly more frequent in patients with CSU ($p < 0.001$), but without differences with the course of disease. Mental disorders (26.5%), atopic disease (allergic rhinitis (18.5%) and asthma (9.1%)), thyroid disease (13.7%) and hypersensitivity to NSAIDs (7.6%) were the most frequent comorbidities. Mental disorders and thyroid disease were associated with CSU ($p < 0.001$). Complementary diagnostic tests were requested in a subgroup of patients ($n = 210$): Median total IgE was 130 kU/L, IQR (165) and anti-thyroid peroxidase antibodies were positive in 11.4%. Treatment with second generation antihistamines were used on demand 13.8%, standard dose 51.2%, up to fourfold in 29.4%. Six percent of patients were treated with Omalizumab and 3.6% maintained systemic corticosteroids. Treatment with corticosteroids was associated with CSU ($p < 0.001$). During the course of disease remission occurred in 18.8%, 3 of them with Omalizumab. Patients with atopy and/or autoimmune disease did not differ in terms of disease follow-up.

Conclusion: CU is a frequent condition, affects all ages and genders, but is more common in women between 30 and 50 years, as described in our study. Identification of comorbidities is essential in the

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management of CU. In our serie, the most common comorbidities were atopic diseases, mental disorders and thyroid disease, the last two were statistically associated with CSU. Although standard dose therapy was effective in more than half of patients, 48.8% needed step-up therapy.

Conflicts of interest: The authors did not specify any links of interest.

100319 | Clinical and genetic study of histaminergic angioedema familial cases

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*Presenting author: M. Sabaté Brescó

Background: AE is often classified as hereditary or acquired. For hereditary AE (HAE) the main cause is the deficiency or dysfunction of the C1 inhibitor (C1INH) protein due to C1INH gene, SERPING1, mutations, with several other mutations being described recently for a small % of patients. On the other hand, acquired angioedema includes AE forms with different physiopathology, namely histaminergic AE forms and bradykinergic AE ones. Chronic histaminergic angioedema (CHA) is included in the first group, being considered an acquired mast-cell mediated disease. It is characterized by recurrent AE episodes, which responds to antihistamines, corticosteroids or omalizumab. It has been described that some patients with CHA report a family history, suggesting the presence of genetic or epigenetic predisposing factors.

Method: We analyzed 8 familial cases of CHA (from 4 different families) to assess their clinical characteristics in comparison to 58 CHA patients who did not report a family history. Demographic and clinical features (AE duration, number of episodes in the last year, ER visits…) were collected for all affected individuals. Whole exome sequencing was performed for affected and non-affected individuals in each family. Single nucleotide polymorphisms (SNPs) were filtered based on: phenotype-genotype correlation, region (exonic), low frequency (<0.01) and read depth.

Results: Both groups had a similar sex distribution but differed in age. More interestingly, age of onset was lower for familial cases. On the other hand, AE characteristics did not present differences between groups. Genetic variants filtered for each family were compared, with no coincident variants/genes of interest detected in this first screening. In addition, genes described in HAE were assessed to exclude a misdiagnosis, with no variants of interest detected on those genes.

Conclusion: Despite CHA is not hereditary, patients may present with a family history. Such cases do not differ in general from CHA without a family history except from a lower age of onset. No common genetic variants were found to be associated with the disease in this first approach. This could suggest for a more complex profile of genetic or epigenetic predisposing factors involved or either specific traits in each family. The small group size requires of further cases to support these initial findings.

Conflicts of interest: The authors did not specify any links of interest.

100337 | Is nickel allergy for life? An analysis of nickel contact allergy over a decade

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Background: Nickel is the most common contact allergen. Nickel allergy (NA) patients are suggestive by histories and confirmed by patch testing (PT). History often identifies NA patients prior to orthopedic implantations. The natural history of NA is debated and may be different in subsets of NA patients. Identifying these patients is important in the allergic contact dermatitis (ACD).

Method: We evaluated NA individuals, confirmed by PT to assess resolution over time. Retrospective chart review at a single allergy clinic was performed to identify patients who repeated PT. Results were compared from initial PT. Comparisons of PT results along with indication for referral were collected. Comorbid metal allergies was also assessed for impact on NA longevity.

Results: Data was collected from 2008 to 2023. NA was confirmed in 398 patients with 315 females (79%) and 83 males (21%). Sixty of the 398 referred patients had a clinical history suggestive of NA. Thirty-six patients (9%) had PT repeated over 14 years (44 mo avg), with 28/36 (80%) NA remaining positive and 8/36 (20%) NA having lost their NA. Only 1 of the NA resolution patients had a history of metal hypersensitivity. The average PT size for the persistent NA group was 1.5+ and for the resolution group 1.1+. Patients with a history of metal hypersensitivity prior to PT remained NA on retesting. The persistent NA group had a higher number of co-morbid metal allergies (Cobalt, Chromate), 19/26 (73%). The NA resolution group had no metal allergy comorbidities. The average time between testing in the NA persistent group was 44 months and the NA resolution group was 48 months ($p = 0.7$).

Conclusion: NA is the most common metal contact allergy. A follow up study in 10% of NA subjects who underwent repeat patch testing identified a 20% resolution rate in NA patients. NA patients with weaker patch test results and an absence of other metal patch test comorbidity had a greater likelihood of NA resolution. Time in between patch testing did not factor in NA resolution.

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Conflicts of interest: The authors did not specify any links of interest.

100354 | COVID-19 vaccine and chronic spontaneous urticaria; single center experience

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Background: Chronic spontaneous urticaria (CSU) is characterized by spontaneous urticarial lesions and/or angioedema lasting more than six weeks. There are publications about new onset CSU or CSU exacerbations caused by COVID-19 vaccines. We investigated COVID-19 vaccination and its effects on our CSU patients receiving omalizumab.

Method: The files of 16 patients who received omalizumab treatment with the diagnosis of CSU in the Department of Pediatric Allergy and Immunology at Sakarya University Training and Research Hospital were reviewed retrospectively. Five of the patients were male and 11 were female. The mean age was 17.9 years.

Results: Of 16 patients, 9 patients (1 patient Sinovac, 8 patients BioNTech) were vaccinated. No reaction was observed in the patient who received 2 doses of Sinovac, and he was receiving omalizumab treatment at the time of vaccination. In 4 patients who received 2 doses of BioNTech, there was no reaction after vaccination. Three of these patients were receiving omalizumab treatment at the time of vaccination. One patient, who received 2 doses of BioNTech, was vaccinated while receiving omalizumab treatment. After both doses of vaccine, within 1 hour, mild itching and swelling occurred on her arm and trunk.

Two patients, without previous urticaria, developed urticarial plaques approximately 6 weeks after receiving 2 doses of BioNTech vaccines. Despite antihistamine, urticarial plaques persisted for more than 6 weeks. Since these patients did not respond to high-dose antihistamines, omalizumab was started.

In another patient with chronic urticaria, 2 doses of the BioNTech vaccine were administered while he was receiving antihistamine therapy, an increase in the frequency of urticaria was observed after the vaccine, and the patient was started on omalizumab treatment.

Conclusion: The exact etiology of CSU is largely unknown, but it is thought that repeated activation of the dermal mast cell is followed by the release of vasoactive chemical mediators. The CSU series after COVID-19 vaccination was previously described in the literature. Magen et al. suggested that the BioNTech vaccine provoked or caused CSU to recur in individuals with allergic diseases and/or pre-existing autoimmunity. In our patients, the BioNTech vaccine caused new onset CSU in 2 patients and exacerbation in 1 patient.

Conflicts of interest: The authors did not specify any links of interest.

100365 | Discrepancies between real world and guideline based treatment for chronic spontaneous urticaria

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Background: Despite the availability of guidelines for the treatment of patients with Chronic Spontaneous Urticaria (CSU), many health care professionals do not follow them. The most recent international guidelines for the treatment of patients with CSU includes the following: monotherapy with second-generation H1 antihistamines up to four times the recommended FDA dose; (2) addition of omalizumab, and (3) cyclosporine. This study aimed to document discrepancies between guideline directed care and real world prescription patterns in a large US health care system.

Method: This study included patients in a large Chicago-area healthcare system, NorthShore University HealthSystem (a teaching affiliate of the University of Chicago, Pritzker School of Medicine), with CSU defined by the ICD-10 encounter code of L50.*, between May 2019 and May 2022. To be included in this analysis, CSU patients met one of the following two criteria: 1) two distinct office visits with a code of L50.* at least six weeks apart, or 2) one or more office visits with a code of L50.* and diagnostic label of 'chronic' urticaria. Based on a data analytics query of the electronic medical record, abstracted medications included first and second-generation H1 antihistamines, H2 antihistamines, leukotriene receptor antagonists, oral corticosteroids, cyclosporine, and omalizumab. Historical and external prescriptions were excluded. The NorthShore University HealthSystem Institutional Review Board approved this study.

Results: In total, 2,007 subjects were identified. Prescribed medications for CSU are as follows: first-generation oral H1 antihistamine only (9.8%); second-generation oral H1 antihistamine only (9.3%); first- and second-generation oral H1 antihistamines (3.9%); no oral H1 antihistamine (77.0%, but patients may have non-prescribed over-the-counter first- and second-generation agents); oral H2 antihistamine (12.4, but patients may have non-prescribed over-the-counter agents); leukotriene receptor antagonists (17.2%); oral corticosteroid (23%); cyclosporine (0.4%); and omalizumab (6.5%).

Conclusion: Documentation of discrepancies between guideline based care and real world practice warrants increased efforts to educate both primary care and specialty physicians on the CSU guidelines, as well as offer them tools to execute their implementation in their clinical practices.

Conflicts of interest: A. Fareeduddin, M. Carrasquel, T. Ewing, S. Kim, and K. Wang COI statement: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this abstract.S. Mehlis has received clinical trial support from AbbVie, Akari, Amgen, AstraZeneca, BMS, ChemoCentryx, Dong-A ST, Eli Lilly, Galderma, Incyte, Janssen, Leo Pharma, Menlo, Mayne Pharma, NFlection, Nimbus, Novartis, Pfizer, Regeneron, Sanofi, UCB,

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Vanda, and VYNE; has been a speaker, advisor, and/or consultant for AbbVie, Janssen, Novartis, Dermavant, LEO Pharma, and UCB; and owns stock in J&J, Novartis, AbbVie, BMS, and SanofiDr. Mosnaim receives current research grant support from GlaxoSmithKline, Novartis and Sanofi-Regeneron, receives consulting fees from Novartis and Genentech, and has received past research grant support from Teva, Alk-Abello, and Genentech. Dr. Mosnaim serves on the Board of Directors of the American Board of Allergy Asthma and Immunology.

100459 | Complete response to upadacitinib in a patient with treatment-resistant symptomatic dermographism

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*Presenting author: M. Muñoz

Background: In symptomatic dermographism (SD), the most common type of chronic inducible urticaria, exposure of the skin to friction (rubbing or scratching) induces itchy wheal-and-flare reactions. SD is often of long duration, severely disabling, and hard to treat. Antihistamines are the only licensed treatment option. Upadacitinib is a selective and reversible Janus kinase (JAK) inhibitor with established efficacy in atopic dermatitis, Its effects on SD are unknown.
Case: A 56-year-old female patient with severe and longstanding SD and comorbid chronic spontaneous urticaria (CSU), depression, and obsessive-compulsive disorder presented to our urticaria center of reference and excellence (UCARE). She had been treated for her SD with various antihistamines, leukotriene receptor antagonists, dapsone, corticosteroids, doxepine, and diets, which did not improve her SD or CSU. At the initial visit, the patient tested positive with FricTest (4/4 pins), had severely impaired quality of life (QoL), and a SD disease activity rating of 10/10. We initiated treatment with bilastine and omalizumab, which resulted in clinical remission of her CSU but did not improve her SD or QoL. We then treated her, in sequence, with cyclosporine, dupilumab, phototherapy, methotrexate, topical sodium cromoglycate, mycophenolate mofetil, rituximab, and benralizumab. None of these therapies worked, and our patient remained severely impaired in her everyday life. We then started treatment with upadacitinib 15 mg daily, which resulted in significant improvement of SD after four days and complete clinical remission after 15 days. Three months after the start of treatment, the patient remains free of SD signs and symptoms, is FricTest-negative, and shows markedly improved QoL.
Conclusion: Upadacitinib may be considered for treating refractory cases of SD and should be explored as a therapy of SD and other chronic inducible urticarias.
JM case reports session: 19242.
Conflicts of interest: I, Hermenio Lima, declare that I have served as a participant in Ad boards, investigator meetings, and speaker for AbbVie, a pharmaceutical company. As an Ad board member, I provided my professional opinion on certain matters related to AbbVie's products or services. As an investigator, I conducted research studies involving AbbVie's products or services. And as a speaker, I presented information about AbbVie's products or services to healthcare professionals. I declare that I have fully disclosed my involvement with AbbVie to any relevant parties, including colleagues, institutions, and the public. I have followed all ethical and legal standards related to my involvement with AbbVie and have not engaged in any activities that would compromise my objectivity or integrity. I further declare that this disclosure statement represents my honest and accurate account of my involvement with AbbVie, and that I will update this statement as necessary to ensure its continued accuracy.

ENVIRONMENTAL ALLERGY AND CLIMATE CHANGE + OCCUPATIONAL ALLERGY 1

100324 | Occupational allergy to glucagon-like peptide-1 receptor agonist precurser

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We present a case of occupational inhalant allergy in the recombinant production of GLP-1 and insulin analogue precursors expressed in yeast (*saccharomyces cerevisiae).* Glucagon-like Peptide-1 receptor agonist is used in the treatment of type 2 diabetes and obesity. The precursors contain large amounts of yeast Host Cell Proteins (HCP) impurities in the early stage of the manufacturing process. A 34-year-old female (FF) and a 23-year-old male (MM) worker were exposed to HCPs and the cultivation media at the production site during fermentation and the subsequent recovery process including various unit operations to remove/reduce cells and HCP. Most of the processes are handled in closed systems with minimal risk of exposure but the harvest from the last centrifugation is a semi-open process and the subsequent cleaning is a source of exposure. Within a year after employment both workers experienced rhinoconjunctivitis symptoms dyspnea and cough while working and hours after work. The symptoms occurred while collecting product samples for quality control and cleaning of centrifuges in the tank

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hall. Usage of work clothes, aprons, rubber boots, beard covers, face masks, protective glasses, and gloves was a demand, depending on the task. FF and MM had inhalant allergies to common allergens. FF was sensitized, but not clinically allergic, to enzymes from prior exposure to enzymes in a previous job. Both subjects had a strong positive skin prick test (SPT) to the intermediary pastes from the recovery process of the precursors of GLP-1- analogues, but not to the corresponding paste for the insulin analogue precursor. In a control subject, no reactions were observed. Histamine Release tests (HR) were positive for the two precursors in both workers. FF also had a positive IgE to *saccharomyces cerevisiae*. This was not observed in MM, who had the strongest reaction in SPT and HR to the paste and to the end product. The difference in reactivity between the recovery paste from the GLP-1 production versus the recovery paste from the insulin production could be explained by a specific reactivity towards the GLP-1 protein. This protein has not previously been described as an allergen and this hypothesis is further more supported by the weak response only in MM to the final purified GLP-1 drug product. More likely is sensitization towards HCP from yeast with the differences in their HCP expression pattern. There will be trace amount of yeast HCP in the final drug product that could explain the weak response in MM. The extent of this inhalant occupational allergy amongst the work force has been observed in two workers although several hundreds of employees have been working in the manufacturing process for these precursors for several years in different manufacturing facilities. Exposure source is further investigated and improvement undertaken at the premises to minimize exposure in the future. Cases of allergy to *saccharomyces cerevisiae* in e.g bakers is known.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100042 | Anaphylaxis and occupational asthma allergic caused by carmine (E-120): A case report

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Introduction: Carmine (E120) obtained from the insect *Dactylopius coccus*, is used as a food additive, pharmaceutical excipient and in the composition of cosmetics, being able to be an allergen by inhalation, contact or ingestion.

Material and methods: A 53-year-old woman, owner of a butcher shop where she produces her own sausages using pink coloring (contains E120). The patient refers dry cough and dyspnea that improves on weekends and on vacation. In addition, she presents episode of anaphylaxis with seafood and sweet popcorn; 3 episodes of hives with red velvet cupcake, pink toping donut and pink sweets.

Results:

- Prick test for pneumoallergens and *prick by prick* for shellfish and corn: all negative. Histamine 5 × 5 mm.
- *Prick by prick* positive for: pink sweets, red velvet cupcake, sweet popcorn, pink sausage coloring.
- Total IgE 28.4 (IU/ml), specific IgE (kU/L) carmine extract 4.3, basal tryptase 10.2 (μ/L).
- Bronchial provocation test with methacholine: positive.
- Peak flow record: variability >20% comparing weekdays with holidays.
- SDS-PAGE of *Dactylopius coccus* extract revealed 4 bands (very intensive) between 40–34 kDa; IgE fixation zone at low molecular masses in which bands of 16 kDa and 14 kDa could be indicated.
- SDS-PAGE of pink powder extract revealed 2 bands about 14 kDa, < 14 kDa.
- SDS-PAGE immunoblotting-inhibition: *Dactylopius coccus* extracts and pink powder completely inhibit the fixation of IgE on each other.

Conclusion:

We present a case of anaphylaxis and occupational asthma due to E-120.

In patient's serum, is detected specific IgEs that recognize proteins and peptides present in the pink powder used in sausages.

It could explain an allergic reaction by exposure, contact or ingestion of these molecules.

These proteins and peptides seem to come from *Dactylopius coccus*, an insect from which E-120 is obtained and is present in the pink powder.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100023 | Occupational allergic contact dermatitis caused by epoxy resin in a painter

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Epoxy products are nowadays among the most common causes of occupational allergic contact dermatitis and are widely used in different industries because of their strong adhesive, resistance and toughness properties. Epoxy resin is a chemical that is part of an epoxy resin system, that has two common parts, any of these chemicals on their own can cause irritant or allergic contact dermatitis.

A 50-year-old patient who worked as a painter, without any history of known drug allergies or skin diseases presented a clinical picture of approximately 3 months of evolution consisting of itchy maculopapular and erythematous skin lesions on the right arm, which were worsening reaching out to the abdomen, both arms and legs.

He was prescribed with moisturizing cream, antihistamines and corticosteroids with progressive improvement but the lesions

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reappeared with desquamation on his arms and on the eyelids. Due to the persistence and worsening of the lesions he was referred to the Allergy consultation.

He related the beginning of the lesions with the use of epoxy paint 3 months ago and also mentioned history of erythema itching lesions in relation to the use of some soaps.

Epicutaneous tests were performed with the European standard and Acrylate battery with reading at 48 and 96 hours, resulting positive to Epoxy Resins (+/++) and weakly positive to Mercapto mix (-/+). The Acrylate battery gave negative results.

The patient was diagnosed with allergic contact dermatitis due to Epoxy Resins with clear relevance and also had weak sensitization to Mercapto mixture releasers without clear relevance to the current episode. He was advised of strict avoidance against those components and treatment in case of recurrence.

Epoxy resins are known to be a common cause of contact allergic dermatitis and its prevalence has been significantly increasing in the latest decades because of its extremely wide range of commercial applications. There are other documented cases of Laboral exposition. Because this material is starting to be used in different industries it is important to remark the use of preventive protection when handling epoxy resin chemicals.

JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

EOSINOPHILIC ESOPHAGITIS

100287 | Allergens sensitization profile in children with eosinophilic esophagitis

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*Presenting author: E. D'Auria

Background: Eosinophilic esophagitis (EoE), a chronic inflammatory esophageal disease, is often associated with allergic diseases. The role of allergic sensitization and panallergens in EoE has been poorly investigated. We aimed to evaluate allergens and panallergens sensitization profile in children with EoE.

Method: 17 pediatric patients with EoE were considered. Clinical features data, family and personal history of atopy were collected. We analyzed food-specific IgE (sIgE) to six major food allergens (milk, egg, soy, wheat, meat, nuts), currently considered in food elimination diet, plus prawns, fish and sesame. Skin prick tests for common aeroallergens were performed for all participants.

Finally, we tested a panel of 13 panallergens belonging to profilins, PR-10 and Lipid Transfer Proteins categories: r Tri a 14, r Ara h8, r Ara h9, r Jug r3, r Cor a1, r Cor a8, r Mald d1, r Mald d3, r Pru p1, r Pru p3, r Phl p12, r Bet v1, r Bet v2.

Results: All patients were males and mean age at diagnosis was 11 years (range 3–15). 15 out of 17 (88%) had allergic comorbidities, prior to EoE diagnosis: allergic rhinitis in 10 (59%), asthma in 6 (35%), and eczema in 6 (35%). Eight patients (47%) had food allergy history (2 food anaphylaxis), and foods involved were egg (3 cases), fresh fruit (2), nuts (2), prawns (2), milk (1), fish (1), meat (1). Polysensitization to foods (defined as IgE positivity for more than 3 foods) was found in 93% of subjects. According to previous reports, patients were sensitized to milk (94%), egg (81%) and wheat (94%); notably, 75% had sIgE to sesame. 14 patients (82%) showed aeroallergens hypersensitivity, mainly betulaceae and grass pollen, and 71% were pansensitized (> 3 aeroallergens). sIgE to panallergens were available for 15 subjects, positive in 11 patients (73%); at least one positivity for each panallergen class was observed in 9 out of 15. Bet v1 and Phl p12 were the most common panallergens in our population, each testing positive in 64%.

Conclusion: Our study confirms the association of EoE with atopy and the significant rate of polysensitization in EoE pediatric population. We found a high rate of sensitization to sesame, a result previously reported in literature only once in an EoE Iranian pediatric population. This finding could reflect the role of sesame as emerging global allergen, also in Western Countries. Hypersensitivity to panallergens needs further studies with larger population to evaluate the potential role in EoE etiopathogenesis.

Conflicts of interest: The authors did not specify any links of interest.

100160 | Eosinophilic esophagitis as a late manifestation of the atopic march

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Background: Eosinophilic esophagitis (EoE) is a chronic, immune/antigen-mediated esophageal disease characterized clinically by symptoms related to esophageal dysfunction and histologically by eosinophil-predominant inflammation.

The onset of allergic diseases begins in infancy with atopic dermatitis (AD) and food allergy (FA) and develops into allergic allergic rhinitis (AR) and asthma (AA); the process is defined as "atopic march". Several studies in recent years suggest that EoE is a late manifestation of this process.

Our aim was to analyze the prevalence of atopic march in patients with EoE.

Method: A seven-year retrospective descriptive study was carried out. We selected patients from 3 to 80 years old diagnosed with EoE by pediatricians and gastroenterologists. These data were collected from health research network SAVANA©. The statistical analysis was made

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by SPSS© software version 25. We studied the prevalence of allergic disease (AD, FA, AR, AA) diagnosed by allergist in patients with EoE.

Results: We included: 85 patients (90.5% adults, 70.6% male gender). The mean age of EoE's diagnosis was 35 y.o., the mean onset of EoE symptoms was 3.15 years. We observed that 38.22% of them had a family history of atopy.

The 68% of the patients suffered from at least one allergic disease prior to the diagnosis of EoE: AD (36.2%), FA (48.27%), AR (81%), and asthma (48%).

When comparing atopic patients versus non-atopic, the only significant difference found was family history of atopy: Atopic 90.90% vs Non-atopic 9.09% ($p < 0.001$).

Regarding atopic march, it was demonstrated in the 25.8% of the patients. When comparing patients with atopic march versus patients without atopic march, statistically significant differences were observed in the mean age at EoE's diagnosis: Atopic march 23 y.o. vs Non-atopic march 37.5 y.o. ($p < 0.002$). We also found differences in the mean age at onset of EoE symptoms: Atopic march 19.8 y.o. vs non-atopic march 34 y.o. ($p < 0.003$).

Conclusion: In these patients, most of them suffered from some allergic diseases, although a minority presented the atopic march. This last group tended to be younger with an earlier diagnosis of EoE.

Conflicts of interest: The authors did not specify any links of interest.

IMMUNE DEFICIENCIES AND AUTOIMMUNITY

100094 | Cold urticaria associated with a novel phospholipase-C-gamma-2 (PLCγ2) mutation

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*Presenting author: M. Butze

Background: Phospholipase-C-Gamma-2 (PLCγ2) regulates important cellular functions such as apoptosis/cell survival, migration and immune responses. Mutations within *PLCG2* are associated with rare dominantly inherited diseases with variable clinical phenotypes including cold urticaria, immunodeficiency, and autoinflammation (PLAID/APLAID). Known mutations in *PLCG2* include in frame loss mutations of exon 19 and exons 20–22, and a missense mutation (p.Ser707Tyr).

Method: Genetic analyses of the index patient, following by segregation analyses of further family members were carried out. For detailed analyses of *PLCG2*, amplified transcript versions were subjected to Sanger sequencing. Moreover, we assessed the clinical history, laboratory markers and performed cold contact provocation, immunoblotting, cytokine screening and basophil activation testing (BAT). Further, we transiently transfected COS-7 cells with wild-type (WT) or altered *PLCG2* (ΔExon 19 or ΔExon 18–19) constructs and determined phosphorylation of extracellular-signal regulated kinase (pERK) and total inositol phosphate (IP) formation at different temperatures.

Results: We studied three affected family members with early onset cold-induced pruritic urticarial rash. Segregation analyses indicated an autosomal-dominant inheritance. Direct cold contact provocation was negative and laboratory analyses exhibited elevated levels of S100A8/9 and IgE, whereas IgM levels were decreased. Genetic analyses of autoinflammatory periodic fever syndrome genes (*NLRP3*, *NLRP12* and *PLCG2*) revealed a heterozygous c.2054+5G>T variant in *PLCG2*. Transcriptional analysis acknowledged two additional splice variants indicating a single (exon 19) and double (exons 18 and 19) exon skipping. Western Blot analysis of PLCγ2 from PBMCs showed similar protein expression as compared to controls, suggesting a functional alteration. Moreover, BAT showed lower rates of activated basophils in an affected patient. Transient transfection of altered *PLCG2* constructs showed increased pERK and total IP formation in comparison to WT under physiological and subphysiological temperatures.

Conclusion: We identified a novel mutation variant in *PLCG2* associated with a phenotype of cold-induced urticarial rash and immune dysregulation. Transcriptional analysis indicates the generation of two alternative splice variants due to exon skipping. These deletions are located within a region encoding autoinhibitory domains and result in PLCγ2 signaling abnormality.

Conflicts of interest: The authors did not specify any links of interest.

100279 | A finding of primary immunodeficiency to consider in the differential diagnosis of lung sarcoidosis: Granulomatous lymphocytic interstitial lung disease

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Background: Granulomatous lymphocytic interstitial lung disease (GLILD) is a non-infectious complication of CVID.

Method: We aimed to retrospectively evaluate our PID cases with GLILD.

Results: The mean age of five (3 male/2 female) PID+ GLILD cases was 33.4 years. While the mean age of onset of CVID symptoms was 14.4, the age at diagnosis of CVID was 21.2. Four cases were B lymphopenic (<100/mm3) and all were hypogammaglobulinemic. High IgM levels were observed in two cases. All of the patients were followed under Ig replacement therapy (IgRT; 4 cases IVIg; 1 case subcutaneous Ig). In genetic analyzes performed with whole-exon sequencing (WES) and next-generation sequencing (NGS), cytotoxic

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T lymphocyte antigen-4 (CTLA-4) mutation was detected in 1 case, while no significant pathological mutation was observed in the others. The first presentation findings of the cases diagnosed as GLILD were exertional dyspnea, fatigue, and cough. Two patients with GLILD symptoms and high-resolution computed tomography (HRCT) results were followed up with a diagnosis of sarcoidosis. When the cases were classified according to the CVID Chapel clinical phenotyping (I-IV) and accompanying extrapulmonary involvements, cytopenia, lymphoproliferative disease, and splenomegaly were found in all of them. In the GLILD picture, an increase in lymph node size (>1 cm) and number, ground glass areas and consolidation, solid nodule appearance, and bronchial wall thickening were observed on HRCT in all cases. In 2 cases, the diagnosis was made by open lung biopsy. Firstly, infective processes were excluded and treatment was started with corticosteroid (KS) (0.5–1 mg/kg), in case of progression/relapse, rituximab (RTX) 375 mg/m2/week/4 weeks (CS+RTX combined in 1 case) was applied. IgM values were used as a response to medical treatment and follow-up criteria. In the presence of CTLA-4 mutation, a targeted combination of abatacept and mTOR inhibitor was used in addition to KS. A complete response to RTX treatment was obtained in the cases. Although the GLILD findings regressed with abatacept in the patient with CTLA-4 mutation, the patient died as a result of his enteropathy could not be controlled with an mTOR inhibitor.

Conclusion: GLILD is often confused with sarcoidosis because of clinical symptoms and radiological involvement similar to granulomatous lung diseases. It should be kept in mind that the patients followed up with the diagnosis of CVID have a higher risk of GLILD in the presence of accompanying lymphoproliferation, splenomegaly, and autoimmunity. In this condition, which is challenging to treat and diagnose, the application of KS and other immunosuppressive and immunomodulators for PID, which also increases the risk of infection, requires the experience of the following physicians. In order to make a differential diagnosis with HRCT findings, it is necessary to increase the awareness of internal medicine/chest diseases and radiology physicians.

Conflicts of interest: The authors did not specify any links of interest.

100490 | Delayed diagnosis of ZAP-70 immunodeficiency complicated by EBV-associated diffuse large B-cell lymphoma of the brain

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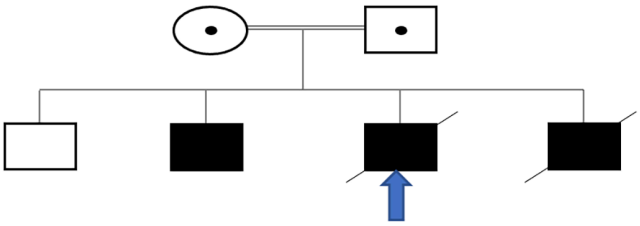
Introduction: The zeta chain-associated protein kinase of 70 kD (ZAP-70) has a major role in T cell receptor (TCR) signaling and is essential for T cell differentiation and function. ZAP-70 deficiency is a rare, combined immunodeficiency. Nevertheless, some patients have detectable lymphoid tissues and a normal lymphocyte count which leads to a delay in diagnosis.

Case descreption: We report a case of a 21-year-old Saudi male with history of persistent failure to thrive, oral thrush, recurrent suppurative lung infection, and CT features of bronchiectasis since childhood. He had been followed in Pulmonology clinic with presumptive diagnosis of diffuse familial bronchiectasis since the patient has a brother with similar history. All the previous immune workup were not conclusive to delineate the etiology for bronchiectasis and recurrent chest infection. On follow-up a couple of years later PID panel was performed and revealed autosomal recessive ZAP70-related immunodeficiency. Patient has a significant family history, a brother who has died of lymphoma, another brother with similar presentation, and PID panel was sent, and ZAP-70 deficiency has been confirmed. Upon referral to Immunology clinic, the patient complained of headache and visual changes, MRI brain illustrated brain mass and biopsy result showed EBV-associated diffuse large B cell lymphoma of the brain. Despite multiple cycles of chemotherapy, patient had a refractory lymphoma and unfortunately, passed away.

Conclusion: In conclusion, ZAP-70 deficiency should be considered in young children with late-onset combined immunodeficiency. Early recognition and diagnosis are critical and referral for Immunology and stem cell transplantation is the mainstay management.

JM case reports session: 19242.



Patient's family pedigree

Conflicts of interest: The authors did not specify any links of interest.

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100499 | Mutation in NOD2 and FOXP3: Diverse clinical outcomes in two brothers

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Common variable immunodeficiency (CVID) is a primary immunodeficiency disorder characterized by impaired B cell differentiation and defective immunoglobulin production, affecting both children and adults. CIVD encompasses a group of hypogammaglobulinemia syndromes resulting from many genetic defects with heterogeneous clinical manifestations.[1,2] The purpose of this study is to present the case of two brothers with the same genetic mutations, but with different clinical outcomes.

Male, GMVR, 61 years old, referred for immunological investigation in the third decade of life after the first episode of severe pneumonia, that required hospitalization in intensive care and respiratory support. He was diagnosed with Common Variable Immunodeficiency (CVID), and started replacement with intravenous immune globulin (IVIG). LGVR, his brother, 25 years old at that time and asymptomatic until then, decided to undergo tests as well, receiving the same diagnosis. LGVR also started IVIG replacement therapy after recurrent respiratory infections. GMVR kept good health, without new comorbidities or serious episodes of infection, while LGVR, despite regular treatment, progressed with asthma and bronchiectasis, and was later diagnosed with MALT lymphoma (2008). His lymphoma relapsed in 2015. He was also diagnosed with steroid-dependent Evans syndrome, type II diabetes, gout, cryptogenic cirrhosis, celiac disease, familial adenomatous polyposis and epilepsy. Genetic testing performed in both siblings in 2021 identified an increase risk allele in the NOD2 gene and a variant of uncertain significance in FOXP3 (entire coding sequence).

This report corroborates the description of diverse clinical presentations under the same CVID diagnosis and highlights the extent to which genetic analysis alone does not define the clinical outcome.

1. Bonilla FA, Barlan I, Chapel H, et al. International Consensus Document (ICON): Common Variable Immunodeficiency Disorders. J Allergy Clin Immunol Pract 2016; 4:38.
2. Seidel MG, Kindle G, Gathmann B, et al. The European Society for Immunodeficiencies (ESID) Registry Working Definitions for the Clinical Diagnosis of Inborn Errors of Immunity. J Allergy Clin Immunol Pract 2019; 7:1763.

JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

100333 | Late onset ADA deficiency presenting with recurrent encephalitis

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Background: Adenosine deaminase deficiency accounts for approximately 20% to 25% of cases of autosomal recessive severe combined immunodeficiency. In the majority of patients, the onset of clinical disease occurs within 1 to 6 months of age, with failure to thrive, diarrhea, persistent oral and perianal candidiasis, and recurrent viral, bacterial, and. other opportunistic infections. In 10%–15% of patients, the onset of disease may occur later than 6 months. Rarely, patients with clinical onset of disease after the second year of life have been recognized.

Method: 9-year-old was admitted with recurrent encephalitis following upper respiratory tract infections. He was born to nonconsanguineous healthy parents and was very well until the age of 6.5 years. He had fever and focal onset tonic-clonic convulsions and was hospitalized at the intensive care unit with the diagnosis of encephalitis at that time. Cranial MRI and CSF examination were found to be normal. Since then, he had 3 similar, milder encephalitis attacks responding to supportive therapy. WES analysis showed a compound heterozygous mutation in ADA gene.

Results: The patient was referred to our clinic to be investigated for primary immunodeficiency diseases as he began to have frequent infections. Immunologic work-up (lymphocyte and neutrophil counts, Ig levels, lymphocyte subsets) were normal for age. In order to exclude the functional effects of the identified mutation, toxic metabolites were checked on a dried blood sample and they were found high. With the diagnosis of late-onset ADA deficiency, elapegademase-lvl was started twice a week and regular IVIG therapy. He had just once an infectious episode during the 1 year follow-up period. Toxic metabolite levels decreased.

Conclusion: ADA deficiency should be kept in mind in the differential diagnosis of patients presenting with recurrent infections and neurologic findings. Regular monitoring of toxic metabolite levels of patients treated wth enzyme replacement is mandatory.

Conflicts of interest: The authors did not specify any links of interest.

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100352 | Precision therapy in a novel primary atopic disorder due to heterozygous GOF STAT6 variant

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Background: Primary Atopic Disorders (PADs) are severe allergic diseases caused by single-gene defects responsible of allergic immunedysregulation.
Signal transducer and activator of transcription 6 (STAT6) is the main transcription factor that mediates the biological effects of IL-4, a key cytokine necessary for type 2 differentiation of T cells, B cell survival, proliferation, and IgE class switching.
Recently, heterozygous *STAT6* variants have been detected in around 20 patients all over the world with profound allergic immunedysregulation, defining a new PAD characterized by severe atopic dermatitis, asthma, food and drug allergies with anaphylactic events, hyperIgE, hypereosinophilia.[1,2,3,4] In vitro and clinical data suggest good response with Dupilumab and JAK-inhibitors.[2,4]
Method: We describe a clinical case of profound allergic immunedysregulation. Diagnostic work-up included immunologic investigations using FACS analysis, clinical exome sequencing (CES) and proteomic approach through Olink assay. She was started on Dupilumab.
Results: A 22 yo-girl presented early-onset refractory atopic dermatitis, recurrent respiratory infections, severe asthma, severe and multiple inhalants, drugs and food allergies, gastrointestinal disorders with not-specific mucosal infiltrate and chronic low-copies EBV infection.
Diagnostic work-up showed hyper-eosinophilia (940–2080/μL), hyper-IgE (699–12,550 kU/L), positive RAST and ISAC test for multiple allergens, reduced frequency of Th17 cells, reduced B cells frequency with normal B cell maturation, reduced *in vitro* T cell proliferation and B cell antibodies production.
CES disclosed a de novo germline heterozygous variant in *STAT6 gene* (c.1255G>A; p.D419N), predicted pathogenic by ACGM.
Proteomic analysis showed a baseline higher percent-change in IL-4 level compared to healthy control, confirming a *gain-of-function (GOF)* role of this variant.
The patient was included in a multicentric study that reported 16 patients.[1]
According to the IL-4 involvement and the data we had, Dupilumab was started but the patient developed a mild adverse event, with a good response in terms of dermatitis and asthma flares in the next month.
Conclusion: A novel autosomal dominant PAD has been defined due to heterozygous *GOF STAT6* variant. Precision treatment with anti–IL-4Rα antibody, Dupilumab, or with JAK inhibitors represent valid therapeutic options.[2,4] More affected patients need to be identified to better describe the natural history and treatment response of this new PAD.

References
[1]*Sharma et al. Human germline heterozygous gain-of-function STAT6 variants cause severe allergic disease. J. Exp. Med. 2023 Vol. 220 No. 5 e20221755*
[2]*Suratannon, N et al. A germline STAT6 gain-of-function variant is associated with early-onset allergies. J. Allergy Clin. Immunol. 2022 151:565–571.e9*
[3]*Takeuchi I et al. STAT6 gain-of-function variant exacerbates multiple allergic symptoms. J Allergy Clin Immunol. 2022 Dec 17: S0091-6749(22)02500-3.*
[4]*Baris S et al. Severe allergic dysregulation due to a gain of function mutation in the transcription factor STAT6. J Allergy Clin Immunol. 2023 Feb 8: S0091-6749(23)00151-3.*

Conflicts of interest: The authors did not specify any links of interest.

100158 | Secondary antibody deficiency (SAD) in non-Hodgkin lymphoma: A single centre observational prospective study

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*Presenting author: C. Discardi

Background: SAD may occur in hematological malignancies, particularly after B cell-targeting treatments, leading to increased susceptibility to bacterial infections with a serious impact on prognosis and QoL. Antibiotic prophylaxis, vaccination, and immunoglobulin replacement therapy (IgRT) are the mainstay of treatment. IgRT is well consolidated in chronic lymphocytic leukaemia (CLL) and multiple myeloma (MM), while evidence is still limited on their use in non-Hodgkin lymphoma (NHL).
Method: We prospectively analysed a cohort of NHL patients referred to our outpatient clinic due to antibody deficiency since Jan 2018. For each patient we collected: specific NHL histology and chemotherapy (CT) regimen, IgG levels at the first detection of hypogammaglobulinemia and trough level (TL) during IgRT, peripheral blood lymphocytes phenotype, infection rate and evidence of bronchiectasis, vaccination response, intravenous (IVIg) and subcutaneous (SCIg) IgRT dosage. The study was approved by the local Ethics Committee.
Results: We enrolled 47 NHL patients – 18 high grade (Burkitt lymphoma, diffuse large B cell lymphoma) and 29 low grade (follicular and marginal zone lymphoma, Waldenstrom macroglobulinemia) – with a median age of 65 yrs and a median follow-up of 2.7 yrs. IgG levels were significantly lower in high- compared to low-grade lymphomas (275.5 vs 354.0 mg/dl; $p=0.0325$; no correlation with B cell %) and in those who underwent HyperCVAD compared to other CT regimens (150.5 vs 313.0 mg/dl; $p=0.0151$), although infection rate was not significantly different. 33/47 patients needed IgRT (median dosage 364 mg/kg/4weeks); their median pre-treatment IgG level was 261.5 mg/dl. 27/33 showed a significant history of infections – recurrent (16, with a median of 3.04 infections in the previous 12 months), severe (9) or with evidence of bronchiectasis (2) – and 6 did not respond to vaccination. Median IgG TL were significantly increased by IgRT (IVIg 771.5 mg/dl,

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$p = 0.0002$; SCIg 878.5 mg/dl, $p = 0.0001$), with no difference between IVIg and SCIg ($p = 0.337$) and a significant decrease of the infection rate ($p = 0.0001$). Only mild adverse reactions were reported (5 with IVIg, 2 with SCIg) leading to discontinuation of treatment in 2 cases.

Conclusion: Treatment of NHL is a substantial cause of SAD. More aggressive lymphomas and CT regimens are associated with lower IgG levels. IgRT (both IVIg and SCIg) is safe and effective in preventing infections.

Conflicts of interest: The authors did not specify any links of interest.

100327 | Acquired angioedema with C1-inhibitor deficiency (AAE-C1-INH)

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*Presenting author: M. Kurowski

A case of 45 -year-old Caucasian male with symptoms of angioedema present since 2020 and history of ischemic vascular events is presented. Symptoms have been appearing daily for the last 18 months and exacerbate after exposure to sunlight or warm water. They are accompanied by fatigue, malaise, low-grade fever, joint and muscle pain. Mild-to-moderate hives have been appearing occasionally with itch or burning sensation. Patient's medical history includes: acute coronary syndrome (2020) and stroke (2021). Antihistamine treatment with 4-fold standard therapeutic doses (bilastine, fexofenadine, rupatadine) led to limited improvement but symptoms tend to subside after NSAIDs intake. ANA (1:320) and c-ANCA (1:40) autoantibodies were present. Further tests showed decreased levels of serum C1-esterase inhibitor (C1inh) concentration 0,052 g/l (normal range: 0.21–0.39), C1-inh activity 34% (normal range: 70–130), C3 0.33 g/l (normal range: 0.90–1.84) and C4 <0.02 g/l (normal range: 0.10–0.40) complement proteins. Repeated testing brought similar results: C1-inh concentration 0.015 g/l, C3 0.40 g/l, C4 <0.02 g/l. Skin histopathological assessment revealed smooth epidermis, with segmental vacuole degeneration of the basal layer and basal hyperpigmentation. Moreover, presence of perivascular clusters of inflammatory cells, mainly granulocytes and lymphocytes with additional presence of dispersed neutrophils has been ascertained. Past and current clinical history as well as laboratory and biopsy findings support the diagnosis of acquired angioedema due to C1-inhibitor deficiency (AAE-C1-INH). Currently patient is maintained on oral methylprednisolone, subject to further immunosuppression in case of symptoms' worsening.

JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

ALLERGY DIAGNOSIS + SYSTEMS MEDICINE 1

100057 | Docetaxel-induced, symmetrical drug-related intertriginous and flexural exanthema (SDRIFE)

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*Presenting author: A. Hampel

Background: A 63-year-old man presented to our allergy outpatient clinic with sharply demarcated, bright red erythema in the buttocks area probably drug induced. He recently started a new chemotherapy with Docetaxel because of a metastatic prostate carcinoma. Since it was not an option to discontinue the chemotherapy, we recommended the use of systemic corticosteroids prior and after every treatment with Docetaxel. Unfortunately, with the second cycle this erythema extended in the mons pubis region, thighs, axillary down and generalized. Because of the location mainly in the intertriginous areal we suspected a Symmetrical drug-related intertriginous and flexural exanthema (SDRIFE).

Method: Skin prick, intradermal, patch test on the upper arms and in loco with Docetaxel and Paclitaxel, as an alternative, were performed according to guidelines.

Results: Skin tests yielded negative results after 20 minutes, 24 hours, and 48 hours, respectively. During our discussion at the last reading day, the patient revealed that the reaction usually starts one week later. We therefore re-evaluated the results of the skin tests after 6 days, which than showed positive intradermal reaction for Docetaxel and fortunately negative for Paclitaxel. This prompted us to recommend paclitaxel for further chemotherapy.

Conclusion: Taxanes are commonly used for the treatment of metastatic or locally advanced cancers. Hypersensitivity reactions to Taxanes are described in 5% to 10%, including a variety of skin reactions such as desquamative rash, hand-foot syndrome, and plaque-like erythrodysesthesia. However, there are no reports of Docetaxel induced SDRIFE until now. Historically, SDRIFE was firstly described as a special entity of a mild hematogenic contact reaction after systemic exposure to contact allergens like inhalation of Mercury vapor, followed by nickel salts, later-on induced by drugs/drug metabolites. The clinical course of SDRIFE usually is benign and self-limited. However, SDRIFE may progress to a generalized maculopapular exanthema if the eliciting drug is not withdrawn. Our case highlights the importance of skin testing in patients with SDRIFE, since the rash can become generalized.

Conflicts of interest: The authors did not specify any links of interest.

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100091 | A novel approach of pooling basophil donors expands commercial laboratory testing of chronic spontaneous urticaria

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*Presenting author: S. Wills

Background: Chronic spontaneous urticaria (CSU) is a prevalent dermatologic disease that can be marked by IgG autoantibodies directed against IgE and IgE receptors on the surface of mast cells or basophils. Recent advances have shown the BAT (Basophil Activation Test) is a reliable flow cytometric method via the detection of CD63 (activation) and CCR3 (basophil and eosinophil) markers, for basophil activation. However, the current assay protocol requires three readily available basophil donors who have high activation of anti-FcƐRI which can be challenging for both the clinical testing facility and the blood donors. The present study defines a novel approach of pooling basophil donors from CBC routine testing to provide a consistent and reliable clinically validated assay for commercial laboratories.

Method: 30 basophil donors (ELISA Basophil IgG > 0.2) were screened for basophil activation using the activation trigger anti-FcƐRI mAb. The following day, the 20 highest CD63+ responders were selected and the non-responders were eliminated, and a pool of 20 blood donors was prepared. CSU Patient sera were then screened with the pooled blood. The precision of the assay was determined with low, intermediate, and high pooled serum. Furthermore, a technical cut-off of the pooled blood was defined for the assay with the 95% CI of 120 normal serum patients with Total IgE (<100) using the chauvenet method for outlier elimination.

Results: Precision was demonstrated for 10 unique basophil donor pools for 10 days. The background for pooled basophils was set to 3.8%–4.0% based on the natural separation between activated and non-activated basophils for multiple donor pools. For the 10 days, the average of the pools activated by the anti-FcƐRI mAb 86.3% (4.3 % CV) across the 10 experiments with precision demonstrated for the low, intermediate and high pooled serum.

Conclusion: BAT is seen as an in vitro surrogate of patient allergic reactions and thus supports the diagnosis of CSU. Here we have shown a robust laboratory method using pooled basophil donors for the expansion of BAT testing in commercial laboratories. The standardization of this assay with results that have been clinically validated tremendously advances patient diagnostics for CSU.

Conflicts of interest: The authors did not specify any links of interest.

100101 | Allergic reaction to mushrooms

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*Presenting author: V. Albéndiz Gutiérrez

Background: Mushroom is a common food but there are few studies about its allergenic character. We present a case of allergy to different kinds of mushrooms and sensitization to molds.

Method: A 31-year-old male with seasonal allergic intermittent rhinoconjunctivitis and bronchial asthma due to cypress, grass and olive pollen as well as dust mites since childhood. During last year, he suffered from labial angioedema and oropharyngeal pruritus 10 minutes after the intake of different kinds of mushrooms, blue-cheese and sausages covered by mold.

Skin prick test with a battery of different mushrooms extracts: *Boletus edulis*, *Agaricus bisporus*, *Macrolepiota procera*, *Lactarius deliciosus*, *Pleorotus ostreatus*, *Lentinula edodes* and *Calobyce gambosa* (Roxall) as well as with molds extract was performed. Prick-prick with fresh *A. bisporus*, *A. brunnescens*, *P. ostreatus*, *Hypsizygus marmoreus* and *L. edodes* was made. Specific IgE to *Alternaria alternata*, *Aspergillus fumigatus*, *Cladosporium herbarum*, *Penicillium notatum* was determined by ImmunoCAP. SDS-PAGE immunoblotting and immunoblotting inhibition were performed with patient's serum.

Results: Skin prick test (SPT) was positive to extracts of *A. bisporus*, *M. procera*, *L. deliciosus*, *A. alternata* and *A. fumigatus*. All the fresh mushroom prick-prick tests were also positive. SPT was positive but less than histamine (6 × 6 mm) to *B. edulis*, *P. ostreatus*, *L. edodes* and *C. gambosa* extracts.

Specific IgE to *A. alternata* was 4.01 kU/L (Alt a 1: 3.34 kU/L), *P. notatum* 1.16 kU/L, *C. herbarum* 1.15 kU/L, *A. fumigatus* 0.86 kU/L.

SDS-PAGE immunoblotting with *Agaricus bisporus* extract showed an intense IgE-reactive band of 19 kDa. SDS-PAGE immunoblotting with extracts from *Pleorotus eryngii*, *L. deliciosus*, *Morchella esculenta*, *M. procera*, *L. edodes* and *Penicillium* showed different IgE-reactive bands between 97 and 30 kDa standing out bands of 39 kDa and 14 kDa in *Penicillium* extract.

Immunoblotting inhibition assay with *A. bisporus* extract in solid phase showed that *P. notatum* extract produced a total IgE binding inhibition on *A. bisporus* extract whereas *A. alternata* did not produce any kind of inhibition.

Conclusion: We present a patient with sensitization to different molds and allergy to various mushroom species.

P. notatum sensitization probably predisposed the patient to suffer from *A. bisporus* allergy due to cross-reactivity.

Conflicts of interest: The authors did not specify any links of interest.

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100216 | Occupational allergic contact dermatitis to methacrylates in a dental clinic worker

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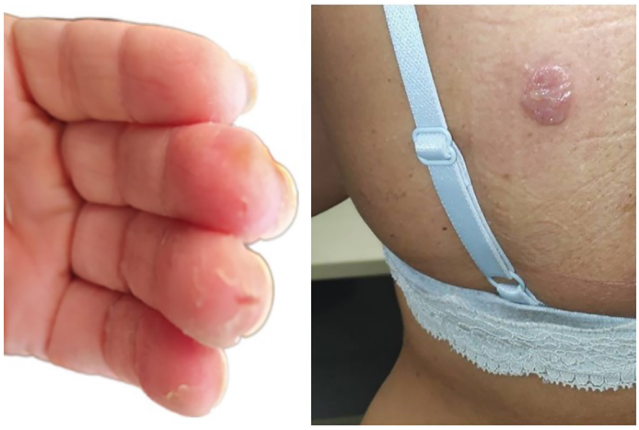
*Presenting author: V. Albéndiz Gutiérrez

Background: Acrylates and methacrylates belong to a group of materials widely used in dentistry due to their mechanical, physical and biological properties. Despite this, they are also a frequent cause of allergic contact dermatitis, producing symptoms in both users and professionals.

Case report: A 43-year-old woman, with no personal history of atopy, was referred to the Allergy Unit for 6-month-old outbreaks of eczematous lesions located on the fingertips and palms of both hands (Fig. 1). Lesions improve with topical corticosteroids and physical barrier measures (use of double nitrile gloves at work). During weekends and holidays, the eczema improves and even completely disappears.

Results: Epicutaneous tests were performed with the standard battery of the Spanish Group for Research in Contact Dermatitis and Cutaneous Allergy (GEIDAC) and a battery of acrylates. Readings were performed at 48 and 96 hours, showing positivity for 2-hydroxyethyl methacrylate (2-HEMA) (Fig. 1). It is verified that 2-HEMA was present in epoxy resin products, which our patient worked with.

Conclusions: We present a female patient working at a dental clinic who was allergic to 2-HEMA, which she regularly used at work. Education in protection measures and workplace adaptations usually solves the problem, although it would be advisable to start using hypoallergenic resins that have been under development in recent years.



JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

100380 | The treatment journey of eastern Mediterranean children with moderate and severe atopic dermatitis: Needs still unmet!

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Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease of varying severity. The moderate to severe spectrum is a major burden on both family/individual lives and health systems.

Aim: To provide insight into the "treatment journey" of pediatric patients with moderate to severe atopic dermatitis in the eastern Mediterranean region.

Method: This retrospective study was carried out in a reference centre for the entire country of Türkiye. Patients aged 1–18 years with a diagnosis of atopic dermatitis and recommended to use systemic treatment were included in the study. Patient characteristics and topical/systemic eczema treatments were reviewed.

Results: During the 14-month study period, 30 (12.5%) of the 240 patients with AD at the study center were discussed in the "dermatology-allergy rounds". Median age of patients was 13.66 years (IQR 7.94–17.27), and 40% ($n = 12$) of the patients were female. The mean follow-up time was 1.6 ± 0.9 years, and the median number of healthcare utilizations for AD in the last year was 4 (IQR, 1.00–8.75). Two-thirds (21/30, 70%) of patients were sensitive to aeroallergens and total IgE, eosinophil counts and percentages during admission were 1980 IU/mL (IQR, 794.50–5446), 650 (IQR, 275–1275) and 6.75% (IQR, 3.80–13.15), respectively. All of these patients were under intermittent and/or regular topical corticosteroid (CS) therapy, and 56.6% used short-term/long-term topical tacrolimus treatment. Of the patients, 57.1% ($n = 17$) used short-term systemic CS therapy more than one course. Additionally, 43.3% ($n = 13$) received systemic cyclosporine treatment and only 30.8% ($n = 4$) benefited from the treatment. Adverse effects in patients who used cyclosporine were hypertrichosis ($n = 1$) and cellulitis ($n = 1$). Only 3 patients could afford dupilumab and all patients completely responded to the treatment, and no adverse effects were reported. Although a JAK kinase inhibitor decision was taken in one patient, the health authority did not approve its use.

Conclusion: Management of moderate to severe atopic dermatitis is costly and difficult due to disease heterogeneity, comorbidities, complexity in care pathways, and health insurance systems. In the Eastern Mediterranean region, treatment steps and reimbursement alternatives for moderate to severe atopic dermatitis in pediatrics need to be clarified.

Conflicts of interest: The authors did not specify any links of interest.

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100411 | A case of fish egg (ROE) allergy with tolerance to finned fish

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*Presenting author: F. Z. El Rhermoul

Background: Globally there is a rise in consumption of fish and its derivatives, likely due to its nutritional value. This has also led to an increase in reports of adverse reactions to fish and its derivatives.

Case presentation: This is the case of a 50-year-old woman who upon consumption of taramasalata (a dip made of cured roe of cod) developed facial hives, throat tightness, vomiting, light-headedness and wheeze. She was treated with two doses of IM adrenaline and, her acute tryptase in A/E was 18 ug/L, suggestive of anaphylaxis. She has since tolerated all other ingredients of the meal. There were previous symptomatic exposures to fish egg, notably six years ago within an hour of consuming fish eggs she developed throat tightness and vomiting. There was also a episode of milder throat tightness and vomiting on consuming foods in contact with fish eggs. Neither episode required medical attention. She continues to tolerate finned fish including salmon, sea bass and tuna.

Prick-to-prick testing to taramasalata was 9 mm, and caviar 5 mm (histamine 6 mm, 0.9% saline 0 mm). Skin testing to various fish and shellfish was unequivocally negative. Her baseline tryptase was 7 ug/L.

Discussion: Fish egg allergy is a rare cause of food anaphylaxis. While more frequently observed as a cause of anaphylaxis in Eastern countries, fish egg is an emerging allergen in Western countries likely due to the increase in fish roe consumption such as sushi dishes. Vitellogenin is the most common protein found in fish eggs. Specifically, the β-component in fish roe has been identified as a major antigen for patients who show hypersensitivity to various fish roes. It is resistant to enzymatic digestion and the reaction to it is often variable and specific to certain types of caviar. However, cross-reactivity to other fish eggs has been reported, especially cross-reactivity between salmon eggs and herring eggs. Interestingly, no cross-reactivity with chicken egg-equivalent proteins has been found. IgE-mediated allergy to roe is possible without concomitant fish allergy. In fish egg allergic patients, cross-reactivity to both fish and various types of roe from different fish species should be explored.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100442 | House dust mite sensitization profile in the Latvian population

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*Presenting author: B. Gonçalves Manha

Background: House Dust Mites (HDM) allergy is a common pathology worldwide however, each area on the globe may be affected by different allergens depending on several factors, such as environmental conditions and social development including the economic status of the country, access to medical facilities, awareness of the population and their immune system.

Multiple studies on this topic have been performed over the years in different countries. In Europe, it is observed that patients are mostly sensitized to HDM major allergens (Der f1, Der f2, Der p1, Der p2 and Der p23). The molecular diagnostic panel "ALEX-Test" has been introduced in Latvia in 2020, therefore only now was possible to elaborate such a research project.

Method: This retrospective study includes all patients who had this test done between February 2020 and February 2022, and that showed a determined IgE concentration to HDM molecular allergens higher than 0.3 kuA/L. The results were statistically analysed with the program RStudio as well as with the data visualization program "dplyr" and "ggplot" and transformed into figures using Microsoft Excel (version 16.69.1).

Results: It consisted of a total population of 130 children and 227 adults. Of those 36.41% ($n = 130$) of the patients were children and 63.59% ($n = 227$) were adults. Regarding the total, 85.71% ($n = 306$) of the individuals were positive for at least one major allergen from groups 1 and 2, and 51.26% ($n = 183$) showed the same result as Der p23. The minor allergen Der p10 was present in 7.84% ($n = 28$) of the study population and Der p20 in 10.36% ($n = 37$).

Conclusion: The sensitization profile in the Latvian population is similar to other European countries. Patients are mainly sensitized to major allergens, including Der f/p1, Der f/p 2 and Der p23. In both groups, was observed that Der p10 and Der p20 (both minor allergens) were also often positive for HDM allergies. This enhances their importance when considering the appropriate treatment plan. Together with Latvian allergologists as well with the obtained results was possible to update the "HDM allergy diagnostic and treatment algorithm" that was created in 2019.

Conflicts of interest: The authors did not specify any links of interest.

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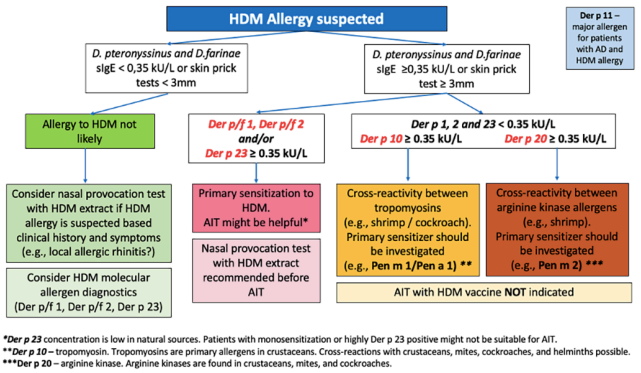

New algorithm for HDM allergy diagnosis and treatment.

100478 | Analytical development, validation and standardisation strategy for test methods of challenge meals which are utilised as oral food challenges (OFCS) for the diagnosis and monitoring of food allergies

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Background: OFCs are currently used to diagnose and monitor food allergy in numerous worldwide therapeutic trials. Regulators are now demanding more stringent characterisation of active substances and optimised analytical techniques for released product. The aim of this study was to develop and validate analytical test methods for unreconstituted challenge meals (containing allergen material and excipients) and allergen material to ensure the controlled release of product to support clinical trials and provide a standardised approach across multiple allergens. There are 3 different strengths of challenge meals for each allergen including a 0% which contains no allergen.

Method: The challenge meal production method is validated with routine operational/verification checks that extend to packaging, storage and facility monitoring to ensure compliance with Good Manufacturing Practice (GMP).

A review of test methods has been undertaken and strategies selected that encompasses scientific rationale for the analytics performed for the characterisation/quality parameters of challenge meal and allergen substance to verify identification, quality control and consistency between manufactured batches. Analytical procedures have been validated to ICH Q2 guidelines in compliance with regulatory recommendations, scientific guidelines, and quality requirements.

Results: Analytical procedures focus on protein content, protein profile, allergenic composition, biological potency, microbial contamination, and other tests as detailed below:

Test	Method
Water	Water Activity
Microbial contamination	British Pharmacopoeia (harmonised with Ph Eur, USP, JP)
Protein content	Kjeldahl on allergen
Protein profile	SDS-PAGE
Allergen profile	Immunoblotting
Potency – allergen content	Protein (milk/egg white/peanut) ELISA for challenge meal base Confirmation of uniformity
Total allergenic activity	In vitro IgE assay
Appearance	Visual, comparable to reference material
Other	Elemental impurities, nitrosamines, residual solvents, extractables and leachables, use tests (reconstitution). Risk assessments as required.

Conclusion: The challenge meals are required to meet defined specifications using fully validated test methods with scientifically justified acceptance criteria before release for clinical use. A standardised approach across multiple allergens has been implemented to ensure the safety, quality, and efficacy of our challenge meals.

Conflicts of interest: The authors did not specify any links of interest.

ASTHMA 2

100055 | Prevalence of self-reported asthma and atopic comorbidities in an adult general population sample from Germany: Results from the study of health in Pomerania

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*Presenting author: K. P. Drewitz

Background: Atopic comorbidities of asthma including allergies and atopic dermatitis (AD) are associated with increased disease severity, exacerbation frequency and medication use, thereby impacting disease management. We aimed to investigate the prevalence of self-reported asthma and atopic comorbidities in a German adult general population sample.

Method: We analysed data from 4,409 participants (aged 20 to 84 years, 51.5% female) from the population-based Study of Health in Pomerania (SHIP) Trend-0, which was conducted from 2008 to 2012 in northeast Germany. In a standardized interview, self-reported asthma was assessed using the question: "Have you had asthma within the last 12 months?" We further collected data on the

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self-reported lifetime history of allergies. Additionally, a subsample of 120 individuals with asthma participated in a dermatological interview, in which we assessed self-reports of AD, hay fever and allergic conjunctivitis. We estimated the prevalence of self-reported asthma with corresponding 95% confidence intervals (CI) in the total study population and stratified by sex. We further analysed the prevalence of atopic comorbidities among participants with asthma.

Results: In the total study population, the prevalence of asthma was 4.23% (95% CI 3.67–4.86). The prevalence was higher in women (4.94%, 95% CI 4.12–5.92) compared to men (3.47%, 95% CI 2.77–4.34) ($p < 0.05$). The lifetime prevalence of any allergy among participants with asthma was 61.02% (95% CI 53.57–67.98), and pollen, dust mite and contact allergy were the most commonly reported allergy types (Table 1). Furthermore, a substantial proportion of participants with asthma reported hay fever and allergic conjunctivitis (30.25%, 95% CI 22.58–39.21, respectively).

Conclusion: Our data are in agreement with findings from previous studies in the German adult general population reporting 12-month prevalences of self-reported asthma ranging from 4.8 to 5.3%. Overall, the comparability of existing studies is limited due to heterogeneity regarding the definition and assessment of asthma and the included study populations, indicating the need for the application of standardized methods in future research. The high proportion of participants with asthma reporting atopic comorbidities highlights the importance of considering the broader context of atopic diseases in disease management.

Table 1: Prevalence of atopic comorbidities in participants with self-reported asthma (n=186)

	N (%)	95% Confidence interval
Allergy		
Lifetime history of allergy	61.02	53.57-67.98
Allergy type		
Dust mite allergy	47.22	37.87-56.77
Pollen allergy	61.11	51.47-69.95
Insect allergy	5.61	2.51-12.06
Food allergy	17.59	11.43-26.09
Contact allergy	23.15	16.05-32.18
Sun allergy	8.33	4.35-15.34
Other atopic conditions (subsample n=120)		
Atopic dermatitis	5.98	2.85-12.14
Hay fever	30.25	22.58-39.21
Allergic conjunctivitis	30.25	22.58-39.21

Conflicts of interest: Prof. Apfelbacher reported consulting fees from Dr Wolff Group, Sanofi Genzyme, LEO Pharma; payment or honoraria for lectures etc. from AstraZeneca; support for attending meetings and/or travel from Dr Wolff Group; and participation on a Data Safety Monitoring Board or Advisory Board in Dr Wolff Group. Prof. Apfelbacher is co-chair of the Harmonizing Outcome Measures for Eczema (HOME) initiative.

100130 | Risk of bias in studies on pre-existing allergic diseases as risk factors for long-COVID symptoms: Results from a systematic review

K. P. Drewitz[1]; A. Ulrich[1]; D. Wolff[1]; D. Siegels[2]; S. Deckert[2]; J. Schmitt[2]; D. Munblit[3]; C. Apfelbacher[1,4]

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*Presenting author: K. P. Drewitz

Background: Long-COVID (LC), also known as post-COVID condition or Post-Acute Sequelae of SARS-CoV-2 Infection is a significant and concerning consequence of acute COVID-19. While the underlying mechanisms of LC are not yet fully understood, recent studies suggest that individuals with pre-existing allergic diseases may be at increased risk of developing LC. This systematic review aims to investigate the quality of studies on allergic diseases and LC.

Method: We systematically searched MEDLINE, Scopus, the WHO-COVID-19 database and the L·OVE platform (Epistemonikos Foundation), and hand-searched studies published between January 1st, 2020 and January 19th, 2023. We included prospective cohort studies that recruited individuals with confirmed SARS-CoV-2 infection (positive RT-PCR test or clinical diagnosis) and information on pre-existing allergic diseases who were monitored for at least 12 months. We assessed the quality of included studies using risk of bias (RoB) assessment practiced by Romero Starke et al. 2019 against eight domains: Recruiting and follow-up, exposure definition and measurement, outcome source and validation, confounding and effect modification, analysis methods, chronology, funding and conflict of interest. A protocol was registered at PROSPERO (CRD42023391245).

Results: We identified 13 eligible cohort studies. Sample sizes ranged from $n = 39$ to $n = 1{,}950$, median age 9.5–65.1 years, 18.4–69.7% female. Ten studies were carried out in a hospital setting, one study among plasma donors, two were population-based. The latter two recruited participants via public health authorities after positive PCR test or via test centres, partnered studies and random postcard mailing. Studies were conducted in Spain ($n = 4$), Switzerland ($n = 2$) and China, Germany, Italy, Luxembourg, Russia, Saudi-Arabia or USA (one each). Exposure (pre-existing allergic diseases) was documented by self-report ($n = 1$) or review of medical records ($n = 9$); three studies did not specify. Outcome (LC) was assessed by self-reports/interviews ($n = 10$) or by a combination of CT scan, physical examination and survey ($n = 3$).

All included studies were subject to high RoB regarding recruitment and follow-up. Exposure measurement was either of high ($n = 8$) or unclear ($n = 5$) RoB. Outcome assessment for LC was at low RoB in only three studies. Funding and conflict of interest were mostly

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rated at low RoB, $n = 10$ or $n = 11$. The overall RoB rating for all studies was high.

Conclusion: The studies are characterised by heterogeneity of settings, study samples, measurement and assessment methods rendering comparisons difficult. All studies were subject to high selection and information bias threatening the validity of the findings. Data will be extracted regardless and narratively summarized.

Reference:

Romero-Starke et al. Are Daycare Workers at a Higher Risk of Parvovirus B19 Infection? A Systematic Review and Meta-Analysis. IJERPH 2019; 16(8).

Conflicts of interest: Dr. Daniel Munblit is principal investigator of the StopCOVID observational cohort study.

100242 | Biomarkers expression, treatment and disease burden in a cohort of Italian patients affected by severe asthma: A sub analysis of the ISAR EVEREST study

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*Presenting author: E. Heffler

Background: Asthma is a heterogeneous disease with a complex pathophysiology that presents with a wide range of clinical manifestations and treatment responses. A deep knowledge of the characterization of severe asthmatic population, together with the associated burden, is essential to better understand disease trajectories. Here, we present the results of a sub analysis conducted on the Italian cohort of the ISAR EVEREST study, with the aim to bring an updated picture of clinical features of Italian patients with severe asthma.

Method: The ISAR EVEREST study described characteristics and unmet needs of subtypes of severe asthma patients including data on biomarkers and eligibility to current treatment. Exacerbation, healthcare resource utilization, and asthma control in the 12 months prior to ISAR cohort entry were described. Analyses were conducted among patients with complete records.

Results: 1424 patients were included in the sub analysis [61.7% female, mean age 55.5 ± 12.9, mean BMI 26.2 ± 4.9, smokers = 52 (3.7%), former smokers = 350 (25%)]. Median blood eosinophil count was 500.0 (IQR, 230.0 – 840.0) cells/μL; 248 (28.5%) patients had <300 cells/μL and 622 (71.5%) had ≥300 cells/μL. Median IgE count was 188.0 (IQR, 71 - 425.5) kU/L; 212 (26.1%) patients had <75 kU/L and 600 (73.9%) had ≥75 kU/L. Median FeNO value was 34.0 (IQR, 19.0 - 60.2); 195 (36.9%) patients had <25 ppb and 333 (63.1%) patients had ≥ 25 ppb. Looking at therapeutic options, use of biologics was reported in 684 (48%) patients, while 245 (17.2%) patients were under long-term OCS use. Asthma was well controlled in 354 (26.5%) patients, while 983 (73.5%) had partially or not controlled asthma. 751 (65.1%) patients had at least 1 exacerbation, in particular 596 (51.7%) had ≥ 2 exacerbations. At least one hospital admission was observed in 154 (12.2%) patients.

Conclusion: In the Italian cohort of the ISAR EVEREST study, patients presented with heterogenous phenotypes and expression of different biomarkers, as expected, being the patients with ≥300 eos/μL and with ≥75 IgE kU/L the most frequent subtype. The concomitant burden of illness, relevant in terms of poor asthma control and occurrence of exacerbations, as well as the high OCS use, highlight the importance of a holistic patient phenotyping and better asthma management.

This abstract is written on behalf of the SANI and ISAR EVEREST Study Groups.

Conflicts of interest: MB: has nothing to disclose. GWC: research grants, lecture or advisory board fees: A. Menarini, Allergy – Therapeutics, AstraZeneca-MedImmune, Boehringer Ingelheim, Chiesi, Faes, Genentech, Guidotti-Malesci, GlaxoSmithKline, HAL Allergy, Novartis, Sanofi-Aventis, Sanofi-Genzyme/Regeneron, Stallergenes-Greer, Thermo Fisher, Valeas, Vifor Pharma. FB: grants and personal fees from AstraZeneca, Chiesi, GSK, Pfizer and Insmed; grants from Bayer; and personal fees from Guidotti, Grifols, Menarini, Mundipharma, Novartis and Zambon. PLP: grants and personal fees from AstraZeneca, Chiesi, Novartis and Sanofi, and personal fees from GlaxoSmithKline, Guidotti, Mundipharma. EH: reports participation to advisory boards and personal fees from AstraZeneca, Sanofi, GSK, Novartis, Circassia, Nestlè Purina, Boheringer Ingelheim and Valeas. LB, MC, DB, GC, GP, AD: have nothing to disclose. CC: personal fees from Menarini. DP: has advisory board membership with Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Viatris, Mundipharma, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme, Teva Pharmaceuticals and Thermofisher; consultancy agreements with Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Viatris, Mundipharma, Novartis, Pfizer, Teva Pharmaceuticals and Theravance; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute Pte Ltd) from AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Viatris, Mundipharma, Novartis, Pfizer, Regeneron Pharmaceuticals, Sanofi Genzyme, Teva Pharmaceuticals, Theravance and UK National Health Service; payment for lectures/

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100346 | The interaction effect between genetic risk score and obesity on asthma and lung function

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*Presenting author: T. H. Tai

Background: Asthma is a chronic disease affecting life and work seriously. An association between asthma and obesity was observed. However, the interaction effect between gene and obesity in Asians, especially in Taiwan, are still lacking. This study aims to evaluate impacts of obesity and SNPs on asthma and lung function. We analyzed interactions between genetic risk scores (GRS) and obesity on asthma.

Method: There were 844 asthma patients, 26480 healthy participants, and 646973 SNPs from the Taiwan Biobank. Genome-wide association study of asthma and lung function was performed. We found the SNPs associated with asthma and lung function and calculated the GRS of different individuals. Then, we compared the obesity status and GRS between asthma and healthy participants. In addition, we identified the association between obesity, GRS, and lung function.

Results: There was a significant interaction between BMI and GRS on asthma and a positive association between obesity and asthma in female. Subjects with high GRS increased asthma risk (OR = 2.214, 95% CI:1.897–2.584). There was a significant interaction between BMI and GRS on FEV_1 (%) (FEV_1 percent predicted). Underweight group found a decrease in lung function. Overweight group was associated with better lung function. Obese group had lower FVC (%) (FVC percent predicted) and higher FEV_1 (%). Subjects with high GRS had 4% decrease in FEV_1 (%), compared to participants with low GRS.

Conclusion: Subjects with obesity or high GRS were associated with higher asthma risk; different status of obesity had different phenotype of lung function. Genetic risk could serve as an early marker to prevent occurrence of asthma and provide new directions for personalized medication.

Conflicts of interest: The authors did not specify any links of interest.

100371 | Features of sensitization and genetic factors in the development of asthma in the Kazakh population

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Background: Asthma is one of the most common diseases both in childhood and in adults with high mortality and disability worldwide, including in Kazakhstan. The incidence of asthma in the Republic of Kazakhstan per 100,000 population over the past 10 years has increased by almost 3 times (43.9 in 2011, 126.1 in 2020).

Previously, we presented data on establishing the relationship between HLA antigens and hay fever in the Kazakh population. 30 years ago, an immunogenetic method was carried out: HLA-typing for 32 antigens A, B, C, DR, DQ specificities. A stronger association of the development of hay fever caused by artemísia was detected with class II antigens (DR2, DR7), somewhat weaker with class I antigens (locus B) - B7, B8, B12.

Many sources describe the mechanisms involved in the formation of a genetic predisposition to asthma, which in turn varies significantly in ethnic groups.

Method: We have studied 300 patients of the Kazakh population aged 5 to 65 years (average 24.81 ± 15.34 years) living in the cities of Astana and Almaty. We have studied 300 patients of the Kazakh population aged 5 to 65 years (average 24.81 ± 15.34 years) living in the cities of Astana and Almaty.

Sensitization detection was carried out on Phadia 250 (Thermo Fisher) equipment with the following allergens: cat (e1), birch (t3), artemísia (nArt v1 w231), ambrosia (w2), timothy grass (g6), Dermatophagoides pteronyssinus (d1), Dermatophagoides farinae (d2), Alternaria alternata (m6).

Results: In the study group, the majority were women - 57.3%, men, respectively - 42.7%.

The highest degree of sensitization was found to the timothy allergen - 9.21 (±20.5), to the cat (e1) - 8.01 (±21.2), to ambrosia (w2) - 7.99 (±18.8), to artemísia (nArt v1 w231) - 7.85 (±19.8).

Conclusion: In comparison with the results of specific allergodiagnostics in the Republic of Kazakhstan 30 years ago, a pronounced sensitization to the artemísia allergen was revealed. However, this study revealed a high sensitization to timothy allergen (9.21 (±20.5)). Currently, a study is underway in the study group to determine more than 100 genotypes of unfavorable polymorphisms (rs12365699, rs4574025, rs11213940, rs3772010, rs11665213 etc.).

Conflicts of interest: The authors did not specify any links of interest.

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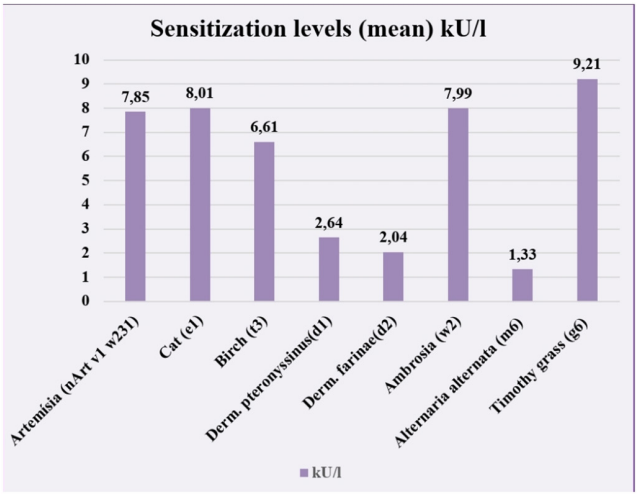

100505 | The importance of assessing obstructive sleep apnoea (OSA) in adult asthma patients

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Background: Controlling asthma symptoms is an important goal of asthma treatment. Despite advances in recent years, such as the availability of diagnostic tests, new treatments and guidelines, asthma control remains a challenge, as non-adherence and comorbidities can jeopardise this objective. Obstructive sleep apnoea (OSA) is considered one of these comorbidities, although its assessment is often overlooked. In this study, we aimed to investigate the association between OSA and poor asthma control in a third-level hospital.

Method: From 1 January to 31 December 2022, we invited to participate asthma patients (with an A2 score ≥ 2) followed in our allergy department. All patients answered a standardised questionnaire with information on general health, asthma control (ACT), OSA (Berlin questionnaire) and treatment adherence (Measure of Treatment Adherence scale). Spirometry with bronchodilation was performed on all participants. For data analysis, we used logistic regression.

Results: We included 212 participants (70% women) with a mean age of 33 (SD: 13.6) years; 26% did not have their asthma under control, 21% had OSA, and 29% were GINA step 4/5. Of the different variables included in the multivariable analysis (sex, age, OSA, BMI, smoking habits, LLN of spirometric parameters, adherence to asthma treatment, GINA asthma severity and allergy sensitisation), the following remained for uncontrolled asthma in the final model: being women (OR: 4.03; CI95%: 1.44–11.12, *p*-value = 0.008), GINA asthma severity (OR: 2.10; CI95%: 0.99–4.51; *p*-value = 0.054) and OSA (OR: 3.44; CI95%: 1.39–8.54, *p*-value = 0.008).

Conclusion: Patients with OSA were more likely to have uncontrolled asthma in our sample. OSA should be investigated in adult asthma patients.

Conflicts of interest: The authors did not specify any links of interest.

COVID 19

100482 | Superior recall responses to BNT162b2 rely on early triggering of the myeloid compartment

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Background: Human immune responses to COVID-19 vaccines display a substantial heterogeneity of induced immunity. The present study was conducted to investigate mechanisms determining low- (LR) and high-(HR) immune responders to mRNA-based COVID-19 vaccines.

Method: In this study, we used a systems immunology approach encompassing in-depth immune cell phenotyping using multicolor spectral flow cytometry, bulk and single-cell-sequencing analysis and serum cytokine measurements sampled immediately before, and 24 h, 48 h and 14 days after the third vaccination with BNT162b2 in 6 HR and 4 LR, to shed light on underlying mechanisms that discriminate LR and HR. Modern bioinformatical tools were used to cross-link data between the different methods, and associate them with vaccine responses. Whole blood transcriptome and serum cytokine data was additionally analyzed in two independant cohorts of 18 and 23 individual vaccinees, respectively.

Results: In-depth immune cell phenotyping revealed only very small changes in the frequency of monocyte populations in our study. However, monocytes from HR but not from LR, isolated 24 h after booster immunization, displayed distinct signatures of transcriptomic activation that significantly correlated with B and T cell immunity measured 14 days later. Interferon-driven genes such as CXCL9, CXCL10 and CCL2 were significantly and compared to LR substantially stronger up-regulated in monocytes of HR, and could be linked to an induction of pathways related to improved antigen presentation and chemotaxis. The connection between transcriptome signatures and high levels of adaptive immunity was further supported by the presence of serum cytokines at 24 h, grouped by unsupervised clustering into modules related to Th1 differentiation pathways. Serum cytokines signatures at 24 h were predictive of day 14 adaptive immunity. Key transcriptome and serum cytokine

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signatures could be replicated in two independant validation cohorts of vaccinees.

Conclusion: In summary, our findings indicate that the quantity of the adaptive immune response to the BNT162b vaccine are largely determined by the quality of the innate immune response within 24 h after vaccination. Using a systems immunology approach, our study reveals early myeloid transcription signatures as determinants of adaptive immunity. Those insights might be used to optimize vaccine designs or initiate more research towards personalized vaccination approaches.

Conflicts of interest: The authors did not specify any links of interest.

100252 | Impact of SARS-CoV-2 exposure to vaccination and infection on cellular and antibody response among CVID patients during COVID-19 pandemics

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Background: Immunization against SARS-CoV-2 represents an essential factor in patients with primary antibody deficiencies despite the uncertain durability of their immune response.

The response to COVID-19 vaccination may require investigation in subgroups such as patients affected by PID due to low response rate, waning immunity, the emergence of variants, and the potential effectiveness of booster doses. To investigate the kinetics of immunity against COVID-19 in a cohort of CVID patients, we evaluated the cellular and humoral response to SARS-CoV-2 elicited by vaccination and/or infection.

Method: We have measured humoral and cellular immunity using quantitative IgG anti-SARS-CoV-2 Spike antibody (anti-S-IgG) and neutralization assay and specific interferon-gamma (IFN-g) release assay (IGRA) before and after the third or fourth dose of BNT162b2 and/or after COVID-19. Data were then compared with healthy controls (HC).

Results: In both groups, the median of total exposures (vaccine shots and/or infection) was 4 events, and both CVID and HC frequently had the infection after the third vaccine dose. The last event was the infection in about 50% of CVID and HC.

Furthermore, 27% of CVID and 0% of HC were simultaneously negative for both neutralizing antibodies and IGRA after three doses, and this rate decreased to 3.70% in CVID in early 2023.

The magnitude of IGRA response to both original and variant S protein in early 2023 was not significantly different between CVID and HC.

In early 2023 (at a median of 223 days after the vaccine/or infection), 33% of CVID and 9.5% of HC had isolated antibody positivity (IGRA negative) with a titer >1:10 PRNT90.

There was a significant difference between groups of neutralization titers to the Wuhan strain (median CVID 1:10; IQR 34,2 HC 1:40 IQR 120) one month after the third dose.

Interestingly, in early 2023 there was no significant difference between neutralization titers to BA.1 in CVID compared to HC (median CVID 1:40 IQR 30, HC 1:40 IQR 150).

Conclusion: This data highlight the increase in the immunogenicity and breadth of COVID-19 mRNA vaccination response in CVID, in parallel to vaccination and accrual number of exposures.

Conflicts of interest: The authors did not specify any links of interest.

100278 | One-month monitoring of cardiac neural control in a hereditary angioedema patient with SARS-CoV-2 infection

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Background: Hereditary Angioedema (HAE) due to C1-inhibitor deficiency is a rare condition, characterised by recurrent swelling mediated by bradykinin release that could be triggered by an infection, such as SARS-CoV-2, through the activation of products of the kallikrein-kinin system involved in the inflammatory processes. It is known that the autonomic nervous system (ANS) could be altered both in the acute and the post-acute phase of the SARS-CoV-2 infection. The evaluation of ANS in a SARS-CoV-2 infected HAE patient has never been described. The analysis of the RR interval (RR) variability derived from continuous ECG monitoring provides non-invasive indices of the vagal and sympathetic branches of the cardiac neural control.

Case description and method: a multiday Holter ECG was acquired by fortuitous circumstances in a female C1-INH-HAE patient (58 y, BMI 29.98 kg·m^2) just the day before the onset of SARS-CoV-2 infection symptoms (PRE), the day of symptoms onset (SYM), the day after SYM (SYM1), after 5 days from SYM (SYM5), the day of the negative nasopharyngeal swab (i.e. 12 days after SYM, SYM12) and one month after the onset of the symptoms (SYM30). Symptoms included fever (up to 39°C) and muscular discomfort lasting for five days. The patient was treated with long-term prophylaxis with lanadelumab.

From the ECG, the RR time series were derived, where RR was defined as the temporal distance between two consecutive R peaks. Mean and variance of the RR series were calculated (μ_{RR} and σ^2_{RR}, respectively). Parametric power spectral analysis was performed: the normalized power in the high frequency band (HF, 0.15–0.04 Hz) of the RR series (HF_{RR}) was taken as an index of the cardiac vagal modulation, while the normalized power in the low frequency band (LF, 0.04–0.15 Hz) of the RR series (LF_{RR}) as an index of the cardiac sympathetic modulation.

Results: compared to PRE, during SYM μ_{RR} was lower (775 vs 1016 ms), σ^2_{RR} was higher (1657 vs 511 ms^2), HF_{RR} was lower (36 vs 75)

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and LF_{RR} was higher (56 vs 25). All the above-mentioned parameters returned similar to PRE in the following days (i.e. SYM1, SYM5, SYM12, SYM30 days). During the one-month observation no attacks occurred.

Conclusion: during SARS-CoV-2 infection the ANS profile in a HAE patient with long-term prophylaxis was characterized by an increased sympathetic modulation only during the first day of symptoms without any further alteration during the course of the disease and the post-acute phase.

JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

100249 | The effect of exposure to SARS-CoV-2 vaccination and infection on humoral and cellular immunity in a cohort of patients with immune-mediated inflammatory diseases

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*Presenting author: G. Costanzo

Background: For patients with immune-mediated inflammatory diseases (IMIDs), immunization against COVID-19 is highly needed, but data on the long-term kinetics of immunity are scant.

We aimed to compare the humoral and cellular response to SARS-Cov-2 induced by vaccination and/or infection in a prospective cohort of IMID patients.

Method: We first evaluated humoral and cellular immunity using quantitative IgG anti-SARS-CoV-2 Spike antibody (anti-S-IgG) and neutralization assay and specific interferon-gamma (IFN-g) release assay (IGRA) before and after the third or fourth dose of BNT162b2 and/or after COVID-19. The responses were compared with healthy controls (HC).

Results: The two groups had similar median age, total exposures (vaccine shots and/or infection, median 4 events), and mostly had the infection after the third dose. Duration of symptoms and swab positivity was similar (<5 and 10 days, respectively); 1/10 infected in the IMID group required hospitalization for COVID-19. IMID and HC were sampled respectively after a median of 140 and 301 days after the vaccine/or infection in early 2023:

- At this point, 90% of HC and 36.4% of IMID were simultaneously positive for neutralizing antibodies (with a titer >1:10 PRNT90) and IGRA.
- 54.5% of IMID and 10% of HC had isolated antibody positivity.
- 0% HC and 6.3% were simultaneously positive for neutralizing antibodies and IGRA.

The magnitude of residual IGRA response to both original and variant S protein in early 2023 significantly differed between IMID and HC (0.16 vs. 1.08 IU/ml, $p < 0.001$).

We didn't find a significant difference between neutralization titers to BA.1 in IMID and HC (median IMID 1:40 IQR 0, HC 1:40 IQR 150). However, among IMID, there was a statistically significant correlation between the number of events (vax and/or inf) and the magnitude of IGRA response to original and variant S protein and neutralizing antibody titers ($p = 0.034$, 0.039 and <0.001, Spearman's test).

Conclusion: Our results express the bold immune response of IMID patients to vaccination against COVID-19 regarding both vaccination and infection.

Conflicts of interest: The authors did not specify any links of interest.

100248 | The impact of asthma on post COVID condition (PCC) and COVID symptoms

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University of Saskatchewan, Saskatoon, Canada

*Presenting author: J. Lawson

Background and purpose: Comorbidity can influence the presence and severity of COVID and Post-COVID Condition (PCC). Understanding the role of conditions such as asthma among those with COVID and PCC will aid in the identification of people at risk of poor outcomes as well as management strategies. Our objective was to investigate the association between asthma and PCC as well as the impact of asthma on those who had COVID.

Method: Through various recruitment methods (advertising, social media, and clinical recruitment), we assembled a cohort of adults with and without a previous SARS-CoV-2 infection. Participants self-completed a questionnaire to determine infection status and symptoms of PCC as well as characteristics around the diagnosis (e.g. severity, time since diagnosis, vaccination status). Information was also collected on socio-demographic factors, presence of chronic conditions, including a previous diagnosis of asthma, and the presence and severity of symptoms associated with PCC.

Results: We recruited 639 participants (71.6% female; mean age = 48.4 years, SD = 15.0) of whom 62% reported previously having a SARS-CoV-2 infection, and, of those, 64% reported PCC. Overall, 18.5% had a previous diagnosis of asthma. PCC was more common among those with asthma compared to those without asthma (76.3% vs 61.4%, respectively, $p < 0.05$). When considering respiratory symptoms, after adjustment for potential confounders, PCC (vs SARS-CoV-2 infection only) was associated with increased likelihood of shortness of breath (SOB), lingering cough, chest pain, sleep problems, and fatigue as well as symptoms of post-exertional malaise ($p < 0.05$) while the presence of asthma was associated with increased risk of SOB ($p < 0.05$). Among those with a history of SARS-CoV-2 infection, those with PCC as well as those with asthma reported higher overall COVID severity after onset and a higher

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likelihood of seeking medical attention for symptoms ($p < 0.05$). Finally, presence of PCC as well as asthma were associated with higher severity of symptoms when considered at its worst as well as at the time of data collection ($p < 0.05$).

Conclusion: PCC was associated with a number of respiratory-related symptoms while presence of asthma was associated with higher severity and higher likelihood of seeking medical attention for many of the same symptoms. These findings suggest that asthma and COVID may exacerbate each other, especially related to PCC.

Conflicts of interest: The authors did not specify any links of interest.

100406 | What sort of health literacy research is important in early childhood allergy prevention and COVID-19 in children with allergies? Participatory priority setting exercise with parents in Germany

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Background: Involving patients and the public in the design, conduct and dissemination of research has gained momentum in recent years. While methods to prioritize research on treatment uncertainties have been successfully applied for various disease entities including asthma and eczema, patient and public involvement has not been prominent to prioritize research in health literacy. We set out to involve parents in prioritizing health literacy research in the fields of early childhood allergy prevention (ECAP) and COVID-19 in children with allergy (COVICAL).

Method: To prepare and empower parents, we offered insights into a variety of research topics in the broad field of health literacy research related to ECAP and COVICAL through webinars. In addition, factsheets, a brochure and a science podcast were developed. Recruitment was supported by our cooperation partner (German Allergy and Asthma Association, DAAB e.V.), via local day care centers and pediatricians as well as via snowballing. We held four face-to-face workshops across Germany and one online workshop facilitated by members of our group, the Health Literacy in Early Childhood Allergy Prevention (HELICAP) COVID-19 group. Research ideas and needs were gathered using the world café method.

Results: 55 participants, of whom 46 provided sociodemographic information (35 women, 11 men; average age: 38.7; college degree: 19.6%; high school degree: 54.3%) voiced an initial 152 research ideas and needs as priorities. These were particularly related to the ease of finding and presenting good quality health information, health communication, individual counselling and treatment, teaching and learning, health education and training, and health literacy testing. We reviewed each individual aspect for overlap and redundancy and mapped them to the existing research state of the art. This resulted in 46 research questions regarding ECAP and 42 questions regarding COVICAL eventually.

Conclusion: Involving parents in the formulation of health literacy research priorities is feasible. To convince parents – who are fairly involved in everyday parenting responsibilities – to invest their time and efforts, researchers need to clearly state the value of their contributions and the priority setting process. Research ideas often reflect wishes for health professionals and the health system, i.e. organisational and systemic health literacy. The identified research questions will be further prioritized using the Delphi technique.

Conflicts of interest: The authors did not specify any links of interest.

DRUG ALLERGY 1

100052 | Paracetamol induced glove and sock syndrome

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Introduction: Papular-Purpuric Glove-and-Sock Syndrome (PPGSS) is a rare disease characterized by symmetrical erythema, defined at wrists and ankles with gloves-and-socks distribution, usually accompanied by fever and is self-limiting. Described in 1990, and since then 18 cases have been described mostly triggered by viral infections, particularly parvovirus B19. There is only one case associated with drugs (trimethoprim/sulfamethoxazole). Diagnosis is clinical, but in severe conditions, detection of virus specific antibody IgM, IgG or viral DNA are required. The pathological mechanisms remain unclear. Although there is evidence of a T-cell-mediated reaction. Treatment is symptomatic.

Material and methods: A 53-year-old male referred by his dermatologist with suspected drug reaction for presenting lesions on feet and hands. In March 2022 the examination revealed papular lesions of purpuric appearance on feet and hand with fever, at 7 days the patient was completely reestablished and all lesions disappeared without sequel. In June 2022, after a dental phlegmon treated with antibiotics and analgesia, he reproduces the lesions. After performing a thorough anamnesis, the patient rectified that he had possibly taken analgesia all the times. The most suspected drug was paracetamol.

Results: There was no deviation in laboratory studies (serology, autoimmunity, proteinogram, hematology, coagulation, urine). Serological for parvovirus B19 IgM was negative, but positive to IgG. Skin biopsy: abundant necrotic keratinocytes, spongiosis with vacuolization of the basal layer with exocytosis and mixed inflammatory

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infiltrate with polymorphonuclear and detritus material in papillary dermis with abundant blood extravasation compatible with toxicoderma. Patch test: celecoxib (10%), meloxicam (10%), paracetamol (1%, 10%), metamizole (1%): negative at double reading (48 and 96 h) Ankle patch test: negative at double reading (48 and 96 h) Oral provocation challenge to paracetamol 500 mg c/8 h, with home dose. After 48 h the purpuric lesions appeared. Positive result. Oral provocation challenge to acid acetylsalicylic 500 mg c/12 h, with home dose for 2 days. Tolerated.

Conclusion: PPGSS is a self-limiting acrodermatitis of unknown pathogeny. Parvovirus B19 is implicated as the etiologic agent in more than 50% of the described cases, but other etiologic agents can also be involved. We present the first case described due to paracetamol, in whom aspirin tolerance has been corroborated, so the only recommendation is to avoid paracetamol.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100115 | Corticosteroids allergy: Our experience

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Background: Corticosteroids (CCs) are widely used in clinical practice because of their potent anti-inflammatory and immunosuppressive effects. However, may act as allergens and cause immediate and delayed hypersensitivity (HS) reactions, the latter are more frequent. Our aim was to characterize patients with HS to CCs and cross-reactivity among different CCs in our clinical practice.

Method: A retrospective study was performed in our Allergy Unit (January-2012 to March-2023). Clinical data were registered from all patients who performed corticosteroids HS. Skin/challenge test was carried out with CCs involved and alternatives if case.

Results: Seventy-four patients were referred due to suspected CCs allergy (18 males and 56 females with a mean age of 54.4 years). 31% history of atopy (RC/asthma/AD) and 14.8% had others drugs allergies. The most frequently implicated CCs were: betamethasone (30%), methylprednisolone and prednisone (12% both) and budesonide (11%). The most frequent route of administration was parenteral administration 51.3% (intra-articular), followed by topic route (inhaled/cutaneous). Of the total, 23% were finally diagnosed as allergic to at least one CC (12 females; mean age 51 years). 37.5% history of atopy and 12.5% drugs allergies. The main culprit CC remains betamethasone (41%) followed by budesonide (23.5%). 65% presented non-immediate reactions: 45.5% allergic contact dermatitis (ACD); 45.5% generalized erythema/maculopapular exanthema (MPE) and 9% no immediate urticaria and immediate reactions (35%): urticaria/angioedema (83%) and anaphylactic shock in 16.6%). In 17 the diagnosis was confirmed: 13 by challenge test with the CC involved, 3 with alternatives and 1 by anamnesis. Skin test was performed in 16 patient and was positive in 1 and patch test in 5 patient with suspected of ACD, all positives. Positive challenge test was carried out with the culprit CCs in 13 patient, and cross-reactivity was found in 9 patients.

Patient	Sex	Age	Culprit drug	Route	Episodes	Type reaction	Patch test	Skin test	Clinical (after challenge test)	Cross reactivity
1	F	53	B	intra-articular	1	NIR (24h)	ND	neg	generalized erythema	no
2	F	76	B	intra-articular	1	NIR (8-12 h)	ND	neg	erythema+disphonia	P, M, D
3	F	57	B	intra-articular	1	NIR (16 h)	ND	neg	EMP+diarrea	no
4	F	62	M, D	topic/intra-articular	2	IR (30 m)	ND	neg	Tongue angioedema+dispnea	D, P
5	M	49	Bu, Ucc	opic -cutaneous/nas	2	NIR (24h)	(+)def	neg	AE/EMP/eczema	D, M (topic)
6	F	48	Bu, Ucc	ic- inhaled/cutanec	>4	NIR (15 d)	(+)M,Bu,H,Ti,C,Fiu,B	neg	ACD/(by proxy)	M,B,H,T,C
7	M	70	B	intra-articular	1	NIR (48 h)	(+) Bu, H	neg	EMP	M, D, Bu, H
8	F	35	C, M	topic- cutaneous	>5	NIR (24 h)	(+) D, Bu	prick (+) D	ACD/generalized eczema	Def, Bu, D
9	F	60	B	intra-articular	1	NIR (24 h)	ND	neg	urticaria+angioedema+dysphagia	P, M
10	F	52	B, T	intra-articular	3	NIR (12 h)	ND	neg	generalized EMP	M
11	F	35	Bu	topic-inhaled	3	NIR (12-24h)	(+) Bu, H,Ti	neg	generalized urticaria/CD (by proxy)	P, D
12	F	21	P	oral	1	IR (30 m)	ND	neg	generalized urticaria+tongue itch	M
13	M	18	M	intravenous	1	IR (10-15 m)	ND	neg	generalized urticaria	no
14	M	56	M	topic- cutaneous	1	NIR (48 h)	(+) M,H,Bu	neg	extensive erythema/ACD	no
15	F	47	B	intra-articular	1	IR	ND	neg	generalized urticaria	M
16	M	81	T	intra-articular	1	IR	ND	ND	D (syncope/cardiorespiratory colaps	ND
17	F	42	Bu	topic-inhaled	1	IR	ND	neg	angioedema+pharyngeal pruritus	no

Conclusion:

- In this study, we show that demonstrated allergy to CCs is higher than expected and is expressed in different clinical entities.
- A complete allergological study including skin/patch and challenge test it is important for the accurate diagnosis to HS due to CCs.
- The finding of cross-reactivity must be proven to provide safe alternatives for the patients.

Conflicts of interest: The authors did not specify any links of interest.

100416 | Low-molecular-weight-heparins induced delayed hypersensitivity reactions: A case series showcasing the experience of a Romanian centre

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*Presenting author: A. Selda

Background: Low molecular weight heparins (LMWHs) are the molecules of choice for the treatment and prophylaxis of thromboembolic conditions. Hypersensitivity reactions induced by LMWHs administrations are not uncommon and generally manifest as delayed reactions. The most frequent type of manifestation is a local one at the subcutaneous injection site, although delayed urticaria and maculopapular exanthema have also been reported.

Method: We present data from a single-centre case series of 4 patients who developed delayed-type hypersensitivity reactions following LMWH administration. They were investigated in our Allergy Unit between January 2020 and September 2021. We recorded age, sex, the pattern and delay of the reaction, the culprit drug, clinical history of atopy, and performed skin testing (prick, intradermal, patch testing) with the culprit LMWH as well as an alternative, followed by a provocation test to find a safely tolerated molecule.

Results: In our case series, all 4 patients were diagnosed with delayed-type hypersensitivity to LMWHs. 3 out of 4 of the reactions were maculopapular exanthemas, with only one patient developing

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delayed urticaria as well as localized dermatitis at the injection site. 3 patients were evaluated roughly 2 years after the reaction and underwent skin prick and intradermal tests (IDT) with delayed reading with both the culprit (enoxaparin/nadroparin) as well as an alternative (nadroparin/enoxaparin). 2 of them had positive IDT to the culprit, but negative for the alternative for which they also tolerated a subcutaneous challenge. One patient had a positive IDT to the alternative. Another patient was evaluated 5 months after the urgent change in treatment (from enoxaparin to nadroparin). The allergy work-up confirmed the delayed-type hypersensitivity to enoxaparin after positive patch testing, but negative IDT with delayed reading.

Conclusion: We found enoxaparin to be the most frequent heparin involved in delayed reactions. LMWHs may induce both maculopapular exanthema and delayed urticaria, the first being more common. Both IDT with delayed reading and patch tests should be used as diagnostic tools, but the subcutaneous challenge test remains the gold standard in LMWHs-induced delayed-type hypersensitivity. Although the limited number of patients included in our study does not allow for drawing specific conclusions, one must keep in mind that, when necessary, switching between LMWHs might be an option.

Conflicts of interest: The authors did not specify any links of interest.

100418 | Evaluation of betalactam challenge safety in delayed drug hypersensitivity patients with negative Cyto-LTT results

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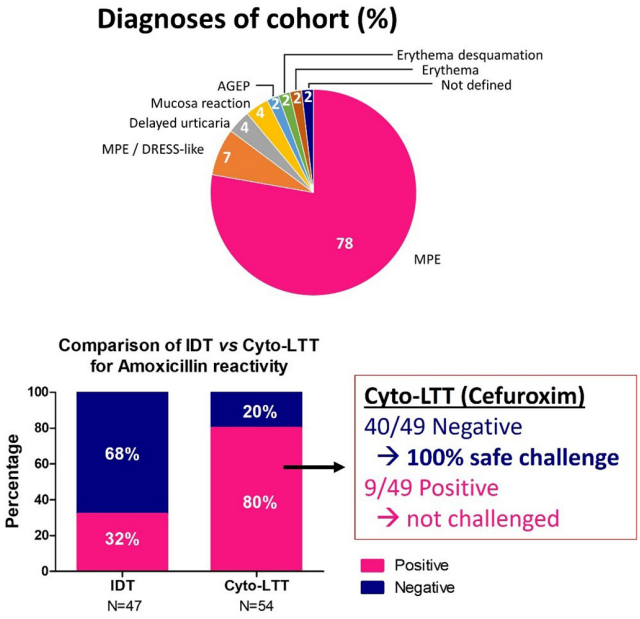
Background: Amoxicillin (AMX) is among the most prescribed betalactam antibiotics with about 3% of individuals developing AMX-specific delayed drug hypersensitivity reactions (DHR). Cefuroxime (CFX) is considered a safe alternative, which needs to be proven by drug provocation tests. They carry the risk of serious adverse reactions. Safety can be improved by pre-testing alternative drugs of similar pharmacological profiles using an *in vitro* test such as the Cyto-LTT where IL-5, IL-13, IFNγ and Granzyme B (GzB) responses by drug-specific T cells are detected.

Aim: Here, we determined the sensitivity of IDT and Cyto-LTT to AMX and CFX in AMX allergic individuals, and whether negative results to CFX in IDT or Cyto-LTT allowed a graded drug challenge to CFX.

Method: We conducted a retrospective review of 54 patients with delayed type DHR (78% MPE, 7% DRESS-like, 16% other symptoms; average DHR onset: 7 days) in a single allergy clinic tested for AMX and CFX from March 2018 – December 2022. Individuals had IDT performed according to EAACI guidelines, and Cyto-LTT for AMX and CFX before the drug challenge. Those with negative CFX results underwent a graded CFX oral challenge (2 days schedule: 1st challenge of 1/100 followed by 1/10 full dose an hour later, then a 2nd challenge with full dose one week later).

Results: Cross-reactivity between AMX and CFX could be detected in 8/54 (15%) of cases by Cyto-LTT. Comparing IDT to Cyto-LTT, AMX allergy was shown in 15/47 (32%) cases with IDT versus 43/54 (80%) cases with Cyto-LTT, suggesting a greater sensitivity with Cyto-LTT. Individuals who had early DHR onset (<3 days) had the highest detectable SI values. IFNγ and GzB SIs were on average lower in those with later DHR onset, but IL-5 and IL-13 remained stable across the different onset times. All individuals with negative CFX Cyto-LTT results safely tolerated the graded CFX challenge.

Conclusion: We show that the Cyto-LTT better detects AMX sensitisation compared to IDT. SI values were highest in those with early DHR onset, perhaps reflecting the presence of more sensitised T cells. Negative CFX Cyto-LTT results correlated 100% with a safe CFX graded challenge in AMX-allergic individuals. Considering that skin tests for delayed DHR has a poor reliability, the Cyto-LTT is therefore a useful method for culprit drug identification by considering DHR-relevant cytokines.



Conflicts of interest: All authors are employees of ADR-AC GmbH performing Cyto-LTT in Switzerland.

100423 | An unusual case presenting with immediate hypersensitivity symptoms but resulted as delayed-intradermal skin test positivity to cefuroxime and bullous-fixed drug eruption on the skin test area of amoxicillin during oral challenge

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Background: We present an unusual case with immediate hypersensitivity reactions to undetermined culprit drugs that resulted in positive-delayed-type skin tests with a bullous-fixed drug eruption at the same time.

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Case: A 57-year-old woman was describing an early reaction to unknown types of antibiotics 3 times during the past 30 years. She described two of her past reactions after the cesarean sections and one of them occurred during an upper respiratory tract infection. She described itching, generalized redness and swelling in the extremities occurring in the 1st hour each time after the drug administration. Based on the patient's medical history, we decided to analyze whether the patient is allergic to beta-lactams or not. Her basal tryptase and Total IgE were 6.41 µg/L and 24.9 kU/l, respectively.

The skin test kit (DAP®; Diater Laboratories, Madrid, Spain) was used to detect beta-lactam allergy. Penicillin major, penicillin minor, penicillin G, amoxicillin, clavulanate, ceftriaxone, and cefuroxime skin tests were resulted negative at the immediate read, and an oral drug challenge was performed with peroral cefuroxime. However, skin test positivity occurred (erythema/induration: 10/5 mm) on the cefuroxime skin test area at the 12th hour (histamin:20/8 mm). Skin biopsy showed mild spongiosis in the epidermis, rare lymphocyte exocytosis, increased vascularity in the superficial dermis, and perivascular lymphohistiocytic cell infiltration. A drug provocation was performed parenterally with ceftriaxone without any hypersensitivity.

Due to the patient's immediate reaction history and negative-resulted immediate skin test, an amoxicillin clavulanate oral provocation test was performed 1 month later. At the 3rd hour, the skin test positivity was observed (erythema/induration: 10/4 mm) on the aforementioned skin test area of amoxicillin, and also, generalized flushing was observed. A bullous-fixed drug eruption occurred 1 day after the positive-resulted drug skin test area. The lesions resolved in one week with topical steroids and oral antihistaminics leaving post-inflammatory hyperpigmentation.

Discussion: This case is unique in clinical allergy practice with a bullous-fixed drug eruption reaction on the intradermal test area just after the oral drug provocation test. In similar cases with drug hypersensitivity to uncertain culprits, we recommend searching for beta-lactam allergy first and fixed-drug eruption should be verified by oral drug challenge.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100435 | Vitamin B12 skin test and drug provocation test to cyanocobalamin: A case report

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Background: Vitamin B12 deficiency is common. The most important source of vitamin B12 is animal products and deficiency of vitamin B12 mostly appears as pernicious anaemia. Vitamin B12 deficiency affects elderly people, pregnant women, vegetarians, and patients with intestinal diseases. Vitamin B12 is given as parenteral treatment or high-dose oral therapy regardless of the underlying cause. Hypersensitivity reaction to vitamin B12 is rare.

Method: Patient experienced burning of eyes, swelling of the lips and severe abdominal pain and difficulty breathing within fifteen minutes of the injection of hydroxocobalamin. Patient was treated with intramuscular adrenaline. Acute serum tryptase was not checked. Patient had B12 injections (hydroxocobalamin) at regular intervals for 3 years previously without any issues.

Patient had skin test at allergy clinic. Skin prick tests to hydroxocobalamin and cyanocobalamin were negative (control 0 mm, histamine 8 mm), proceeded to intradermal testing with the same preparations at 1:100. Cyanocobalamin and hydroxycobalamin were negative, But hydroxocobalamin showed marked flare of 20 mm (no increase in wheal diameter). Intradermal tests at 1:10 dilution was repeated the with a replication of results.

We proceeded to give a test dose of cyanocobalamin in two divided doses. Patient had stable vital signs throughout and up to two hours later. This has confirmed the clinical tolerance to cyanocobalamin.

Results: This case reveals the possible type1 immediate hypersensitivity reaction to hydroxocobalamin and negative provocation challenge to cyanocobalamin following negative skin test.

Conclusion: There is paucity of data for skin testing to Vitamin B12 injections (and to their negative predictive values) and drug provocation test to B12 injections. This patient had a successful vitamin B12 injection (cyanocobalamin) following negative skin test.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100520 | A retrospective analysis of skin-test reactivity patterns in 181 patients with allergy to iodinated contrast media

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Background: The current 2D-classifications of iodinated contrast media (ICM) are insufficient to explain the observed skin tests (STs) reactivity patterns and predict safe alternatives in patients with hypersensitivity reactions (HRs) to ICM. Our study aimed to refine the current view on allergic HRs to ICM by analyzing ST reactivity patterns in patients with previous reactions to ICM.

Method: Patients with a history of HR to ICMs and positive STs, presenting at the University Hospital of Montpellier between 2004

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and 2022, were included in the study. The incidences of ST reactivity for patients with identical culprit ICM (by clinical history) and identical positive ICM at STs were visualized. Odds ratios (OR) were computed for all pairs of products in the immediate (IRs) and non-immediate reactions (NIRs) ST groups.

Results: A total of 181 patients were included in the study. Multiple sensitizations occurred more frequently in patients with NIRs (68.7%) compared to IRs (39.5%). The ICM generating the most frequent positive results at ST was iomeprol (43.3%). Some culprit ICM (by clinical history) such as iohexol, ioversol, and iomeprol exhibited a broad multi-reactivity in both IRs and NIRs ST groups, while others such as iodixanol and, to a lesser extent, iobitridol and iopromide only exhibited broad multi-reactivity in NIRs ST group. When analyzed by subgroups with identical ICM positive at ST, the trend was similar but the effect was diluted. OR results suggested significant associations between classical cross-reactive ICM mainly from the SC class (at least one identical N-(2,3-dihydroxy propyl) carbamoyl Side Chain) in both the IRs and the NIRs ST group, but also some uncommon associations between products from different chemical classes that in fact have a similar 3D structure.

Conclusion: Iohexol, ioversol, and iomeprol generated the most diverse reactivity patterns in both IRs and NIRs ST groups. The OR for co-reactivity identifying positively or negatively associating ICM could guide the choice of an alternative, especially in patients with positive STs. We relate the uncommon positive associations to similarities in ICM 3D structures. Nevertheless, whether the 3D structure can complement the 2D-classifications to fully explain the reactivity patterns requires further research.

Conflicts of interest: The authors did not specify any links of interest.

100528 | Kounis syndrome to ceftriaxone: A case report

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*Presenting author: E. Saracco

Kounis syndrome (KS) is defined as an allergy-mediated acute coronary syndrome which occurs in thecontext of an anaphylactic or anaphylactoid reaction. Both angina and myocardial infarction can occur. Three variants of KS have been described: vasospastic allergic angina without coronary disease (type I),allergic myocardial infarction in patients with pre-existing atheromatous (type II) and stent thrombosis (type III) [1]. Several causes of KS have been reported in literature, including drugs, foods, insect stings. We report acase of KS presenting with transient angina caused by Ceftriaxone.A 61-year old male patient developed anaphylaxis (hitching, hypotension and impaired consciousness) few minutes after IV administration of Ceftriaxone used as prophylaxis for ureteral stent removal, inSeptember 2020. The patient was immediately treated with antihistamines, intravenous adrenaline andsteroids, with progressive clinical improvement. An ECG was done for appearance of chest pain andrevealed an acute ST segment elevation in inferior leads, with a progressive spontaneous resolution ofthe alteration and symptoms in the following hour. Serum tryptase was not performed during the reaction. In consideration of the clinical improvement, neither additional therapy was administered, nor furtherexams were requested. Past medical history included arterial hypertension, diabetes mellitus, dyslipidemia, Berger nephropathycomplicated by renal chronic failure, renal transplantation, but no cardiovascular events. Unexpectedly, medical records revealed another episode of anaphylaxis secondary to Ceftriaxone 4 months earlier during a hospitalization, treated with anti-histamines, steroids and amines. Ceftriaxonewas stopped and replaced by piperacillin tazobactam, with no adverse events. Allergy workup was ruled out firstly dosing specific IgEs against Penicilloyl V, Penicilloyl G, Amoxicillinand Cefaclor, which resulted negative. Skin prick tests (SPT, 1/1 dilution) and intradermal tests (ID:1/100, 1/10 and 1/1 dilution) with Benzylpenicilloyl-poly-L-lysine (PPL) and Minor determinant mixture (MDM) were negative. SPT (2 mg/ml and 20 mg/ml) with Amoxicillin, Ampicillin, Ceftriaxone andCeftazidime were negative too, so ID with increasing diluitions (2 mg/ml and 20 mg/ml) were performed, with a positive result for Ceftriaxone at 20 mg/ml dilution. Serum basal tryptase was in normal range (4.7 mcg/L). In order to demonstrate the tolerability of an alternative beta-lactam, an oral challenge with Amoxicillinwas performed, reaching the dose of 1 gram, without any reaction. In conclusion, KS should be considered in the setting of angina-equivalent symptoms and systemicanaphylaxis. To our knowledge few case reports regarding KS to cefalosphorins and Ceftriaxone inparticular are reported in literature. An allergy workup is mandatory to identify the culprit agent, in orderto prevent future events. Moreover, testing other beta-lactams is fundamental to offer a safe alternative topatients.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

FOOD ALLERGY

100086 | Age-stratified analyses of efficacy and immunological changes during oral immunotherapy for peanut allergy in children aged 1 to <4 years

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*Presenting author: A. Vereda

Background: Oral immunotherapy with defatted powder of *Arachis hypogaea* L., semen (peanuts) (PDAH) has demonstrated efficacy and safety in multiple phase 3 trials and is approved in Europe and the US for the treatment of patients aged 4–17 years with a confirmed

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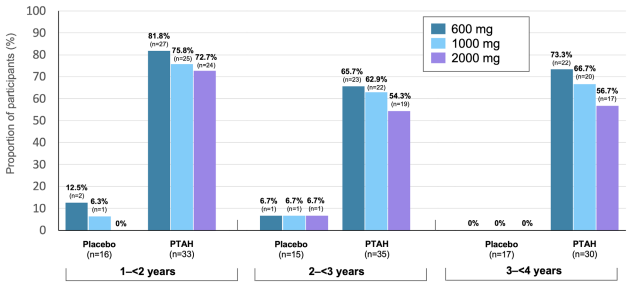
diagnosis of peanut allergy. The POSEIDON trial (NCT03736447) assessed the efficacy and safety of PDAH in younger children with peanut allergy. As other peanut allergy interventional studies have suggested improved benefit in children <2 years, an age-stratified efficacy analysis for POSEIDON is presented.

Method: POSEIDON was a global, double-blind, placebo-controlled, randomised phase 3 trial involving children with peanut allergy aged 1–<4 years. Children who developed dose-limiting symptoms after ingesting single doses of peanut protein >3 mg to ≤300 mg during a screening double-blind, placebo-controlled food challenge (DBPCFC) were randomised 2:1 to daily PDAH or placebo. Participants were treated for a total of ~12 months. The primary efficacy endpoint was the proportion of participants tolerating a ≥1000 mg dose of peanut protein during exit DBPCFC. Exploratory endpoints included analysis of efficacy endpoints in the 1–<2, 2–<3 and 3–<4-year age groups.

Results: Of 146 children receiving treatment (PDAH, $n = 98$; placebo, $n = 48$), approximately one third of the study population fell into each of the three age categories. Overall, 68.4% of individuals receiving PDAH tolerated a dose of 1000 mg peanut protein (2043 mg cumulative) vs 4.2% for placebo at exit DBPCFC (difference, 64.2%; 95% CI, 47.0–81.4; $p < 0.0001$). Response rates were consistently numerically greater in the 1–<2-year group at all dose levels assessed (Figure 1). Decreases in peanut-specific IgE (psIgE) and skin prick test (SPT) wheal diameter were observed across age groups in the PDAH arm; in the placebo arm, psIgE increased for the 1–<2 and 2–<3-year groups, while SPT wheal diameter increased in the 3–<4-year group.

Conclusion: Treatment of peanut allergy with PDAH in children aged 1–<4 years resulted in clinically relevant desensitisation to peanut protein across age groups, with potential efficacy advantages in the youngest (1–<2-year) group. Taken together with changes in peanut sensitisation markers seen in the placebo arm, these results support the notion that an immunomodulatory window of opportunity to intervene in peanut allergy exists. This analysis adds to an increasing body of literature that suggests that immunotherapy may be more successful in younger patients.

Figure 1. Proportion of patients experiencing no more than mild symptoms at each peanut protein dose level at exit DBPCFC.



Conflicts of interest: ST, AV & KB are employees of Aimmune Therapeutics.

100049 | The prevalence of cashew allergy and skin prick test sensitization in 1 year old infants

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*Presenting author: T. Brettig

Background: Cashew is the most common cause of tree nut allergy in Australian children. However, there are limited data on population-level cashew allergy prevalence and risk factors, particularly in infants. We aim to describe the prevalence of cashew sensitization and allergy in 1 year old infants and identify risk factors for developing cashew allergy.

Method: Data was derived from the EarlyNuts cohort, a population-based sample of 12 month old infants recruited from immunization centers around Melbourne, Australia from 2016 to 2019. Families completed a questionnaire and underwent skin prick test (SPT) to four foods – milk, egg, peanut, and cashew. Infants with positive SPTs (≥1 mm) were offered oral food challenges. Questionnaires collected demographic data and food allergy risk factors. Allergy outcomes were determined by OFC or convincing history of an allergic reaction. Weights were used to adjust the estimated prevalence to reflect the distribution of risk factors among the combined sample of participants and non-participants.

Results: 1933 participants were recruited, with cashew allergy outcomes identified for 1414. Of these, 1.96% (95%CI: 1.28–2.99%) had a SPT ≥3 mm and 1.49% (95%CI: 0.91–2.44%) were allergic to cashew (weighted prevalence). Infants with eczema in the first year of life were more likely to be cashew allergic (adjusted odds ratio (aOR) = 5.75, 95%CI: 2.08–15.88, $p = 0.001$). Peanut allergy was strongly associated with cashew allergy (aOR = 19.30, 95%CI: 5.44–68.43, $p < 0.001$). Cashew was introduced prior to 12 months of age for 25% of participants (95%CI: 22.7–27.8%). There was no association between timing of cashew introduction and cashew allergy.

Conclusion: This study describes prevalence of cashew allergy and sensitization in 12 month old infants. Infants with eczema or peanut allergy were at increased risk of cashew allergy. Few infants had been introduced to cashew prior to 12 months of age, suggesting infant feeding guidelines have not yet translated to earlier introduction of all allergens.

Conflicts of interest: SCD has received investigator-initiated grants from Glaxo Smith Kline and Astra Zeneca for unrelated work. KP has received research grants from DBV Technologies, GSK and Novartis and Siolta Therapeutics and consultant fees from Aravax outside the submitted work, paid to her institution. Funders/sponsors had no

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role in the conceptualization, design, data collection, analysis, decision to publish, or preparation of the manuscript.

100367 | Antigen-specific inflammatory CD4+ T cell immune responses in pediatric cow milk allergy

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Background: Cow milk allergy is a highly prevalent food allergy among infants and young children. Allergen-specific Th2 cells and IgE production are associated with loss of tolerance in atopic allergic reactions. However, the allergen-specific T cell immune response associated with non-IgE mediated cow milk allergy remains poorly characterized. Here, we characterize and compare allergen-specific T cell responses in the context of IgE+ and non-IgE mediated cow milk allergy in pediatric subjects.
Method: Pediatric patients suffering from cow milk allergy between 1 and 4 years of age were recruited and grouped into IgE+ (ALL and AD) and non-IgE (ENP) mediated allergic groups based on clinical characterizations and age-matched healthy subjects served as control (CON) group. Cow milk protein (CMP) Ag-specific T cells present in PBMCs isolated from these subjects were restimulated with CMP for 6 h and Ag-specific conventional (Tcon) and regulatory (Treg) CD4+ T cells were characterized based on the expression of CD154+ or CD137+ as markers for Tcon and Treg subsets respectively. Ag-reactive Th cell subsets were further characterized based on the expression of chemokine markers for Th1(CXCR3+), Th2(CXCR3-CCR6-CCR4+), Th9(CCR6+CCR4-), Th17(CXCR3-CCR6+CCR4+CCR10-) and Th22(CXCR3-CCR6+CCR4+CCR10+). We further sorted Ag-reactive Tcons (CD154+) and Tregs (CD137+) for transcriptomic profiling following mRNA sequencing.
Results: In both IgE+ and non-IgE mediated cow milk allergic patients, Ag-specific proinflammatory Tcons showed significant expansion as compared to anti-inflammatory Tregs. Deep phenotyping of Ag-specific Tcons present, revealed an expansion of Th2 subset in IgE+ groups, whereas Th17 subset showed an expansion in the non-IgE group. Treg sub-population analysis revealed a higher expansion of Th17-like subset in IgE+ group who were also clinically presented with atopic dermatitis. Bulk mRNA sequencing and gene expression analysis revealed differential gene expression patterns of TCR signaling pathway associated genes in Ag-reactive Tcon subsets of IgE+ and Non-IgE groups. Genes associated with mTOR signaling, fatty acid metabolism and inflammatory response pathways were differentially modulated in Ag-reactive Treg subsets of IgE+ and Non-IgE groups.
Conclusion: Here, we have characterized Ag-specific T cell differentiation patterns associated with cow mil allergy, wherein we found that the Ag-reactive Tcon (CD154+) subsets were significantly expanded in both IgE+ and non-IgE mediated cow milk allergy as compared to Treg (CD137+) subset. However, there were significant differences in the expansion patterns of Th subsets in IgE+ and non-IgE mediated cow milk allergy. Unlike IgE+ group, Non-IgE group was found to be associated with the expansion of Th17 subset. In addition, we identified the differential gene expression patterns that were associated with IgE+ and non-IgE mediated cow milk allergy. Together, this could possibly explain the underlying differences in the immune responses observed in IgE+ and non-IgE mediated cow milk allergy.
Conflicts of interest: The authors did not specify any links of interest.

100331 | Being food smart- an evaluation of online education on food allergy management in adolescents and parents

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Background: Food allergy (FA) is common in western countries and avoidance of allergenic foods and treatment of accidental reactions constitutes the main approach to management. Inadequate information about managing FA leads to avoidable reactions and increased anxiety around eating thus impacting the quality of life of children and their families. There is a need for better education of patients with FA to improve their health-related quality of life (HRQOL).
This study was devised to assess an educational tool which aims to promote allergen avoidance, improve identification and management of reactions, and provide a balanced perception of food allergy related risks, to determine if the self-efficacy and HRQOL of parents and children with FA could be improved.
Method: An educational video on FA was made available to parents and young people to watch at their convenience. They completed questionnaires on self-efficacy, and food allergy related quality of life before and after watching the video. A pre and post-test analysis of the questionnaires was performed to ascertain if the intervention improved outcomes.
Results: Nineteen parents and 1 young person watched the video and completed pre and post questionnaires after recruitment. No significant differences were found in any of the mean scores for self-efficacy, health-related quality of life, or parental knowledge and skills in managing food allergy. Only one item demonstrated a significant difference: the parent report of 'increased confidence in teaching others about their child's food allergy' ($p < 0.024$). Despite the lack of improvement in HRQOL, parental feedback suggests the video was considered helpful.
Conclusion: The study found that an educational video for parents and children with FA did not improve knowledge or HRQOL assessed with pre and post-test questionnaires. Further work is needed to assess whether this educational tool has value in improving HRQOL in parents and children with FA.

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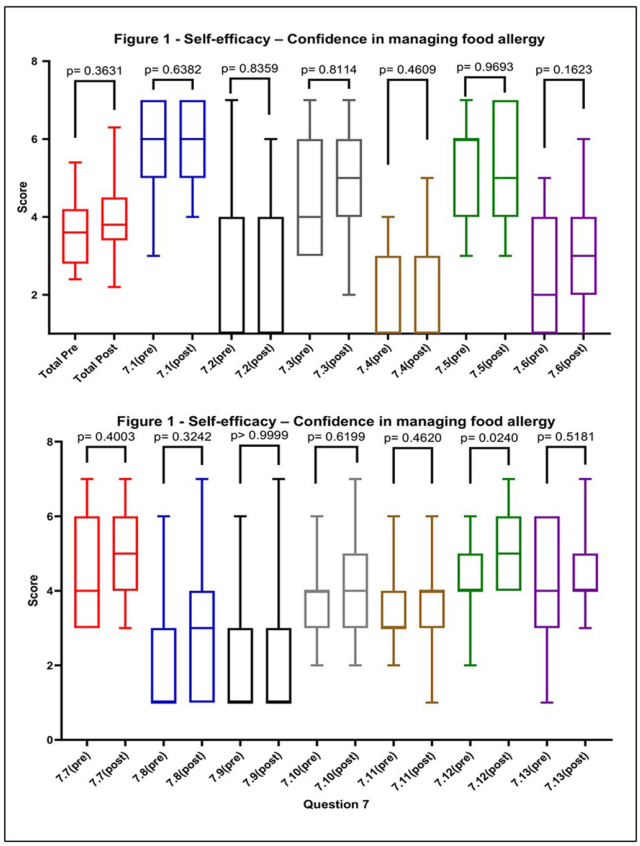

FIGURE 1 Assessment of Self-efficacy. Comparison of pre and post scores ($n = 19$) after intervention (educational video). Wilcoxon signed-rank test was used for comparisons. Box plots indicate median, 25th centile, 75th centile, maximum, and minimum. No statistically significant difference (p value of 0.363) found between the pre and post total mean scores.

Based on the very positive feedback from parents, a further study in a larger cohort, better engagement of young people and assessed over a longer period with a wider range of QOL measures should be conducted to further assess the usefulness of this simple intervention.

Conflicts of interest: The authors did not specify any links of interest.

Table 6 - Parent Feedback

Section 5 – Feedback on educational video (n=19) Question 2	Feedback Questionnaire median (IQR (P25-P75))
Please rate the following aspects of the educational video in order of how helpful they were:	
How to manage allergic reactions	2 (1-4)
How healthcare professionals can help with the diagnosis and management of food allergy	2 (1-3.5)
How to read food labels	2 (1-3)
How to keep safe when eating out	2 (1 -3.5)
How research and new treatments are progressing in food allergy	2 (1-3)
Scale definition: 1 is the most helpful, 3 is helpful, and 5 is the least helpful.	
Section 5 – Overall Feedback (n=19)	**Feedback Questionnaire median (IQR (P25-P75))**
Please rate the allergy educational module that you have watched (0-10)	**8 (8-10)**
Do you think your understanding of food allergy has improved after watching the educational video (compared to what you already knew about food allergies)?	**8 (6.5 -10)**
Scale definition: Rating of module on 0-10: 0- Below average, 6- Good, 10- Excellent	
Understanding of food allergy: 0- No change, 5- Some improvement, 10 Definite improvement	

Parent feedback on quality of different sectios of the educational video and their overall rating of educational video on understanding of food allergy.

100037 | Is there an association between food allergy and the consumption of ultra-processed foods?

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Background: Food allergy (FA) affects about 6% of children and is a cause for concern, as it can compromise growth and development. Recently, the participation of pro-inflammatory components in ultra-processed foods (UPF) in the worsening prognosis and acquisition of FA tolerance has been postulated. To our knowledge, no published studies evaluate the consumption of UPF in FA. The objective was to describe the consumption of UPF by children and adolescents with FA and to verify the association between the consumption of UPF by these individuals with atopic dermatitis (AD) and current breastfeeding (CB).

Method: A cross-sectional, with 110 children and adolescents with one or multiple food allergies and different immunological mechanisms. Food intake was evaluated by the NOVA classification by means of three 24-hour recalls.

Results: The mean age was 5.3 ± 3.4 years, with a predominance of males (60.9%) and IgE-mediated mechanism (61.8%). Foods excluded due to FA were cow's milk (64.5%), egg (43.6%), peanuts (18.2%), soybeans (15.5%), fish (12.7%), wheat (9.1%), nuts (9.1%), crustaceans (5.5%) and others (23.6%). Allergy to only one food was observed in 49% of individuals. Regarding the associated variables, 26.6 ± 12.1% had AD and 10.9% of the children were in CB. The average percentage of UPF intake in relation to total energy consumption (calories) was 33.1 ± 15.7%. Through multivariate analysis, it was observed

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that the intake of UPF was inversely and independently associated with the presence of AD (β = −7.55; CI 95% −14.98 to −0.11; $p = 0.047$) and CB (β = −15.99; CI 95% −26.82 to −5.15; $p = 0.004$).

Conclusion: The present study showed that UPFs account for about one-third of the total energy consumed by children and adolescents with FA. The presence of AD and CB were associated with lower UPF intake.

Conflicts of interest: The authors did not specify any links of interest.

100384 | An unusual case of allergy to onion and other members of the Amaryllidaceae family

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Background: The Amaryllidaceae family comprises bulbous flowering plants, which include ornamental garden plants such as daffodils, and edible plants such as onions, garlic, leeks and chives. Onions have been described to cause contact dermatitis, rhino-conjunctivitis and asthma, but immediate hypersensitivity reactions from ingestion are rare. We describe a patient who experienced multiple reactions to onions and other members of the Amaryllidaceae family.

Case presentation: This 51-year-old lady was previously on a low FODMAP diet. Upon reintroducing cooked onion, she developed immediate abdominal pain and diarrhoea. A few months later, she again ate cooked onions in a roast lamb meal and within minutes experienced chest tightness, dyspnoea and diarrhoea. She since tolerated the same meal without onions.

Subsequently, she ate scallops fried with wild garlic and developed vomiting, light-headedness and syncope. She also reported light-headedness on consuming scallions, and immediate abdominal pain and diarrhoea with chives and leeks. She developed hives after contact with amaryllis garden plants and sneezing with daffodils, both members of the Amaryllidaceae family. Skin prick testing was positive to onion, garlic, scallion, chive and leek with a prick-to-prick technique. It was negative to peach solution. Blood results were positive for onion and garlic allergens but negative for rPru p 3 component.

Discussion: Despite its ubiquitous use in different cuisines, IgE-mediated hypersensitivity to onion is rare. Three major allergens in onion have been identified: All c 3 (lipid transfer protein (LTP)), All c 4 (profilin) and All c alliin lyase. This patient reacted to onions and other alliums that had been cooked, suggesting sensitisation and cross-reactivity to thermostable components. Interestingly, skin prick testing was negative to peach solution, which is used as a diagnostic tool for patients with LTP allergy. Laboratory findings indicate only marginal cross-reactivity between All c 3 and Pru p 3, the peach LTP. However, cross-reactivity between individual members of the Amaryllidaceae family has been demonstrated.

Conclusions: Although rare, onion allergy should be a consideration for the allergist when evaluating patients with unexplained anaphylaxis to foods. Careful history taking is important and should include exploring cross-reactivity to other members of the Amaryllidaceae family. Avoidance can be difficult and adrenaline auto-injectors should be prescribed.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100475 | Development, validation and application of a direct IgE binding ELISA to measure potency of novel challenge meals (and allergenic source materials) which are utilized as oral food challenges (OFCS)

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*Presenting author: G. Mason

Background: We have developed novel challenge meals that are manufactured in accordance with GMP to allow OFCs to be conducted in a standardised and safe manner. For these allergen products to comply with regulatory guidelines, a robust test is required to verify the potency of the challenge meals and the allergenic source material. As there is no standardised method for the determination of potency in challenge meals, the purpose of this study is to develop a direct IgE binding ELISA as a method for measuring potency. We successfully validated multiple assays and determined the potency of a range of challenge meals containing high or low concentrations of egg albumen powder, skimmed milk powder and peanut flour.

Method: Allergenic proteins were extracted from the challenge meal or allergenic source material and coated to a 96 well plate. These were incubated with allergic donor plasma (as a source of IgE) with non-allergic donor plasma used as a negative control. Any IgE bound to the sample extract was detected using an anti-IgE antibody. The amount of IgE bound to the sample was quantified using a standard calibrated against an international standard from the National Institute of Biological Standards and Control (NIBSC).

Results: After initial feasibility studies, the IgE potency assay was validated using a pool of three allergic donor plasma samples and measuring IgE binding to a 0% (negative), low allergenic strength and high allergenic strength challenge meal, as well as the allergenic source material. Subsequently multiple different batches of each sample type were tested for IgE binding using plasma from 10 individual allergic donors plus a pool consisting of equal volume of each of the 10 donors. We demonstrated a correlation between allergenic source material concentration and level of IgE binding, as well as the amount of IgE present in the donor plasma and level of IgE binding to the sample extract.

Conclusion: This study demonstrates the utility of allergic donor plasma to measure potency through direct IgE binding to challenge meals of differing strengths and allergenic source material. This quantitative approach will enable improved standardisation of the product and ensure batch to batch consistency with regards to potency. Our data supports the high quality of the challenge meals

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illustrating the efficacy and safety of use of these products for assessment of allergic patients.

Conflicts of interest: Reacta Healthcare (trading name of Reacta Biotech Limited) and ImmunoServ Limited are independent commercial companies. All work presented is funded solely by Reacta Healthcare and ImmunoServ.

100148 | Implication of gastrointestinal symptoms in lipid transfer protein allergy

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*Presenting author: L. Pereira Dias

Background: Lipid transfer proteins (LTP) are important allergens involved in food allergy. Despite a wide distribution in the plant kingdom, their clinical relevance is largely confined to the Mediterranean area. Main clinical manifestations of IgE-mediated food allergy include gastrointestinal symptoms (GiS) with a considerable impact on quality of life. The authors intend to analyze the prevalence of GiS and clinical characteristics of these symtoms in LTP allergic patients.

Method: Retrospective observational study of patients with allergy to LTPs observed from 2013 to 2022 who had suspected symptoms and positive results for LTPs molecular allergens. Specific IgE to LTP allergens (Prup3, Cora8, Jugr3, Arah9 and Tria14) determined by ImmunoCAP and/or ISAC (TM) microarray. From the 143 patients with LTP sensitization, 6 were excluded due to the absence of clinical manifestations of allergy. A comparative analysis was performed between patients with GiS (abdominal pain/colic; nausea/vomiting; diarrhea or dyspepsia) and without. The influence of demographic, clinical data and foods involved in reactions were analyzed.

Results: This study included 137 patients, 51.1% male, median age 27 ± 14 years (19.5% pediatric age). Forty four percent presented GiS associated with some vegetable food, significantly more frequent in female (61.7% vs 42.9%; $p = 0.03$) and in adult-age (83.3% vs 68.9%; $p = 0.05$). Atopic diseases such as atopic dermatitis, allergic rhinitis, and asthma did not differ between groups. Nine percent presented gastrointestinal disease, such as eosinophilic esophagitis and gastroesophageal reflux, without difference between groups. Fifteen foods were associated with GiS, more frequently nuts/peanut (21.7%), apple (18.3%), peach (18.3%), lettuce (11.7%), legumes (8.3%), corn (5%) and tomatoes ($n = 5\%$). Epitope spreading (43.3% vs 15.6%; $p < 0.01$) and increased severity of allergic reactions (43.3% vs 18.1%; $p = 0.001$) was significantly more often reported in patients with GiS.

Conclusion: GiS are frequent in food allergy, with important implications on quality of life. In our series, they were present in almost half of the population. In the group of patients with GiS, although fruits are the main foods implicated, a significant number of patients showed GiS to vegetables, less frequent than in other series. In our population, the presence of GiS should allert us to the possibilitu of more severe allergic reaction and reaction to other LTP containing foods.

Conflicts of interest: The authors did not specify any links of interest.

100400 | Case report about a peanut-allergic adolescent in whom oral immunotherapy was only successful with an individualized off-label protocol

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*Presenting author: M. Yoosefi Moridani

Background: Since October 2021 the first licensed oral immunotherapy (OIT) for peanut allergic children aged 4–17 years is available in Germany. Despite the successful usage in many children we present here a case of an adolescent in whom a successful OIT was only accomplished with an individualized protocol.

Method: The OIT in the 16 year old male was started in November 2022 in our Allergy Center. Peanut allergy was confirmed with a double-blind placebo-controlled food challenge 3 years ago. There has been one accidental ingestion with a product containing peanut more than 60 days prior to the start of OIT with an anaphylactic reaction grade 3. Peanut-and Ara h 2-specific IgE was >100 kU/l, respectively.

Results: During the initial dose escalation the patient showed mild subjective symptoms at dose 3 mg with nausea and sleepiness and at dose 6 mg mild symptoms of the upper airways. The OIT was continued the following day with 3 mg for the next 14 days. During this time the patient suffered daily from mild symptoms and in agreement with the parents it was decided to try split dosing via an off-label protocol.

However, the updosing continued to be difficult due to recurrent side effects and the adolescent considered at the 80 mg dose to stop the treatment. With shared-decision making, we agreed with the adolescent and his parents on an off-label treatment plan. We went back with the dosage to 20 mg and build in an additional updosing step of 30 mg. In addition, experiences from other patients were used to decrease side effects, such as intake with ice cream or mouth rinsing with cold drinks after every intake. In the following weeks the updosing was performed with additional updosing steps and was well tolerated by our patient. Interestingly, his 15 year old brother with a similar history and similar IgE levels had in parallel an OIT using the regular protocol without any problems.

Conclusion: In our experience OIT for peanut allergy is a helpful treatment and the approved protocol works fine for the majority of patients. However, the experience from this case shows that more flexibility might be necessary in some patients.

Conflicts of interest: S. Lau: Aimmune, DBV, Sanofi, Allergopharma, Leo, GSKK. Beyer: Aimmune, Akademie Fresenius, ALK, Danone, DBV, Hipp, Hycor, Infectopharm, Kantar Health, Mylan, Nestle, Novartis, ThermoFisher.

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100286 | Emerging food allergens in preschool Portuguese children

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*Presenting author: M. Areia

Background: Prevalence and causative food in children's food allergy differs from adulthood and varies considerably among countries. The aim of this study was to determine the foods involved in allergy in preschool children and its differences over the years.
Method: Retrospective study of children aged ≤6 years observed in our allergy consultation for suspected food allergy, from 2013 to 2022. We included those who had confirmed diagnosis of food allergy defined as positive food challenge or convincing clinical history plus positive skin tests and/or positive specific IgE. Culprit food, sociodemographic and clinical data, associated atopic diseases, and allergological study were collected.
Results: We included 105 children, 64.8% males, median age of first allergy consultation 2 years (min. 0; max. 6). Thirty patients had multiple food allergies. Forty percent ($n = 42$) had atopic dermatitis (56.7% in patients with multiple food allergies), 35.2% ($n = 37$) had allergic rhinitis and 21.9% ($n = 23$) had asthma. Fifty-three percent ($n = 56$) were diagnosed with allergy to egg, 26.7% ($n = 28$) to cow's milk, 22.9% ($n = 24$) to peanut/tree nut, 17.1% ($n = 18$) to fruit, 15.2% ($n = 16$) to fish, and 4.8% ($n = 5$) to crustacean/mollusks.
Kiwi was the culprit fruit in 12 patients, with sensitization to Act d 1 in 9 of them. Lipid transfer proteins (LTPs) were responsible for symptoms with fruit ingestion in 5 patients.
Culprit nuts at onset of peanut/tree nut allergy were walnut ($n = 9$), peanut ($n = 6$), cashew ($n = 4$) and hazelnut ($n = 2$). Molecular diagnosis by ImmunoCAP and/or ISAC™ was available for 23 of these patients. Sensitization to storage proteins (SP) was predominant, mainly Jug r 1 (58.3%), Ana o 3 (41.7%), Cor a 9 (41.7%), Ara h 2 (37.5%), Ara h 6 (29.2%) and Cor a 14 (29.2%); 5 patients monosensitized to Jug r 1, all other patients were sensitized to at least 2 SP. In the first reaction to nuts, mucocutaneous involvement was the most frequent manifestation, followed by gastrointestinal and respiratory. Peanut/tree nut allergy diagnosis increased in the last years.
Conclusion: Cow's milk and egg were the most common food allergens in early life, in line with the literature. Kiwi is an important fruit allergen in our population. Although allergy to LTPs is rare in pediatric age, it was diagnosed in 5 preschoolers. Nut allergies appear to be emerging in our pediatric population. Unlike other cohorts, walnut allergy was more prevalent than peanut allergy and Jur g 1 was the main allergen.
Conflicts of interest: The authors did not specify any links of interest.

100038 | Pathogenesis-related PR-10 proteins from banana, MAPR10-BEB5 and MAPR10-GNA5, are potentially allergenic

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*Presenting author: P. Mir-Ihara

Background: Recently two banana proteins belonging to Pathogenesis-Related proteins (PR10) have been described. PR proteins play relevant roles in plant defense against biotic and abiotic stress. In fact, these banana proteins inhibit the growth of aspergillus fumigatus in vitro. Transgenic overexpression of PR10 proteins confers resistance to pathogen infection and drought tolerance without affecting productivity in rice, demonstrating that members of this family of proteins are good candidate genes for agricultural application to protect crops against biotic and abiotic stresses. However, PR10 proteins include Bet v 1-like superfamily, major plant allergens implied in pollen-food allergic syndromes.
Method: IgE western-blotting with recombinant MaPR10-BeB5 and MaPR10-GNA5 with sera of banana allergic patients with PR10 allergens recognition. In silico determination of the IgE epitopes described for Bet v 1-like family of allergens.
Results: 26.6% of banana-allergic patients (4/15) recognized both recombinant allergens in western-blotting. Since these patients presented IgE against other Bet v1 –like family members, Banana PR10 protein has IgE epitopes conserved.
Conclusion: The allergenic potential of PR10 proteins should be considered before their transgenic overexpression to improve the crops, limiting the expression to the tissues of the plant that are not to be consumed by humans.
Conflicts of interest: The authors did not specify any links of interest.

100334 | A questionnaire survey on the prevalence and parents' perceptions of food allergy in a 3-TO 16-year-old population in Wuhan, China

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*Presenting author: R. Zhu

Background: To investigate the prevalence of, parents' perceptions of and their unmet needs for information concerning food allergy (FA) in a 3- to 16-year-old children population.
Method: A cross-sectional survey was conducted from June to July 2021 in three schools in Wuhan, China. A total of 1963 participants were recruited through cluster sampling for their parents to complete an online questionnaire regarding FA. The diagnosis of FA was based on self-reported symptoms and face-to-face physician evaluation. All the participants with FA were asked to complete the Brief Illness Perception Questionnaire (B-IPQ) and a questionnaire

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regarding their unmet needs for disease management. Parents of participants with FA were asked to complete the Food Allergy Knowledge Questionnaire (FKQ) and the Food Allergy Attitude Questionnaire (FAQ).

Results: The prevalence of FA was 6.2% (121/1963) in the 3- to 16-year-old population. The total B-IPQ score was 41.3. The B-IPQ score correlated significantly with symptom onset time ($p = 0.027$). The accuracy rates of FKQ were 45.4% to 74.4% in the parents. 57 (47.1%) were aware that daily antihistamines were not effective in preventing FA and 55 (45.5%) were aware that food additives were not common food allergens. In the FAQ, 94.2% of the parents agreed that the ingredients of food should be clearly labelled. 14.9% of the participants with FA never went to hospital for treatment, but those with higher B-IPQ scores were more likely to seek professional treatment ($p = 0.003$). Among the 121 participants with FA, 118 (97.5%) had tried to obtain disease-management information from online platforms, and 66.9% were dissatisfied with the existing platform; the reasons included incomprehensive contents of illness (45.7%), lack of voice from leading experts (43.2%), too academic to understand (39.5%), too many advertisements (37.5%) and similar contents on different platforms (36.8%).

Conclusion: The prevalence of FA is high in the 3- to 16-years old population in Wuhan, China. Yet the parents' perceptions of and knowledge of FA are generally insufficient. Raising parents' awareness of the diseases and promoting the development of professional platforms that involve clinicians and provide authoritative information are expected to play an important role in the prevention and treatment of FA.

Conflicts of interest: The authors did not specify any links of interest.

100393 | Recognition of nuts and seeds in children and mothers with or without food allergies

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Background: Tree nuts and sesame are among the leading causes of food allergy, especially in late childhood and adolescence. One of the most critical components of food allergy management is the ability of parents and children to avoid the culprit food. This skill is relies on correctly recognizing relevant foods and their products.

Method: Primary caregivers (mothers) and their children (6 to 18 years old) with or without nut and/or seed allergies were shown photographs of nuts and seeds and their products to assess their ability to recognize food accurately.

Results: In this cross-sectional study conducted in an allergy reference center across Turkey, a total of 196 children and 184 primary caregivers were questioned. Of the children, 70 were healthy, 76 had a nut and/or seed allergy, and the remaining 50 had food allergies other than nuts and/or seeds. The median ages of the children and mothers were 7.6 (6.8–10) and 37.8 (33.1–41.5), respectively, and 55.6% ($n = 109$) of the children were male. For tree nuts, peanuts and sesame, more than 80% of the children and more than 90% of the mothers correctly identified the shellless food. In general, the shellless forms of nuts and sesame and their products were recognized 5–10% more accurately than their shelled forms and products. Walnuts, hazelnuts and almonds were the most accurately detected among children and mothers, respectively. The most well-known products were sesame stick, pumpkin dessert with walnuts and baklava, in order. Pine nuts were the least accurately detected in both children and mothers, with an accuracy rate close to 50% and 40%, respectively. There was no consistent differences between the subgroups of children and mothers in terms of recognition characteristics, but the rate of recognition was higher in certain products such as baklava and pumpkin pie.

Conclusion: In Turkish society, nuts and sesame seeds are highly recognized by both mothers and their children. Accurate identification of these foods is likely a culinary feature, but not the result of food allergy and/or increased awareness. More information is needed on whether this ability reduces the risk of exposure.

Conflicts of interest: The authors did not specify any links of interest.

100419 | Translation and adaptation of the IMAP milk ladder into Czech language

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Background: Milk ladder is an important clinical tool used in the care for allergic patients suffering from non-IgE mediated cow's milk protein allergy (CMPA) to gradually reintroduce milk proteins into a patient's diet. CMPA is one of the leading food allergies in young children in the Czech republic similarly to other countries. This tool was originally created by the team of experts in the United Kingdom and has been already adapted and translated into several other languages. Our aim was to address a growing need to have this tool translated and adapted for use with Czech patients.

Method: Apart from the translation itself, there was a need to adjust the tool so that it matches the availability and types of foods typically consumed in the Czech diet since the iMAP Milk Ladder was originally created in the United Kingdom and is geographically specific in terms of food choice. The team consisting of three dietitians working with allergic patients translated the tool together with the associated recipes under the guidance of original authors of the ladder.

Results: The translation and adaptation process resulted in preparing the related tools for testing and validation in practice. Among these tools, there are the milk ladder itself, instructions for parents, recipes for the initial steps and associated fact-sheets.

Conclusion: There is an emerging need for research focusing on CMPA and the impact of using milk ladders in the management and treatment of CMPA in the Czech Republic. This process of

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translation and adaptation of the iMAP milk ladder is a first part of a more complex research work aiming to improve the quality of care for food allergic patients in the Czech Republic.

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Conflicts of interest: The authors did not specify any links of interest.

MASTOCYTOSIS AND MAST CELLS

100285 | Are there any effects of metabolic diseases and physical activity on chronic idiopathic urticaria?

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Background: Obesity, diabetes, hyperlipidemia or hypertonia show a higher prevalence in patients suffering from chronic idiopathic urticaria (CIU) and may also have an adverse effect on disease activity and therapeutic control. Although mechanisms are not entirely clear, common immunological features exist with regard to a dysbalance of pro- and anti-inflammatory cytokines.

Method: Obesity, diabetes, hyperlipidemia or hypertonia show a higher prevalence in patients suffering from chronic idiopathic urticaria (CIU) and may also have an adverse effect on disease activity and therapeutic control. Although mechanisms are not entirely clear, common immunological features exist with regard to a dysbalance of pro- and anti-inflammatory cytokines.

Results: 55 patients (39 female; 70.9%), aged 47.2 ± 14.2 years were included. Patients had a mean BMI of 28.5 ± 7.4 kg/m^2 and a mean hip-waist ratio of 1.11 ± 0.23. Pathologically elevated levels of C-reactive protein were present in 21.8%, elevated Interleukin-6 (Il-6) in 14.5% and increased Serum-Amyloid A in 52% of all patients. A total of 31 patients (56.4%) received therapy with Omalizumab.

Patients with higher BMI values showed higher CRP ($p = 0.005$) and elevated fasting glucose levels ($p = 0.008$), but no correlation with hip-waist-ratio, disease control, disease activity or quality of life was detected. Higher fasting glucose levels were significantly associated with pathologically elevated Il-6, but showed no association to disease activity or control.

Higher physical activity ($p = 0.002$) as well as therapy with Omalizumab ($p = 0.04$) were correlated with a significantly less productivity impairment.

Conclusion: Our first data show elevated proinflammatory markers and a benefit of physical activity on productivity. The trial is ongoing and further investigation of lipid status, adipokines and other proinflammatory markers is pending.

Conflicts of interest: This study is supported by a grant from Novartis.

100522 | The curious case of a non-specific lipid transfer protein syndrome with comorbid monoclonal mast cell activation syndrome and hereditary α-tryptasemia

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Background: Allergy to non-specific lipid transfer proteins (ns-LTP) is a common cause of food-induced anaphylaxis in Mediterranean countries. Mast cell (MC) activation syndromes (MCAS) present with recurrent anaphylaxis and may be classified as primary/clonal (i.e., monoclonal MCAS [MMAS] and mastocytosis), secondary (e.g., Immunoglobulin (Ig) E-mediated), idiopathic, or mixed (i.e., IgE plus MC clonality). Hereditary α-tryptasemia (HαT) may be a risk/modifying factor for anaphylaxis.

Case report: A 58-year-old female with hypertension and depression was referred to our allergy department due to recurrent anaphylaxis. She reported urticaria, cough, dyspnea, and presyncope after ingesting peaches, cherries, plums, and unpeeled apples (but tolerated peeled apples) as well as one episode of syncope after receiving intramuscular penicillin. She also reported weekly abdominal cramps and diarrhea, as well as recurrent presyncope. Physical examination was notable for absent mastocytosis skin lesions.

The allergy workup showed sensitization to ns-LTP (positive skin prick tests to peach and peach peel, and positive specific sIgE to Pru p 3 [11 ISU] and Pla a 3 [1.7 ISU]), with no sensitization to aeroallergens, profilin and latex, and elevated serum baseline tryptase (sBT) levels (16.8 µg/L). Penicillin allergy was excluded following a negative drug challenge. ns-LTP syndrome was diagnosed, and elevated sBT levels were further investigated.

Even though the Red Española de Mastocitosis (REMA) score was negative (0), MC clonality was investigated. Bone marrow workup was notable for spindle-shaped MC with an aberrant immunophenotype (CD25^{lo}, CD2$^-$), but neither compact MC aggregates nor the *KIT*^{D816V} mutation were detected. An MMAS diagnosis was established, but the MC burden seemed discordant with the sBT levels. Thus, *TPSAB1* was genotyped (2α:3β), being compatible with HαT. The final diagnosis was mixed MCAS (LTP syndrome + MMAS) with a comorbid HαT.

The patient was instructed to avoid peaches, cherries, plums, and unpeeled apples and was prescribed a non-sedating antihistamine 2id and an epinephrine autoinjector, plus a glucocorticoid in case of anaphylaxis. nsLTP immunotherapy was suggested, but the patient refused.

Conclusion: Anaphylaxis with an underlying IgE-mediated mechanism does not exclude MC clonality nor HαT, and these should be systematically investigated whenever sBT levels are elevated or the REMA score is positive.

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Conflicts of interest: The authors did not specify any links of interest.

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100273 | Mast cell activation syndrome: Review of a case

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Background: Mast Cell Activation Syndrome (MCAS) is a immune idiopathic disease characterized by the sudden and systemic release of mast cell mediators. MCAS diagnosis requires three criteria to meet: episodic, objective signs and symptoms consistent with mast cell activation affecting a minimun of two organ systems (skin, upper or lower respiratory systems, gastrointestinal, or cardiovascular), the evidence of systemic mast cell-mediator release coursing with the symptoms, and the response to indicated drugs for mast cells stabilization, blocking the mast cell mediators production or their subsequent actions.

Method: A 12-year-old female patient, with a personal history of mild intermittent non-allergic rhinitis, was referred to Allergy Unit for study due to recurrent episodes of flushing, eyelid edema and chest pain, occasionally associated with generalized erythema, abdominal pain, vomiting and arterial hypotension. In all episodes, parenteral treatment with corticosteroids and antihistamines were administered with a marked improvement. The symptoms are not related to food intake or medication use. The determination of triptase plasmatic levels and other blood test were carried out, but no immunological or hematological alterations, organ dysfunction or sensitization to allergens were identified. The score of the Spanish Network on Mastocytosis (REMA) was −1. Oral treatment with antihistamines and cromolyn sodium was started, with no recurrence of symptoms. Intramuscular adrenaline auto-injector was prescribed.

Results

- Serial determination of serum tryptase levels: 5.00 µg/L in the acute phase (approximately one hour after the onset of symptoms), 3.71 µg at two hours and 2.85 µg/L at 12 hours. Basal tryptase was 2.71 µg/L.
- Skin prick test to cow's milk, cod, nuts, peanut, soy, wheat, egg and storage mites was negative.
- Allergy Explorer assay - ALEX (Macroarray Diagnostic) did not detect IgE levels against any allergen.
- Chromogranin A serum levels within the normal range.

Conclusion: The clinical signs and symptoms and complementary tests suggest a diagnosis of Mast Cell Activation Syndrome (MCAS). The importance of triptase peak levels determination for anaphylactoid clinical diagnosis is noteworthy. A precise differential diagnosis is essential, discarting other causes for elevated tryptase levels.

Conflicts of interest: The authors did not specify any links of interest.

100391 | Diphenhydramine as alternative to local anesthetics in patients with systemic mastocytosis

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*Presenting author: B. Petrutescu

Background: Mastocytosis represents a heterogeneous group of clonal mast cell diseases (CMDs), characterized by abnormal proliferation and infiltration of mast cells (MCs) in various tissues. Because anesthetic procedures may lead to MC degranulation, they are considered at risk in patients with CMD. Even using of local anesthetics in CMD can cause pseudoallergic reactions. Diphenhydramine hydrochloride (DPH) is a first-generation, sedating, oral antihistamine. When topically applied, DPH has excellent anesthetic and antipruritic effects. DPH has also been shown to be an effective injectable drug for local anesthesia. Anesthetic properties of DPH has been attributed to its structural similarity with neural blocking agents.

Method: Between January and October 2022, 20 osteomedullary biopsies were performed at the Center of Excellence in Mastocytosis of Bucharest University Emergency Hospital in patients with systemic mastocytosis and a history of pseudoallergic reactions to local anesthetics with amide structure, using DPH as local anesthetic. We infiltrated locally 1 ml to a maximum of 2 ml of 1.5 % DPH solution for local anesthetic purpose.

Results: We observed local irritative reactions, burning sensation, no excessive bleeding and good anesthetic effect. 3 patients presented drowsiness and only one patient experienced dizziness and nausea a few minutes after injection. The onset of the anesthetic effect was slower than in case of lidocaine but duration of anesthesia was longer.

Conclusion: DPH 1.5% solution is our favored local anestethic alternative in patients with systemic mastocytosis and reactions to "caine" anesthetics because it provides good anesthesia with minor side-effects. A local injection of 1.5% DPH provides adequate anesthesia for 80 percent of people within five minutes. The duration of anesthesia is between 15 minutes and three hours and DPH is also inexpensive. When 1.5% DPH is used as a local anesthetic, side effects may occur. Sedation is dose related, and caution is advised with driving when more than 25 mg is injected.

Conflicts of interest: The authors did not specify any links of interest.

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PEDIATRICS

100215 | Studying the effect of SCIT or SLIT on the symptoms and the quality of life in children with allergic rhinitis

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Background: Allergic rhinitis (AR) is an IgE-mediated atopic disorder that is characterized by symptoms of nasal congestion, sneezing, postnasal drip, and pruritus. It affects both adults and children and it is classified as seasonal or perennial. During the last decades, the prevalence of AR has risen affecting 15% of children worldwide making it one of the most common chronic pediatric disorders. Due to the symptoms caused by AR children's quality of life (QoL) is affected. Although a lot of patients have beneficial effects from therapy with antihistamines and/or nasal corticosteroids, allergen immunotherapy (AIT) seems to be the only treatment that can modify the natural course of AR. AIT can be either sublingual (SLIT) or subcutaneous (SCIT). The aim of our study was to assess the clinical benefit of the treatment with SCIT or SLIT in children suffering from AR due to inhaled allergens. In addition to the clinical improvement, we examined the change in the QoL of these children.

Method: The study population consisted of 110 children (6–16 years old), 60 of them underwent treatment with SCIT and 50 of them underwent treatment with SLIT. AR diagnosis based on clinical symptoms, skin prick tests, specific IgEs (ImmunoCap), and allergen component diagnostic tests. The RHINASTHMA questionnaire was completed by the parents.

Results: In the group of children undergoing treatment with SCIT, 65% of them started AIT at an age older than 10 years. Regarding the type of allergens, 56.7% of the children were sensitized to grass pollen, 51.7% to house dust mites (HDM) (*Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*), and 26.7% in fungi (Alternaria Alternata). Furthermore, 55% of these children presented a family history of atopy and 63.3% of them used antihistamines during AIT. As for the SLIT group, 66% of the children started SLIT after the age of 10 years old. 50% of these children were sensitized to HDM, 36% to fungi, and 14% to grass pollen. In addition, 64% of them had a family history of atopy and 40% of them used antihistamines during SLIT. According to the RHINASTHMA questionnaire, 85% of the children undergoing SCIT and 82% of the children undergoing SLIT presented a better score after a year of immunotherapy.

Conclusion: Children suffering from AR who undergo SCIT or SLIT present important clinical improvement and remission of symptoms. Significantly, their QoL is better. Children in both groups have a family history of allergies and the most common inhaled allergens include HDM, fungi, and grass pollen.

Conflicts of interest: The authors did not specify any links of interest.

100358 | Study of the impact of atopic dermatitis in children on the quality of life of families

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Background: Atopic dermatitis is a chronic, relapsing eczema. Although atopic dermatitis occurs mainly in children, it greatly affects the life of the whole family.

The purpose of this study was to assess the quality of life of the family of children with atopic dermatitis and to study the correlation between the severity of atopic dermatitis and the quality of life of family members according to the Family Dermatology Life Quality Index FDLQI questionnaire.

Method: Patients with atopic dermatitis ($n = 104$), aged 6 months - 17 years, median 6 [3;9] years, were included in the study from the Allergy Department of the Kyiv City Children's Clinical Hospital No. 2. Clinical parameters of the patients included age, sex, disease duration and severity of atopic dermatitis. The severity of atopic dermatitis was assessed by the SCORing index (SCORAD scale). Spearman's rank correlation index was used for correlation analysis of FDLQI and SCORAD indicators. A p-value <0.05 was considered statistically significant.

Results: The quality of life of the family of a patient with atopic dermatitis was assessed using the FDLQI questionnaire among parents of 104 children. According to the results of the parents' survey, 4 parents (3.8%) reported no impact of the disease on the family's quality of life, 66 parents (63.5%) reported a small effect on the quality of life, moderate impact was reported in 34 children (32.7%), very large effect – parents of 1 patient (1.0%). The average FDLQI was 6.4 ± 2.8. There was a correlation between the FDLQI indicator and the SCORAD severity index (Ro = 0.714, $p < 0.01$). In the subgroup of children under 4 years of age, a strong correlation between the FDLQI indicator and the SCORAD severity index was found (Ro = 0.789, $p < 0.01$). Children's age and disease duration were not associated with the quality of life score (Ro = −0.011, $p > 0.05$ and Ro = 0.076, $p > 0.05$, respectively).

In the subgroup of children aged 4–17 years, a strong positive correlation of FDLQI indicators and the SCORAD severity index was also determined (Ro = 0.714, $p < 0.01$). The age of the children and the duration of the disease were not related to the quality of life score (Ro = −0.011, $p > 0.05$ and Ro = −0.027, $p > 0.05$, respectively), although in the subgroup of younger children (4–7 years) we noted a tendency towards a greater influence of the family quality of life index, i.e. the disease had a greater impact on the family's quality of life.

Conclusion: In this study, the majority of parents of children with atopic dermatitis reported a mild to moderate impact of the disease on their quality of life. The FDLQI indicator of family members was correlated with the severity of atopic dermatitis.

Conflicts of interest: The authors did not specify any links of interest.

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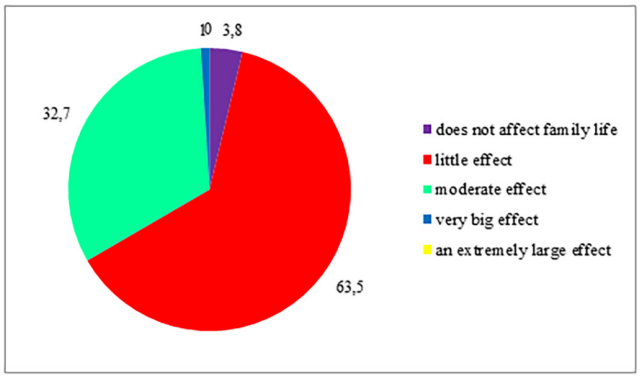

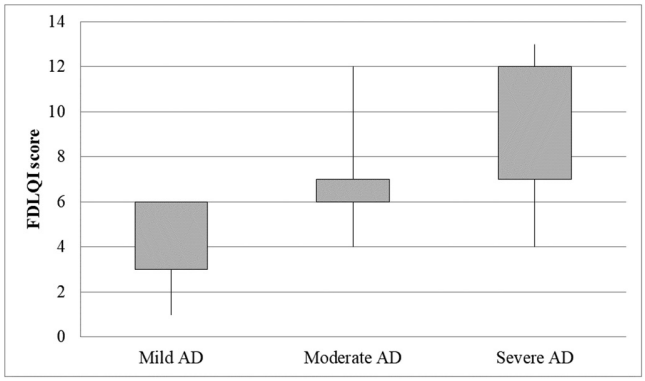

100251 | The sensitization profile in monosensitized and polysensitized children with isolated asthma, isolated rhinitis and combined rhinitis and asthma syndrome

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*Presenting author: T. Umanets

Background: Asthma, rhinitis are associated with allergen-specific IgE and non-allergic mechanisms that may coexist. In recent years the rhinitis, asthma alone and combined rhinitis and asthma syndrome represent three distinct diseases with the differences. Important clinical and immunological differences exist between mono- and polysensitized subjects. Currently, little is known about the sensitization profile of children with isolated asthma, with isolated rhinitis and combined rhinitis and asthma (CARAS) in Ukraine.

The aim To study the sensitization profile in monosensitized and polysensitized children with isolated asthma, isolated rhinitis and CARAS.

Method: One hundred four patients with an established diagnosis isolated asthma, isolated rhinitis and CARAS ages 6–17 were screened for multiplex test (component resolved diagnostics).

Results: Sensitization to only one group of allergens was significantly more common in children with isolated asthma ($p = 0.05$ and $p = 0.04$) than in children with isolated rhinitis and CARAS. Fel d 1 was the only molecule to which children of all groups with monosensitization are sensitive. The Amb a 1 molecule was most often found in monosensitized children suffering from rhinitis associated with asthma, rarely – children with isolated rhinitis, and hardly occurs in children with isolated asthma. Polysensitized children with isolated asthma (87.71 %) are more sensitive to Fel d 1 molecule than children with CARAS (40 %) ($p = 0.003$). Children with isolated rhinitis and with CARAS were significantly more likely to be sensitive to the PR-10 proteins molecule of Bet v 1 ($p = 0.03$, $p = 0.04$), than polysensitized children with isolated asthma. According to the results of this study, high sensitization to profiles in polysensitized children with isolated rhinitis were determined: to Profilins (to date palm Pho d 2 (25.6%), to birch Bet v 2 (23.3%), to latex Hev b 8 (20.9%), to timothy-grass Phl p 12 (20.9%)), as well as the most frequent sensitization to lipocalins (to cat Fel d 4 (28.6%), to house mice Mus m 1 (28.6%)) in polysensitized children with isolated asthma.

Conclusion: Children with allergic respiratory diseases exhibit different sensitization profiles. Sensitization to Fel d 1 looks like a marker of respiratory allergy and was significantly more common in polysensitized children with isolated asthma and with isolated rhinitis.

Conflicts of interest: The authors did not specify any links of interest.

100179 | Clinical features of COVID-19 among children with allergic diseases

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Background: Information on clinical features of COVID-19, caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) among children with allergic diseases is limited and requires further research. The aim of our study was to describe and determine the clinical features of COVID-19 among children with allergic diseases.

Method: The study included 789 children aged from 1 month to 18 years, boys - 438 (55.5%), girls - 351 (44.5%), with laboratory-confirmed Covid-19 from different regions of Ukraine. Patients were divided into two groups: children with allergic diseases - group 1 ($n = 248$, 31.4%) and without - group 2 ($n = 541$, 68.6%).

Results: In 248 allergic children with COVID-19, atopic dermatitis (83.7%) and allergic rhinitis (58.5%) were the major diseases, followed by allergic conjunctivitis, food allergy, asthma, and drug allergy. The most common symptoms among group 1 were a sore throat, dermatological changes (urticaria, maculopapular rash, or vesicular rash), and vomiting ($p < 0.05$). Children with allergic diseases had more fever days 4.7 ± 0.7, versus 3.2 ± 0.7 and had a prolonged catarrhal period – 7.3 ± 0.7 versus 5.1 ± 0.8 ($p < 0.001$). Children in group 2 had a more often severe course of COVID-19 compared to group 1 ($p < 0.05$). 25 patients were in the intensive care unit, and 2 of them were from group 1. There were no fatal outcomes of COVID-19 among the two groups. Children from group 1

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more often had typical ground-glass opacities versus group 2 (62.7% vs 52.1%; $p < 0.05$). Patients from group 1 were older than the patients from group 2 (12.6 ± 4.4 vs. 7.2 ± 1.8 years, $p = 0.016$). Group 1 showed fewer increased levels of CRP, D-dimer, and aspartate aminotransferase levels compared with patients from group 2 ($p < 0.05$), and the lymphocyte level was lower among patients from group 2 ($p < 0.05$).

Conclusion: Children with allergic diseases are also vulnerable to COVID-19, but allergic diseases were not a risk factor for severe SARS-CoV-2 infection and hardly influenced the disease course in children. This research will give additional information about the course of SARS-CoV-2 infection among children with allergic diseases.

Conflicts of interest: The authors did not specify any links of interest.

100066 | Spare Pens in Schools: A survey of uptake in schools in Peterborough UK

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Background: Anaphylaxis is a serious systemic allergic reaction that is usually rapid in onset and may be fatal. On average most schools will have 1-2 children per class with allergies. In the UK 17% of fatal allergic reactions happened in school, which is the driving force behind the Spare Pens in School scheme. Since 1st October 2017, schools can buy spare Adrenaline Auto Injector (AAI) devices without a prescription, for use in emergencies.

Method: This is the second cycle of an audit investigating the use of spare AAIs in local schools. The objectives of this re-audit were to characterise the usage of AAIs in schools, assess the uptake of the Spare Pens in Schools scheme since the first cycle in the summer of 2019 and identify any potential barriers obstructing uptake.

49 schools in Peterborough and the surrounding areas were contacted with a survey. A reply was received from 21, capturing a total of 12527 students.

Results: 10 schools (48%) had heard of the Spare Pens in Schools scheme. However, only 7 (33%) had utilised it, compared to 2 schools (18%) in 2019. The most common reason given for not utilising the scheme was being unaware of it. All schools reported they would be able to treat anaphylaxis immediately, if not within minutes. Encouragingly, 19 schools (90%) had Allergy Action Plans in place for their students with allergies.

Conclusion: This re-audit does show an improvement from the initial audit in 2019. However, the comparison is limited by the fact that only one school reported participating in the original audit, and not all the data from the first cycle is available. Lack of awareness is a key factor preventing uptake of the Spare Pens in Schools scheme. Recommendations for further action include:

- Liaising with the local School Nursing team to share information on the Spare Pens in Schools scheme.
- Training and allergy advice to be offered to those schools who are interested.
- Liaising with the pharmacy lead for the Cambridge and Peterborough CCG regarding funding for schools to obtain AAIs.

Conflicts of interest: The authors did not specify any links of interest.

100518 | The impact of innate lymphoid cells and the microbiome on chronic rhinosinusitis severity in children: A cross-sectional study

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Background: Innate lymphoid cells (ILC) a major role in innate defenses against pathogens, including bacteria. The microbiome has been identified as a significant factor in the pathogenesis of various inflammatory and autoimmune diseases, including chronic rhinosinusitis (CRS), a condition affecting up to 12% of the global population.

This study aimed to evaluate the role of innate lymphoid cells (ILC1, ILC2, and ILC3) and the microbiome composition in the severity of CRS in children.

Method: As part of the open-label randomized control trial, The Response of the Airway in Sinusitis and Asthma (RAISe) study, we assessed the clinical, microbiological, and immunological characteristics of 63 children with chronic rhinosinusitis. We evaluated disease severity using the Sinus and Nasal Quality of Life Survey (SN-5), measured ILC1, ILC2, and ILC3 levels in nasal scrapings; microbial diversity was expressed as OTU richness.

Results: We found a statistically significant relationship between ILC1 levels and CRS severity, suggesting a potential role of ILC1 in the development of the disease. ILC3 were significantly associated with lower microbial richness, but this effect was not strong enough to reflect a worsening in clinical presentation. Finally, while atopy was more common in children with high levels of ILC2, the relationship was not significant, possibly due to the relatively small sample size.

Conclusion: Our results indicate that innate lymphoid cells may play a significant role in the inflammatory processes underlying the development and severity of chronic rhinosinusitis, with ILC1 activation being particularly strongly associated with CRS severity. Further studies are needed to confirm these relationships and to explore potential therapeutic strategies targeting ILCs in CRS.

Conflicts of interest: The authors did not specify any links of interest.

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100463 | A pediatric case of inflammatory bowel disease unclassified associated with non-drug-induced granulomatous interstitial nephritis

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Granulomatous interstitial nephritis (GIN) has been reported in <0.5% of patients with inflammatory bowel disease (IBD). Most cases of GIN are drug-induced; non-drug-induced cases are extremely rare. Herein we report a case of IBD-unclassified (IBD-U) associated with non-drug-induced GIN.

A 13-year-old boy was referred to our hospital for evaluation of abdominal pain, diarrhea, and weight loss of 6 months' duration. He had no respiratory symptoms. The laboratory findings on admission were as follows: CRP, 9.53 mg/dL; creatinine (Cre), 1.37 mg/dL; and c-ANCA, 4.1 U/mL (normal, <3.5 U/mL). A computed tomography scan revealed scattered, weak contrast-enhanced areas in both kidneys. He was treated with antibiotics for suspected pyelonephritis, although the elevated Cre levels persisted and the urine culture was negative. Upper gastrointestinal and capsule endoscopies revealed no abnormal findings. A total colonoscopy demonstrated a loss of vascular transparency, mucosal adhesions, and rough mucosae in the cecum and sigmoid colon. Histologic evaluation of the colon biopsy specimen revealed granulomatous lesions and abundant crypt abscesses. The renal biopsy specimens showed GIN, but no necrotizing and crescentic glomerulonephritis. He was diagnosed with IBD-U and GIN. The pediatric ulcer colitis activity score was mild, thus he was treated with 5-aminosalicylic acid; however, the abdominal pain persisted. Administration of prednisolone (1 mg/kg) improved the abdominal pain, and the Cre level and c-ANCA titer decreased. A total colonoscopy performed 2 months later confirmed mucosal healing and a renal biopsy specimen obtained 5 months later showed scarring and disappearance of inflammatory cells. Based on the histologic findings, the prednisolone dose was gradually tapered.

Most cases of GIN in patients with IBD are induced by 5-aminosalicylic acid. The pathophysiology of non-drug-induced GIN in IBD is unknown, although common granuloma formation in the intestines and kidneys in our patient suggests a common underlying inflammatory process.

In conclusion, a renal biopsy should be performed before treatment in IBD patients with renal dysfunction of unknown origin. A histologic evaluation facilitates an accurate diagnosis and the appropriate treatment strategy.

Written informed consent was obtained from the parents of the patient for this case presentation.

JM case reports session: 19243.

Conflicts of interest: The authors did not specify any links of interest.

100083 | Allergy to shellfish due to an uncommon allergen

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Introduction: Shellfish allergy is one of the most important causes of food allergy. For many years, tropomyosin was considered to be the only protein responsible for the allergic reaction, and also for the cross-reaction between crustaceans and mites. However, in the last few years, other molecules have been also identified.

Case report: A sixteen-year-old girl with a history of asthma and rhinitis sensitized to dust mites, presented with pharyngeal and ear canal itching as well as lip swelling one hour after eating a mixture of shellfish. She was treated in the Emergency Department with corticosteroid and antihistamine with effect. Prior to the episode she had tolerated shellfish without symptoms.

In outpatient consultation an investigation was performed. Skin prick test and prick-prick test were positive to crab, shrimp and surimi. A blood test work-up revealed specific IgE (UI/ml) against extracts from shrimp = 2.06 and crab = 0.6, and the ImmunoCAP ISAC did not show sensitization to any tropomyosin, as expected. An SDS-PAGE immunoblotting study was carried out, revealing an IgE-reactive band of aproximately 18.5 kDa, present in many crustaceans and mites' extracts, molecular mass compatible with troponin C. The clinical history and the Immunoblotting-inhibition assay led us to suppose that the primary sensitization occurred by inhalation of the 18.5 kDa protein from the dust mites, and this sensitization predisposed the patient to have shellfish allergy.

Discussion: This clinical case describes an adolescent presenting with an allergic reaction after eating shellfish. Our investigation showed a cross-reaction between shellfish and dust mites due to a protein other than the well-known panallergenic tropomyosin, that was considered for years as the only cross-reacting allergen between shrimp and house dust mites.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100227 | Unexpected diagnoses in pediatric allergology: The importance of a complete workup

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Adequate complementary exams, requested after a thorough anamnesis and examination, are of extreme importance when evaluating a patient, leading to the correct diagnosis.

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Case 1: Female adolescent of 14 years old followed at Pediatric Imunoallergology consultation due to asthma and rhinoconjunctivitis sensitized to grass pollens. She was treated with nasal corticoid, antihistamine and with 3 years of specific immunotherapy to grass pollens with initial improvement of nasal symptoms, but posterior recurrence of perennial nasal obstruction, snoring, sleep apnea and predominant oral respiration. On examination, she presented a piercing at the right nostril, rhinorrhea and nasal turbinates' hypertrophy, more accentuated on the right. Removal of the piercing was advised, but she kept the complaints. An ImmunoCAP ISAC was performed, showing sensitization mainly to grass pollens. She was then referred to an otorhinolaryngology appointment. On inspection, a cyst on the posterior oropharynx was detected, pushing the soft palate. A computerized tomography was performed, revealing a voluminous polypoid formation on the dependence of the inferior nasal turbinate, projecting to the pharyngeal cavum, causing airway obstruction. Surgical extraction of this formation was performed without complications and with improvement of symptoms.

Case 2: Female adolescent of 13 years old accompanied at Pediatric Imunoallergology consultation due to asthma and rhinitis sensitized to pollens, treated with specific immunotherapy. She started to develop chest pain and dyspnea associated with physical exercise, along with lipothymia sensation and palpitations. An effort trial was performed and revealed no alterations in the cardiac or pulmonary domains. She began inhalation with an association of formoterol and budesonide before exercise, without improvement. After some weeks, the symptomatology worsened and appeared without apparent trigger factors, associated with vomiting, headaches and pain irradiation to the left arm. A Holter was performed and showed atrioventricular nodal reentry tachycardia with a right bundle branch block pattern. She was referred to Pediatric Cardiology, started treatment with flecainide and was indicated for cardiac catheterization ablation.

In conclusion, these two patients presented symptoms that could be attributed to uncontrolled allergic rhinitis or asthma, respectively, but the diagnostic workup led us to other differential diagnoses.

JM case reports session: 19242.

Conflicts of interest: The authors did not specify any links of interest.

100501 | Prevalence and risk factors of allergic rhinitis in schoolchildren's population, stage II study (2022–2023)

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Background: Allergy and allergic diseases comprise global problem, among them, AR, with growing epidemiological characteristics.

Research goal: was studying of AR prevalence and qualitative and quantitative assessment of risk factors in children's population.

Method: Research was conducted as survey of random and representative cohorts of schoolchildren population, based on specially developed questionnaire, applying cross-section method of epidemiological research. Selection of the schools and focus groups was provided randomly. Stage I of the research included 5899 children aged from 6 to 17 (39.7% boys and 60.3% girls); at stage II, the allergologic study was completed on part of the children population, who gave positive answers to the questions in the questionnaire and during last one year had AR symptoms. Identification of the factors of causative significance was provided based on comparison of the history and in vivo allergic diagnostics, applying SSPSS/V/16.5.

Results: According to the one-year survey results, recurrent sneezing was found in 15.8% off cases, nose itching – 18.6%, rhinorrhea – 16.9%, nose obstruction – 13.7%, lacrimation and eye itching – 5.7%. AR was diagnosed in 19.3% of cases. In the population with AR, IgE was elevated in 2.5%. There was found high frequency of late diagnostics ($p < 0.001$) and prevalence of intermittent AR in mild and medium severity cases. AR development depends on season, presence of pets (dogs: 6.5%, cats: 1.8%) in the apartment, allergic responses in the history, dust collectors in the apartments, family history and male gender.

Conclusion: Obtained data showed that percentage of manageable risk factors is high and this could provide basis for development of targeted and effective preventive measures against AR in children's population.

Conflicts of interest: The authors did not specify any links of interest.

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100484 | Prevalence of allergic diseases in the children population

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*Presenting author: D. Khachapuridze

Background: Study was aimed at revealing the prevalence of allergic diseases and the characteristics of risk factors in children population.
Method: the research population included 4689 children, 3 to 17 years of age (girls-58.4%, boys-41.6%). First stage of epidemiological researchincluded screening of 4689 children. Main items of screening-questionnaire were focused on primary diagnosis of allergic diseases and the possibility of identifying risk factors, further specified using extended questionnaire. Second stage of epidemiological study included clinic-allergologic study in the patients (399 children) with allergic diseases. At the same stage, the function of external breathing was studied and total serum IgE level was detected. Skin prick-testing was performed. At the last stage of epidemiological and clinical laboratory studies, the statistical software package - SPSS/V16.5 was used for data processing.
Results: the screening showed general characteristics of the study population. Girls, especially 6 to 13 years of age, predominated in the studied population ($p < 0.001$). According to the survey results, during 12 months the prevalence of allergic rhinitis (symptoms - rhinorrhea, sneezing, nasal itching, nasal obstruction and itchy eyes) was revealed in 21.5% of the population ($p < 0.05$); bronchial asthma (wheezing 12%, coughing episodes at night 14.3%, intolerance to physical exertion 6.5%, indoor and outdoor episodes 17.6%, coughing and wheezing episodes due to irritants 7.2%) occurred in 8.5% of population; atopic dermatitis (dermatitis, itching, early onset, damage to extensor and flexor surfaces of extremities in adults, damage to large body areas in early age) was detected in 11.5% ($p < 0.01$) and food allergy – in 7.5% ($p < 0.001$) of the population.
At the second stage, based on prick-testing, the average IgE level was 3–5 times higher than the norm. Allergen study showed prevalence in sensitization to room dust (D.F. and D.P.) (69.43%) ($p < 0.05$); cats (11.2) and dogs (19.37)'; epidermal allergens were revealed in 30.57% of population. High frequency in late diagnosis was revealed $p < 0.001$ as well.
Conclusion: Specific share of manageable risk factors in allergic diseases' development is very high that can serve as the basis for development of targeted and effective preventive measures for allergic diseases in children population.

Conflicts of interest: The authors did not specify any links of interest.

100304 | Importance of immune modulation in cystic fibrosis

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*Presenting author: B. Stana

Background: Cystic fibrosis is a multisystem disease, in which CFTR involvement at the gene expression level confers phenotypic complexity. The immune system is dominated on all cell lines, particularly neutrophils and T cells, which are overwhelmed in infections. Correcting or ameliorating the effects of CFTR deficiency in immune cells is a future therapeutic approach with real implications as the intimate pathogenic mechanisms are deciphered.
Method: The authors report 51 children with cystic fibrosis between 2018 and 2021 in which pathogenic infections were identified and associate clinical evolution with their dynamics during treatment under modulation of immune status. Twenty-two pathogenic microorganisms were identified, with almost half of the patients also showing immune deficiencies.
Results: At the time of diagnosis 23 patients (45.09%) had a normal immunological profile, of which 3 cases showed during subsequent evaluations a selective IgA and IgG immune deficiency with very low IgA and IgG values. A total of 5 children (9.8%) showed immune deficiency, including 1 patient with total immune deficiency (IgA, IgM, IgG); another 5 cases (9.8%) showed elevated Ig A, M, G and 5 cases (9.80%) elevated IgE. There were also cases of combinations (hyper IgA and selective IgG immune deficiency or hyper IgG and selective IgA immune deficiency).
In patients with identified *Pseudomonas aeruginosa*, immunogram values were not consistent: one child had selective IgA and IgG immune deficiency, one child hyper IgG with normal IgA and IgM values, one case of hyper IgA, G and E and selective IgM immune deficiency. There was one case of total immune deficiency which was maintained in subsequent evaluations and one child with hyper IgG and IgM with normal values of the other immunoglobulins.
Specific therapy with alpha-dornase and pancreatic enzymes was supplemented with non-specific immunomodulators containing colostrum, zinc, lactoferrin, vitamins C and D, probiotics. A significant increase in IgA and IgE levels was observed over a mean follow-up of 1 year 8 months, correlated with lower rate of infectious exacerbations and clinical improvement.
Conclusion: Altered adaptive immune responses are a feature of CF patients, supported by their tendency to develop bronchial asthma, atopic dermatitis and hyperinflammatory immune reactions. The

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tendency towards Th2-type immune responses also explains the non-responsiveness of lymphocytes in *P. aeruginosa* infection and the predisposition towards allergic-type responses. Nonspecific immune modulation may ameliorate defective immune responses in cystic fibrosis.

Conflicts of interest: The authors did not specify any links of interest.

PREVENTION

100408 | Practices, barriers and enablers of health-literacy sensitive counselling on early childhood allergy prevention by midwives: Questionnaire development study

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Background: Midwives can play a key role in strengthening Health Literacy (HL) of parents for preventing allergic diseases in their children. We aimed to develop a questionnaire to systematically asses and quantify a) ECAP and HL practices of midwives and b) perceived barriers and enablers regarding HL-sensitive counselling on ECAP.

Method: We defined ECAP following the German S-3 guideline and HL-sensitive counselling following the holistic model of Sørensen. The Cabana Framework and the Theoretical Domains Framework were selected as theoretical frameworks on barriers and enablers of professional practices. Based on these, we developed categories using information from a literature search on existing questionnaires and studies on ECAP and/or HL in midwives and findings from our qualitative interview study with 24 midwives.

Results: 9 categories were derived: the category Current Practices (1) considers allergy history, parents HL assessment and ECAP related HL counselling by midwives. Barriers and enablers of HL-sensitive ECAP counselling are assessed using the domains: Knowledge (2) and Agreement (3) with ECAP guidelines and HL concept/counselling strategies; Skills (4), Motivation (5), Outcome Expectancy (6) and External Barriers (7), such as lack of time, lack of financial compensation; and midwives' perceived professional role and identity regarding the support of parental HL (on ECAP) (8). In the final section of the questionnaire Needs and Wishes (9) of midwives regarding support in HL-sensitive ECAP counselling will be explored.

Conclusion: Based on theory and grounded in empirical qualitative data, we derived a comprehensive list of categories relevant to systematically assess practices, barriers and enablers of HL-sensitive ECAP counselling by midwives. The questionnaire will be subjected to extensive content and psychometric validation.

Conflicts of interest: The authors did not specify any links of interest.

100357 | Skincare interventions and early complementary food introduction for the prevention of atopic dermatitis in infants

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Background: Atopic dermatitis and food allergy are common diseases that usually begin in early childhood and can occur together in the same individuals. The aim of this study was to assess the significance of interventions such as skin care products for the skin barrier improvement, breastfeeding and early complementary foods introduction for the primary prevention of atopic dermatitis and food allergy in infants by building logistic regression models.

Method: We performed a survey of 97 parents of children. The survey was conducted with the help of Google forms and distributed on the Internet. Method of building and analysing logistic regression models was used to analyse the association of the risk of atopic dermatitis in children with the factor characteristics. Characteristics were as follows: "Skin care 1: application moisturizers to the infant's skin", "Skin care 2: bathing infants with water containing moisturizing substances or moisturizing oils", "Skin care 3: usage of less soap, bathing the child less often", "paternal history of atopy", "duration of breastfeeding less than 1 year", "early introduction of supplementary food (up to the 6th month of life)".

Results: We obtained the following results: 42.2% of respondents reported about the application of moisturizing cream, parents of 16.5% of children were using moisturizing oil for bathing the child, 12.4% of parents used less soap and bathed the child less often, 28.9% reported that they were not using any interventions. It was established that when applying care method 1, namely applying moisturizing agents to the infant's skin, the risk of developing atopic dermatitis increases, OR = 12.8 (95% CI 3.89 - 42.3) ($p < 0.0001$). When constructing a three-factor logistic regression model for predicting the risk of food allergy, no dependence was found between the development of food allergy and the presence of allergic diseases in parents, the period of introduction of complementary foods, and the duration of breastfeeding.

Conclusion: Thus, this study did not reveal the protective role of skin care products, breastfeeding, and early introduction of complementary foods for the development of atopic dermatitis and food allergies in children. Multivariate analysis showed that atopic dermatitis is associated with emollients application to the infant's skin. The use of moisturizing creams for the treatment of already existing atopic dermatitis or the path of percutaneous sensitization to allergens could have influenced the data.

Conflicts of interest: The authors did not specify any links of interest.

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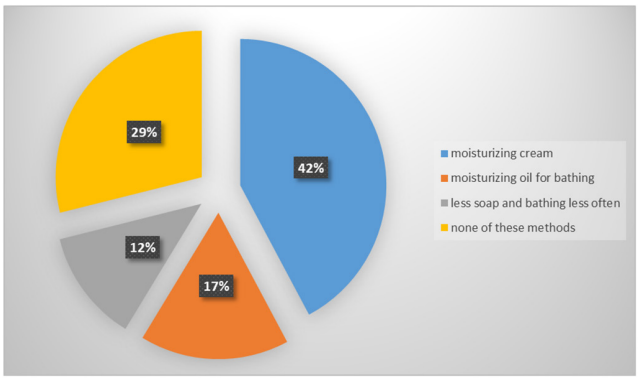

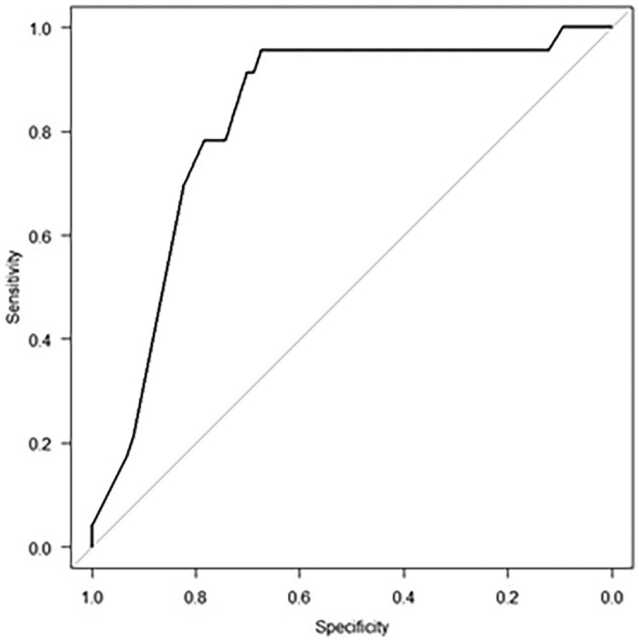

ALLERGOONCOLOGY

100350 | Chemotherapy induced hypersensitivity reaction: What did we do so far?

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Background: Rapid drug desensitization provides the advantage of using the most effective drug for cancer. There is no standard recommendation for the diagnosis and treatment of developing hypersensitivity. The aim of this study is to examine the characteristics, diagnostic processes and treatment results of patients with advanced chemotherapy drug hypersensitivity who applied to our tertiary reference center.

Method: Patients who applied to our tertiary Allergy outpatient clinic between January 2016 and September 2022 due to chemotherapy-induced drug hypersensitivity were examined. Demographic data of the patients, cancer diagnoses, chemotherapy regimens, skin tests, premedication scheme, desensitization cycle were evaluated. We applied 4 bags - 16 steps desensitization in patients with index reaction anaphylaxis and positive skin tests. If the index reaction was not anaphylaxis and the skin tests were negative, we applied 3 bags-12 steps desensitization. We used the montelukast, cetırızıne and methylprednisolone for premedıcatıon.

Results: 51 patients were evaluated; 35 (68.6%) were female. The most common malignancy was colorectal cancer in 17 (33.3%) patients. The most common agent responsible for hypersensitivity was oxaliplatin in 17 (33.3%) patients, followed by paclitaxel in 13 (25.4%). Under chemotherapy, patients developed different symptoms such as urticaria, angioedema, dyspnea, abdominal pain, back pain, and vomiting, or their combinations. Skin test was positive in 17 (56.6%) of 30 patients who developed a reaction with platin. Fifty of 51 patients were able to receive the target chemotherapy dose by desensitization. In total, 172 desensitizations were applied to 51 patients.

Conclusion: If completing the cycle is considered a treatment success; The management scheme in our center can be considered as a viable approach with a high success rate. This gives us the opportunity to use first-line chemotherapy agents.

Conflicts of interest: The authors did not specify any links of interest.

ALLERGEN IMMUNOTHERAPY 2B

000234 | Treatment effect of 300IR 5-grass pollen tablet for pre-coseasonal sublingual immunotherapy of grass pollen-induced allergic rhinoconjunctivitis: Clinical impact from the patient perspective

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Background: The significant treatment effect of the 300IR 5-grass pollen (GP) allergen extract sublingual tablet could be translated into a relevant improvement of symptoms of allergic rhinoconjunctivitis (ARC) and/or the reduction of symptomatic medication use in patients with GP-induced ARC[1]. Here we aimed at illustrating clinical trial results into a concrete treatment benefit for patients.

Method: In 3 randomised, DBPC clinical trials [NCT00367640 (CT1), NCT00418379 (CT2) and NCT00409409 (CT3)], adults or paediatric patients with moderate-to-severe seasonal GP-induced ARC with or without mild asthma received the 300IR 5-grass tablet or placebo pre- and co-seasonally over a single pollen season (CT1 & CT3) or 3 consecutive seasons (CT2). The efficacy of the 5-grass

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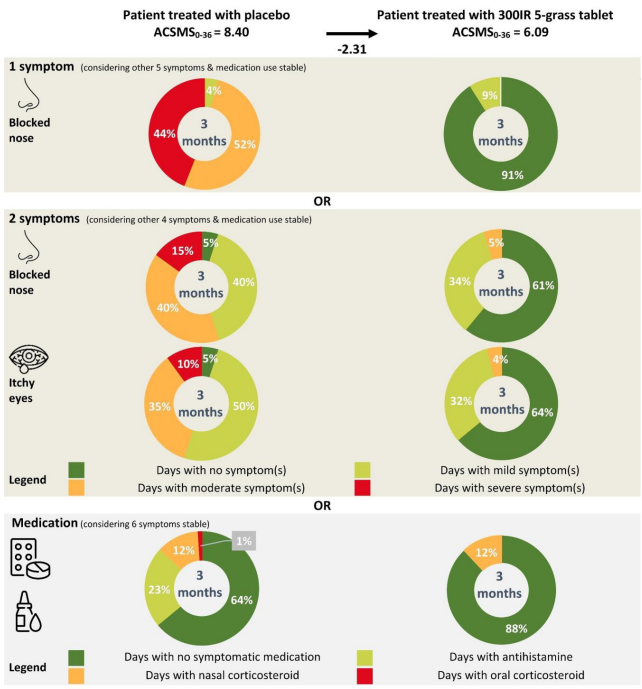
tablet was evaluated through a balanced Combined Symptom and Medication Score ranging from 0 to 36 ($CSMS_{0\text{-}36}$) analysed post hoc by ANCOVA over the primary period in a modified ITT set.

Results: In 864 evaluable patients, the treatment effect on the $CSMS_{0\text{-}36}$ over the primary period with the 5-grass tablet was found equal to or greater than an absolute difference vs placebo of −2.31 on average. As previously published[1], the reduction of at least 2 points reflects a calculated benefit over the pollen period in terms of symptom severity decrease of 1 class in 2 symptoms or 2 classes in 1 symptom, or medication use reduction (around 10 days less therapy/month for a patient taking antihistamines or nasal corticosteroids daily). For example, assuming a placebo patient and a patient treated with 5-grass tablet with an average $CSMS_{0\text{-}36}$ of 8.40 and 6.09, respectively, the reduction of −2.31 may apply on the severity of blocked nose, recognised as the most bothersome symptom, considering the other symptoms and use of medication stable. With such a reduction translated into a decrease in 2 severity classes, the actively treated patient may expect having no days with severe or moderate blocked nose over the pollen period as shown in the figure below. Patient cases reflecting the treatment benefit on 2 symptoms or on medication use are also displayed.

Conclusion: Displayed calculated patient cases illustrating the effect of the 300IR 5-grass pollen sublingual tablet reflect the clinical meaningfulness of this treatment for patients with an average grass pollen ARC severity and presume a greater impact in more severe patients.

1. Pfaar et al. Allergy 2023;EAACI 2022 Abstract#100085



Conflicts of interest: R Brehler reports fees and/or research support from ALK, Allergopharma, Allmiral, AstraZeneca, Behring, Bencard, Biotech Tools, Circassia, Genentech, GlaxoSmithKline, HAL, Leti, Lofarma, MedUpdate, Merck, Novartis, Omnicuris, Sanofi, Stallergenes Greer, Takeda, Thermo-Fischer. GW Canonica reports having received research grants as well as being lecturer or having received advisory board fees from: A. Menarini, Anallergo, Allergy Therapeutics, AstraZeneca, Chiesi Farmaceutici, Faes, Firma, Genentech, Guidotti-Malesci, GlaxoSmithKline, Hal Allergy, Innovacaremd, Novartis, OmPharma, RedMaple, Sanofi-Aventis, Sanofi-Genzyme, Stallergenes Greer, Uriach Pharma, ThermoFisher, Valeas P Devillier reports having received personal fees and non-financial support from ALK-Abello, AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Menarini, Mylan/Meda Pharma and Stallergenes GreerP Demoly reports having received honorarias for teaching, research and humanitarian activities from: ALK-Abello, AstraZeneca, GlaxoSmithKline, Menarini, Puressentiel, Stallergenes Greer, ThermoFisher Scientific, Viatris, ZambonE Dolimier is an employee of Stallergenes GreerS Scurati is an employee of Stallergenes GreerO Pfaar reports grants and/or personal fees from Stallergenes Greer during the clinical trial reported, grants and/or personal fees from ALK-Abelló, Altamira, Allergopharma, Stallergenes Greer, HAL Allergy Holding B.V./HAL Allergie, AAAAI, Bencard Allergie /Allergy Therapeutics, Lofarma, Biomay, Circassia, ASIT Biotech Tools S.A., Dänisches Konsultat, Laboratorios LETI/LETI Pharma, MEDA Pharma/MYLAN, Anergis S.A., Mobile Chamber Experts, Indoor Biotechnologies, GlaxoSmithKline, Astellas Pharma Global, EUFOREA, ROXALL, Novartis, Sanofi-Aventis and Sanofi-Genzyme, Med Update Europe, streamedup!, Pohl-Boskamp, Inmunotek S.L., Wiley and Sons, Paul-Martini-Stiftung, Regeneron Pharmaceuticals Inc., RG Aerztefortbildung, Firma Meinhardt, PneumoLIVE, Institut für Disease Management, Deutsche Forschungsgesellschaft, Springer, Thieme, AstraZeneca, Deutsche Allergie-Liga, AeDA, IQVIA Commercial, Ingress Health, Wort&Bild Verlag, Verlag ME, Procter&Gamble, Alfried-Krupp Krankenhaus, all outside the submitted work; and he is member of EAACI Excom, member of ext. board of directors DGAKI; coordinator, main- or co-author of different position papers and guidelines in rhinology, allergology and allergen-immunotherapy.

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000235 | Treatment effect of 300IR birch pollen allergen extract sublingual solution in birch pollen-induced allergic rhinoconjunctivitis: Clinical impact from the patient perspective

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*Presenting author: R. Brehler

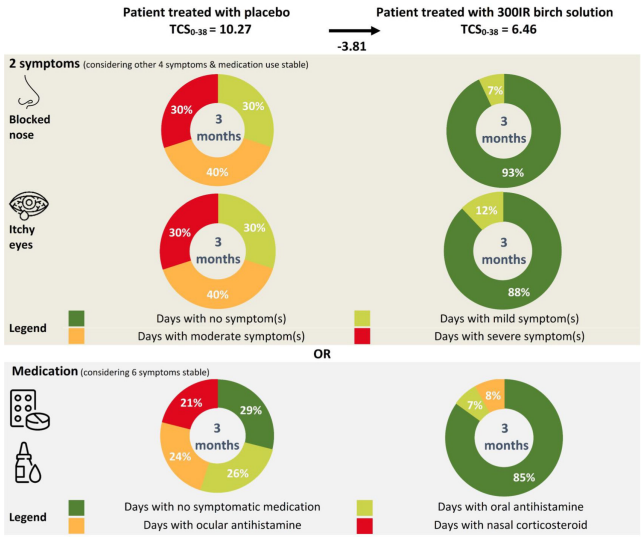
Background: The significant treatment effect of the 300IR birch pollen (BP) allergen extract sublingual solution could be translated into a relevant improvement of allergic rhinoconjunctivitis (ARC) symptoms and/or the reduction of symptomatic medication use in patients with BP-induced ARC[1]. Here we aimed at illustrating clinical trial results into a concrete treatment benefit for patients.

Method: In a randomised, DBPC clinical trial (NCT01731249), adults with moderate-to-severe seasonal BP-induced ARC with or without mild asthma received the 300IR BP solution or placebo pre-coseasonally over 2 consecutive pollen seasons. The efficacy of the BP solution was evaluated through a balanced Total Combined Score ranging from 0 to 38 ($TCS_{0\text{-}38}$) quasi-equally weighing symptom and medication scores. The $TCS_{0\text{-}38}$ was analysed post hoc by ANCOVA in a modified ITT set over the pollen period (PP) of each year, the primary endpoint being over PP2.

Results: In the patients evaluable ($n = 536$ and 500 in PP1 and PP2, respectively), the treatment effect on the $TCS_{0\text{-}38}$ with the BP solution was found equal to an absolute difference vs placebo of -2.76 over PP1 and -3.81 over PP2 on average. As previously published[1], a minimum 2-point reduction reflects a benefit over the PP in terms of symptom severity decrease of 1 class in 2 symptoms or 2 classes in 1 symptom, or medication use reduction (about 1 month less medications per 3 months for a patient taking antihistamines daily). For example, assuming a placebo patient and a patient treated with the 300IR BP solution with an average $TCS_{0\text{-}38}$ of 10.27 and 6.46 over PP2, respectively, the reduction of -3.81 may apply on the blocked nose and itchy eye severity considering the other symptoms and use of medication stable. With such a reduction equally distributed between both symptoms, the actively treated patient may expect having no days with severe or moderate blocked nose and itchy eyes over PP2 as shown in the figure below. A patient case reflecting the treatment benefit on medication use is also displayed. Same analyses also showed a treatment benefit over PP1.

Conclusion: Displayed calculated patient cases illustrating the effect of the 300IR birch pollen sublingual solution reflect the clinical meaningfulness of this treatment for patients with an average birch pollen ARC severity and presume a greater impact in more severe patients.

1. Pfaar et al. Allergy 2023;EAACI 2022 Abstract#100095



Conflicts of interest: P Devillier reports having received personal fees and non-financial support from ALK-Abello, AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Menarini, Mylan/Meda Pharma and Stallergenes GreerR Brehler reports fees and/or research support from ALK, Allergopharma, Allmiral, AstraZeneca, Behring, Bencard, Biotech Tools, Circassia, Genentech, GlaxoSmithKline, HAL, Leti, Lofarma, MedUpdate, Merck, Novartis, Omnicuris, Sanofi, Stallergenes Greer, Takeda, Thermo-FischerP Demoly reports having received honorarias for teaching, research and humanitarian activities from: ALK-Abello, AstraZeneca, GlaxoSmithKline, Menarini, Puressentiel, Stallergenes Greer, ThermoFisher Scientific, Viatris, ZambonE Dolimier is an employee of Stallergenes GreerS Scurati is an employee of Stallergenes GreerF De Blay reports financial interests from Alyatec and fees for participation in congresses, advisory boards and/or clinical studies from Aimmune, ALK-Abelló, AstraZeneca, Chiesi, GlaxoSmithKline, Insmed, Menarini, Novartis, Regeneron, Sanofi and Stallergenes GreerM Gerstlauer reports having participated in industry-supported scientific studies from Allergopharma, Boehringer, Infectopharma, Stallergenes-Greer, and having received consulting/lecture fees from AstraZeneca, Aimmune, ALK-Abelló, Allergopharma, Bencard Allery, Boehringer, Leti, Novartis, Nutricia, Sanofi, Stallergenes Greer, SynlabO Pfaar reports grants and/or personal fees from Stallergenes Greer during the clinical trial reported, grants and/or personal fees from ALK-Abelló, Altamira, Allergopharma, Stallergenes Greer, HAL Allergy Holding B.V./HAL Allergie, AAAAI, Bencard Allergie/Allergy Therapeutics, Lofarma, Biomay, Circassia, ASIT Biotech Tools S.A., Dänisches Konsultat, Laboratorios LETI/LETI Pharma, MEDA Pharma/MYLAN, Anergis S.A., Mobile Chamber Experts, Indoor Biotechnologies, GlaxoSmithKline, Astellas Pharma Global, EUFOREA, ROXALL, Novartis, Sanofi-Aventis and Sanofi-Genzyme, Med Update Europe, streamedup!, Pohl-Boskamp, Inmunotek S.L., Wiley and Sons, Paul-Martini-Stiftung, Regeneron Pharmaceuticals Inc., RG Aerztefortbildung, Firma Meinhardt, PneumoLIVE, Institut

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für Disease Management, Deutsche Forschungsgesellschaft, Springer, Thieme, AstraZeneca, Deutsche Allergie-Liga, AeDA, IQVIA Commercial, Ingress Health, Wort&Bild Verlag, Verlag ME, Procter&Gamble, Alfried-Krupp Krankenhaus, all outside the submitted work; and he is member of EAACI Excom, member of ext. board of directors DGAKI; coordinator, main- or co-author of different position papers and guidelines in rhinology, allergology and allergen-immunotherapy.

AEROBIOLOGY AND POLLUTION 2

001170 | CFD modelling of a new allergen exposure chamber

F. Razavi[1]; L. Haya[2]; S. Kelly[2]; R. Friedrich[2]; A. Belanger[2]; J. Yang[2]; W. Yang[2]; E. Matida[1]

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*Presenting author: L. Haya

Background: Allergen exposure chambers (AECs) are used for the study of respiratory disease and to expedite clinical validation of allergy and asthma therapies by controlling the level of allergen exposure and environmental conditions, which can vary widely in field studies. An EAACI Task Force report (Pfaar et al., 2021) states the most essential requirement of an AEC is the provision of a stable, controllable allergen level to which participants are exposed. With the exception of chambers that have individual aerosolizers for each participant, this means that creating a homogenous average allergen field at the participant level is desired.

A new AEC is being developed in Ottawa, Canada. We have used computational fluid dynamics (CFD) modelling to guide the design of the allergen dispersal system, with the objective of generating a uniform particle field at the participant seated level.

Method: The chamber was modeled in ANSYS and the transient flow field was solved using Unsteady Reynolds-Averaged Navier-Stokes (URANS) equations with a shear stress transport turbulence model. Clean air enters the chamber from the ceiling and exhausts at wall outlets near the floor. Particles representing ragweed pollen were introduced at injection points in the ceiling and tracked in time using Lagrangian random walk models. Air flow from oscillating fans was simulated at the top centre of each wall. Maps of particle volume fraction were analysed at the level of subjects' heads (1.2 m above the floor) to quantify particle mixing for different variables: the number and positions of air and particle inlets and exhausts, as well as the relative motion and flow rate of oscillating fans.

Results: Modelling to date has shown that the oscillating fans effectively drive particle mixing and that mixing is sensitive to their configuration and synchronisation. Fans should not be pointed directly at one another, as particle concentrations reduced to 60% of mean in impingement regions, due to high turbulent dispersion and convection. Time-averaged particle concentrations in all quadrants were within 15% of the spatial mean.

Conclusion: CFD modeling is a powerful tool in the design of AECs towards achieving homogenous mixing of aeroallergens, and can expedite experimental validation by providing advanced knowledge of the complex fluid dynamics involved. Future work will include the physical and thermal effects of subjects' bodies, and the dispersion of pollens of different sizes.

Conflicts of interest: Suzanne Kelly and Jimmy Yang are shareholders and employees of Red Maple Trials Inc.Stefan Van de Mosselaer, Laura Haya, Rachel Friedrich, and Alissa Belanger are employees of Red Maple Trials Inc.William H. Yang is a shareholder and employee of Red Maple Trials Inc. He has received consultant and speaker fees from CSL Behring, Shire/Takeda, BioCrys, Novartis, Sanofi, Merck. Also, he has received research grants from CSL Behring, Shire/Takeda, BioCryst, Pharvaris, Sanofi, Regeneron, GSK, AstraZeneca, Amgen, Genentec/Roche, Pfizer, ALK, Stallergenes, Providence, Galderma, Glenmark, Dermira, AnaptysBio, VBI Vaccines, Ionis, Astria. He is a medical advisor (volunteer) for HAE Canada; his clinic is recognized as the Treatment & Reference Centre of Excellence by HAEi-A Care in Canada.

000922 | Efficacy of astragalus membranaceus as a food supplement for pollen allergy sufferers – participant symptoms compared with crowd-sourced data

L. Dirr[1]; K. Bastl[1]; M. Bastl[1]; J. Bouchal[2]; M. Berger[1]; U. Berger[1]; F. Grímsson[2]

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*Presenting author: L. Dirr

Background: Pollen allergy can have a significant impact on a person's quality of life. Besides the allergen-specific immunotherapy and allergen avoidance, patients are treated with symptom relieving medication. Recently, food supplements have gained more and more importance for pollen allergy sufferers. Still, there is not much research data on the efficacy of food supplements and the experienced relief. This study aims to test the efficacy of a plant based dietary supplement by applying a novel approach that is based on crowd-sourced symptom data. Within this approach it is aimed to evaluate the efficacy of such a product without a dedicated placebo group to prevent a distortion of results that are commonly connected to the intake of placebos.

Method: A food supplement that contains the herbal and mineral complex from *Astragalus membranaceus* (Fisch. ex Bunge) root extract was administered to 328 voluntary participants during the 2018 birch, grass, and ragweed pollen season in Austria, Europe. Participants documented their symptoms and medication intake on a daily basis in the online questionnaire of the Patients Hay-fever Diary and were asked to complete a quality-of-life questionnaire at the end of the study. Statistical analyses included a Shapiro-Wilk test for the overall symptom load index and the nasal scores of the

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participants in comparison to a so called "Baseline" that consists of a specifically filtered group of Patients Hay-fever Diary users.

Results: The overall mean symptom load index was lower in the participant group using the dietary supplement. However, the differences were only statistically significant during the ragweed pollen season. For the nasal scores study participants showed significantly lower symptoms during all three pollen seasons included in this study. The adherence rate for filling in the Patients Hay-fever Diary was lower than expected, while the adherence rate for the quality-of-life questionnaire reached above 90% and supported the indication towards a reduced burden in the participant group (above 60% for all seasons).

Conclusion: The herein tested food supplement can be recommended as additional measure to relieve nasal symptoms of pollen allergy. The proposed study design of comparing a participant group to a "Baseline" has potential to improve participant's adherence but proved to be a valid method to reduce the commonly known distorting effects caused by placebos.

Conflicts of interest: This study was financed by KOSAN Pharma. The company supplied the food supplement for the study participants. The author group conducted the study, analyzed the data, and published the results without any influence from KOSAN Pharma.

000671 | Guinea pig domestic exposure could be associated to severe forms of allergic asthma and allergic rhinitis

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*Presenting author: J. Correa-Borit

Background: Domestic animal dander is an important cause of allergic diseases and in some cases are related to severe profiles of asthma. Moreover, constant exposure to animals is among the main causes of exacerbations and, therefore, increased morbidity and mortality. Although the most common source is dogs and cats, it is becoming increasingly common to find guinea pigs as pets. Therefore, it is important to study their influence on asthma and allergic rhinitis.

Method: Patients older than 14 years with a positive ImmunoCAP for guinea-pig and domestic exposure were included. Clinical data included demographics, comorbidities, asthma diagnosis, control and severity, number of exacerbations, allergic rhinitis and its severity, concomitant allergic diseases, total IgE and guinea pig specific IgE values, blood eosinophil count (BEC) allergic sensitization. Qualitative variables were described with percentages and quantitative variables with mean and standard deviation.

Results: 29 patients (64% women) were included. The mean age was 30.7(13.8) years. 78.6% had asthma, 32.8% were controlled. 54.6% presented moderate-severe symptoms. Additionally, 27.3% presented ≥1 exacerbations in the last year, half of them severe. Moreover, 96.3% had allergic rhinitis, 77.8% with moderate-severe symptoms. The mean guinea-pig specific-IgE was 13.1(7.5) kU/L and the mean BEC was 443.8(495)/μL. Concomitantly, 53.2% had sensitization to dog, cat or horse dander; and 82.2% had sensitization to pollens, mold or house dust mites.

Conclusion: Guinea-pig allergy severity could be underestimated. Allergic patients seems to have more severe forms of asthma and allergic rhinitis as well as worse control.

Conflicts of interest: The authors did not specify any links of interest.

001509 | High incidence of nutsedge (*Cyperus mitis*) pollen sensitization among Thai allergic rhinitis patients

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*Presenting author: S. Aud-in

Background: Allergic rhinitis (AR) has a significant clinical impact across the world. In Thailand, AR prevalence has been rising steadily. The main aeroallergen sources triggering AR include grass and weed pollen species. Nutsedge (*Cyperus mitis* Steud. and *Cyperus rotundus* L.) are weed species ubiquitously found in tropical/subtropical regions previously shown to release allergenic pollen. The objective of the study was to investigate the incidence of nutsedge pollen sensitization among Thai AR patients and to determine the co-sensitization with other grass and weed species. Additionally, the study aimed to analyze the relationship between nutsedge pollen sensitization, demographic characteristics, and clinical data in order to improve the diagnosis and treatment of AR in Thailand.

Method: In total, 126 patients diagnosed with AR were recruited for skin prick test (SPT) using pollen extracts from nutsedge (Cm), careless weed (Ah), and five grasses: Bermuda grass (Cd), para grass (Um), Johnson grass (Sh), Manila grass (Zm). SPT results and demographic data were recorded and analyzed. Data illustration and statistical analysis were performed to demonstrate sensitization patterns of patients as well as co-sensitization to nutsedge pollen extract. Moreover, correlation between SPT results and clinical symptoms were also analyzed.

Results: Of the 126 patients recruited, 104 (82%) patients had positive SPT to at least one pollen species. Among all seven pollen

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species, Cm elicited the highest number of positive SPT results observed in 76 of 104 (60.3%) patients. Furthermore, 15/26 (57.69%) mono-sensitized patients had positive SPT response to Cm. In most patients, co-sensitizations between Cm and other species were observed. More than 70% of patients sensitized to Cd, Um, and Bp were sensitized to Cm. The average wheal size of Cm was 3.6 mm (median: 3.5 mm, max: 7.5 mm). Wheal size of Cm showed a positive correlation with that of Cd Um, and Ah. Moreover, Cm wheal size showed a positive correlation with the number of positive SPT species and severity of AR symptoms.

Conclusion: The findings highlight the high incidence of nutsedge pollen sensitization among Thai AR patients. Co-sensitization between nutsedge and other species, as well as correlations with clinical symptoms, should pave the way for improvements of diagnosis and treatment of pollen allergic diseases.

Conflicts of interest: The authors did not specify any links of interest.

001249 | Coexposure to allergens and proteases in salmon industry workplaces

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University Hospital of North Norway HF, Tromsø, Norway
*Presenting author: B. Bang

Background: Many allergens have intrinsic protease activity assisting barrier penetration and facilitating inflammatory and immunological signalling through interaction with protease-activating receptors. We have previously shown that salmon trypsin is a potent activator of protease-activating receptor 2 (PAR-2) in both airway and skin cell models and facilitate interleukin-8 release. We here present preliminary data on exposure to allergens and proteases from the Norwegian SHInE project.* In the SHInE-project we characterize the exposure mixtures of full shift (8h) bioaerosol samples collected from the breathing zone of production workers. In this presentation we focus on major and minor salmon allergens ant the protease trypsin.

Method: Samples were collected using sampling pumps adjusted to 3.5 (total proteins and trypsin) or ".1 l/min (allergens) annd polytetrafluoroethylene (PTFE/Teflon) filters (37 mm, 1mm SKC Ltd UK). Allergens and proteases were extracted from the filters. Extraction procedures is the focus of a separate EAACI presentation. The allergen extracts were analysed by shotgun proteomics using an Orbitrap Fusion Lumos LC-MS system. Trypsin activity was analysed using a highly sensitive zymographic protease assay.

Results: Trypsin activity was identified in 88 out of 162 samples collected from 3 salmon plants. The airborne levels of active trypsin ranged from 0 to 609.49 pg/m^3 with a median level of 5.42 pg/m^3. Exposure was higher in slaughtery departments than in fillet departments and workers engaged in removal og entrails from the fish (degutting) had the highest exposure (median exposure level 55.987 pg/m^3). The presence of salmon allergens including parvalbumin, enolase, aldolase and collagen were identified in 5 out of 5 area samples analysed so far. The presence of major and minor allergens and frequency of coexposure with trypsin in samples collected from workers breathing zone will be addressed in the EAACI meeting. The results will be stratified on different departments and work taks performed by the workers during sampling.

Conclusion: In this investigation we address the coexposure to allergens and proteases in salmon industry workers. We explore the exposure to the protease trypsin as well as major and minor salmon allergens at different work stations and departments in the salmon industry work environment.

Conflicts of interest: The authors did not specify any links of interest.

001264 | Prevalence of *Euroglyphus maynei* sensitization in respiratory allergies

M. Albanesi[1]; S. Palazzo[2]; C. De Chirico[2]; M. Zurlo[2]; V. Aresta[2]; C. Nada[2]
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*Presenting author: M. Albanesi

Background: *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae* are house dust mites that belong to the "Phyroglyphidae" family ("Dermatophagoidinae" subfamily) and have the proteins Der p1, Der p2, Der f1 and Der f2 as allergenic proteins, respectively. *Euroglyphus maynei*, belongs to the "Pyroglyphidae" family ("Pyroglyphinae" subfamily) and is a source of sensitization. Its main allergenic protein is Eur m1. Sensitization to *D. pteronyssinus* and *D. farinae* is assessed through skin tests, while sensitization to *E. maynei* is tested less frequently. This experimental work aims at analysing the prevalence of sensitization to *E. maynei* in the Apulian population and the sequence homology of the major allergenic proteins of *E. maynei* with *D. farinae* and *D. pteronyssinus*.

Method: *n* this real-life study, we enrolled 65 patients mainly with respiratory allergy. We tested them for the common respiratory allergens including *Euroglyphus maynei* by using skin prick tests.

We also performed sequence homology analysis between the major allergenic proteins of *E. maynei* and those of *D. pteronyssinus* and *D. farinae*.

Results: We found that sensitization to *E. maynei*, accounts for 41.5 % of patients and that all patients with of *E. maynei* sensitization had concomitant sensitization to *D. farinae* and *D. pteronyssimus*. The analysis of the sequence homology of the Der p1 and Der f1 proteins with the sequence of the Eur m1 protein demonstrated an identity of 84.4 % and 86 % respectively.

Conclusion: Our results show that nearly 50 % of patients sensitized for house dust mites have a concomitant sensitization to *Euroglyphus maynei*. The cross sensitization might be due to Der f1, Der p1 and Eur m1 similarity.

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Conflicts of interest: The authors did not specify any links of interest.

001619 | Aeroallergen sensitivity in severe asthma

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Süreyyapaşa Chest Diseases and Chest Surgery Training and Research Hospital, İstanbul, Türkiye
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Background: Asthma is a chronic inflammatory disease caused by the interaction of genetic and environmental factors. Aeroallergen sensitivity is seen in most patients with asthma. Interestingly, mild to moderate asthmatics have a higher percentage of aeroallergen sensitivity than severe asthmatics. Skin test and serum specific IgE level indicate Type 1 hypersensitivity reaction to various allergens. The aim of this study is to examine positive skin tests and serum specific IgE results in patients with severe asthma.

Method: The files of our patients, whom we followed up with the diagnosis of severe asthma in our Health Sciences University Süreyyapaşa Chest Diseases and Thoracic Surgery ER, Allergy and Immunology Clinic between January 2015 and December 2022, were reviewed retrospectively. Ethics committee approval was obtained for the study in our hospital. All patients aged 18 years and older were included in the study. A standard data collection form was filled in for each patient.

Results: A total of 50 patients with severe asthma were included in the study. Thirty (60%) of the cases were male and the mean age was 63.4 (56-78) years. According to the skin test results, the frequency of sensitivity to at least one allergen was found to be 38.5%. The highest sensitivity was mite sensitivity with 26%. This was followed by pollen sensitivity. Among the pollen, olive pollen was the leading one. Aspergillus sensitivity was seen in 10% (5) of the patients. Among these, 3 patients were diagnosed with ABPA and therefore their treatment was arranged. When evaluated in terms of pulmonary function tests, FEV1 was 61±12%, FVC was 63% ±13, and FEF25-75 was 54±25%. Eosinophil count 400(90 -2100)/mm3; percentage of eosinophils 6% (1.5-22); total IgE was 150 (30-1250) IU/ml.

Conclusion: Allergen sensitivity plays an important role in asthma. Allergen sensitivity should be investigated in every patient diagnosed with asthma. Each patient undergoing skin testing should be carefully questioned in terms of sociodemographic characteristics, family history, and other accompanying allergic diseases. Finding the highest mite sensitivity in our study is similar to previous studies in our region.

Conflicts of interest: The authors did not specify any links of interest.

001444 | Allergy to *Cedrus atlantica* pollen in two patients in Madrid. A new record

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Background: *Cedrus atlantica* is a tree of the Pinaceae family from the north of Africa. In warm climate areas, such as Spain, is used as ornamental in gardens. Until now, the pollen of this tree has not been described as allergenic. Sensitization to this pollen has been very little studied and there is no described allergen so far. The aim of this study was to study the possible sensitization to *C. atlantica* of two patients.

Method: Two patients with seasonal allergic rhinoconjuctivitis with negative responses to the most prevalent allergenic pollen in Madrid, with suspicion of sensitization to *Cedrus atlantica* (CA) planted in their own house, were assessed. CA pollen was extracted and characterized by Bradford to measure the protein concentration and SDS-PAGE to analyze the protein profile. Skin prick test was performed with a standard battery of biologically standardized aeroallergens and CA extract by duplicate. Specific IgE was asseseed using ImmunoCap. CA extract was biotin labelled and used in streptavidin ImmunoCAP. IgE value of >0.35 kUA/L was considered a positive result. Allergenic profile was studied by immunoblot against CA extract.

Results: The protein profile of CA extract ranged between 15 and more than 100 kDa. The value of sIgE to CA was positive for both patients, being 0.39 kUA/L in the patient 1 and 0.41 kUA/L in the patient 2. Serum samples from patients recognized 3 bands of approximately 17, 22 and 33 kDa, being the 22 and 33 kDa most intense in patient 1 and the 17 kDa band more intense in patient 2. Additionally, patient 1 recognized 3 bands of approximately 45, 55 and 66 kDa and patient 2 two bands of about 18 and 25 kDa.

Conclusion: Sensitization to pollen of *Cedrus atlantica* was confirmed by immunoblot and ImmunoCap in two patients.

Conflicts of interest: The authors did not specify any links of interest.

ALLERGEN IMMUNOTHERAPY 2

001293 | Accelerated dose escalation scheme with 6 injections of an unmodified house dust mite (HDM) subcutaneous AIT (SCIT) preparation is safe and well tolerated in adolescents and adults

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Background: Dose escalation with unmodified SCIT preparations generally comprises numerous injections. Improvements in

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application convenience are necessary to increase patient adherence and integration in the daily practice. The present trial investigated the safety and tolerability of an accelerated dose escalation scheme with an unmodified HDM SCIT preparation both in adolescents and adults.

Method: A multicentric, randomized, open-label, controlled phase II trial was performed in Germany and Poland. 142 adolescent and adult patients aged 12-65 years suffering from allergic rhinitis or rhinoconjunctivitis, without asthma or with well-controlled asthma (acc. to GINA 2020), were treated with an unmodified, aluminium-hydroxide adsorbed HDM SCIT preparation. 75 patients were allocated to the One Strength group (accelerated dose escalation scheme with 6 injections of strength 3) and 67 to the Standard group (standard dose escalation scheme with 14 injections of strength 1 to 3). Both groups received 2 additional injections of the maintenance dose. The tolerability was assessed using a 5-point Likert scale. All adverse events (AEs) were recorded. The trial was approved by the competent authorities and ethics committees in both participating countries

Results: Overall, the ratio of IMP-related AEs per patient was comparable between treatment groups (One Strength: 6.0 vs. Standard: 5.3). 86.6 % of all IMP-related AEs were local reactions occurring more frequently in the One Strength group (36.0% of patients) than in the Standard group (19.4%). 7.5 % of all IMP-related AEs were systemic allergic reactions. The ratio of IMP-related systemic allergic reactions per patient was comparable between treatment groups (One Strength: 1.3 vs. Standard: 1.4). Most AEs related to IMP were of mild intensity (92.1% of events). 36.7% of adults and 23.8% of adolescents experienced at least one AE related to IMP. More than 95% of all investigators (and patients) assessed the tolerability of both dosing schemes as „very good" or „good".

Conclusion: The investigated One Strength dose escalation scheme shows comparable safety and tolerability profile to the Standard dose escalation schedule both in adults and adolescents with allergic rhinitis/rhinoconjunctivitis with or without asthma. The benefits of the accelerated scheme include fewer injections and simplified handling procedures. This improves the acceptance and adherence to AIT.

Conflicts of interest: The authors did not specify any links of interest.

001560 | IgE epitope mapping of ragweed pollen profilin AMB A 8

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Background: Common ragweed pollen has become a major health issue worldwide, causing allergic symptoms in late summer and fall. Alongside the major allergens Amb a 1 and Amb a 11, the profilin Amb a 8 might also trigger allergic reactions for 20-35% of ragweed allergic patients. Although profilins were considered for years minor and clinically irrelevant allergens, recent findings are changing those concepts making them suitable candidates for immunotherapy.

This study aims to identify the IgE binding epitopes of ragweed pollen profilin Amb a 8 in order to develop future strategies for ragweed pollen immunotherapy.

Method: For the localization of sequential IgE epitopes, five peptides (P1-P5) comprising 24-35 amino acids and covering the entire sequence of Amb a 8 were chemically synthesized and tested for direct IgE binding. To identify the conformational IgE epitopes rabbit antibodies raised against the peptides conjugated with KLH (keyhole limpet hemocyanin) were used for evaluating the inhibition of sensitized patients' IgE binding to Amb a 8.

Results: None of the five Amb a 8 peptides bound to the IgE from sensitized patients' serum. All five Amb a 8 peptides induced IgG response after rabbit immunization. Immune sera for P3, P4, and P2, showed stronger reactivity against the full-length recombinant Amb a 8 protein than immune sera for P1 and P5. Inhibition of IgE binding towards Amb a 8 using rabbit peptide-specific serum showed individual differences among patients. Overall, the highest inhibition of IgE binding was achieved with P2-specific serum (79%), followed by P3 (75%), P4 (71%), P5 (67%) and P1 (63%).

Conclusion: The identification of IgE binding sites which can be blocked with IgG against nonallergenic Amb a 8 peptides paves the way towards the design of an immunotherapy for ragweed pollen allergy that also includes this allergen.

Conflicts of interest: The authors did not specify any links of interest.

001647 | Oral immunotherapy for food allergic infants: A pragmatic protocol

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Background: In small numbers of young peanut-allergic infants, early oral immunotherapy (e-OIT) has shown to be very effective in achieving long-term tolerance. Taken together with the effectiveness of prevention of food allergy by early dietary introduction of high allergenic food, it is thought that early oral exposure to allergenic foods has an age-specific, strong immunomodulatory effect. Therefore, e-OIT is a promising curative therapy for infants with different kind of food allergies and infants with multiple food allergies.

Method: Together with parents of food-allergic infants, aged 9-24 months, we developed a protocol for e-OIT. We aimed at minimizing the impact of the therapy on families by limiting the number of hospital visits and normalizing dietary habits as soon as possible. Safety and feasibility of the protocol was studied in 125 infants. During this

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study, the protocol was improved based on suggestions of the allergy team and participating parents.

Results: In our current protocol, e-OIT is started with an oral food challenge (OFC) to assess threshold levels. In case of multiple sensitization, diagnostic OFC's are performed for the allergens eligible for OIT. e-OIT is started with an in-hospital single dose of the allergenic food(s) of 30% of the threshold level, with a maximum of 300 mg allergenic protein, and is continued at home. Almost half of the children will start with the maintenance dose of 300 mg, but for children with lower threshold levels, personalized schedules of 2-weekly in-hospital updosing are made. A maximum of 3 steps per allergen per visit and a maximum of 6 steps per visit (including 2 or 3 allergens) are provided. The 1-year maintenance therapy consists of daily 300 mg allergenic food. Four weeks after stopping e-OIT, sustained unresponsiveness is assessed by an exit OFC. After passing the exit-OFC, parents are advised to continue allergen intake by two times a week. Over 80% of infants eligible for inclusion in this protocol, may achieve this goal and have a normal dietary consumption of the allergenic foods.

Conclusion: Single and multiple e-OIT is a feasible treatment for infants with food allergies and seems to be highly effective in achieving sustained unresponsiveness. More research on this treatment is urgently needed before implementation in clinical practice.

Conflicts of interest: The authors did not specify any links of interest.

001126 | IgE-blocking IGG1 antibodies to BET V 1-homologous food allergens following sublingual administration of RMAL D 1 and RBET V 1

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Background: Birch pollinosis is often associated with allergic reactions to particular foods because Bet v 1-specific IgE antibodies (Abs) cross-react with homologous food allergens, e.g. Mal d 1 in apple, Cor a 1 in hazelnut, Pru av 1 in cherry, and Dau c 1 in carrot. We recently showed that sublingual immunotherapy (SLIT) with recombinant (r) Bet v 1 generated IgG1 Abs which blocked IgE-reactivity to the major birch pollen allergen but not to Mal d 1. Contrariwise, SLIT with rMal d 1 induced IgE-blocking Abs for Mal d 1 but not Bet v 1. The aim of this study is to compare these differing types of SLIT-induced blocking Abs for their cross-reactivity, cross-blocking capacity, and binding avidity to Cor a 1, Pru av 1, and Dau c 1.

Method: Allergen-specific IgE and IgG1 levels were determined by ELISA in pre- and post-SLIT samples of 20 rMal d 1-SLIT and 17 rBet v 1-SLIT-treated individuals. To assess IgE–blocking, pre- and post-SLIT samples from 7 individuals of each group were incubated with rBet v 1, rMal d 1, rCor a 1, and rPru av 1 prior to their use in basophil activation tests. To assess avidity, SLIT-induced IgG1 Abs were exposed to acidic buffers after incubation with the allergens in ELISA. Sequence identities and shared surface areas of all proteins were compared by using an in-house designed script based on structural alignments (Getarea server, TopMatch server).

Results: Before SLIT, 97% of all subjects displayed IgE Abs to Cor a 1, 86% to Pru av 1, and 27% to Dau c 1. IgG1 responses to all allergens except Dau c 1 were significantly enhanced after rBet v 1-SLIT, whereas rMal d 1-SLIT significantly increased IgG1 levels specific for Mal d 1, Cor a 1, and Pru av 1. Post-rBet v 1-SLIT-samples showed significantly higher IgE-blocking activity for Bet v 1 than post-rMal d 1-SLIT samples. Post-rMal d 1-SLIT samples showed significantly higher blocking for Mal d 1 and Pru av 1 than post-rBet v 1-SLIT samples. Along these lines, highest surface identities were found between Bet v 1 and Cor a 1 as well as Mal d 1 and Pru av 1. The avidity of IgG1 Abs induced by either SLIT were comparable for all allergens.

Conclusion: By comparing of molecular and immunological characteristics of IgG1 Abs induced by SLIT with two related allergens we found that the homology among allergens is relevant for IgE-cross-blocking activity. These findings may also contribute to a better understanding why therapy with Bet v 1 has limited effects on associated food allergies.

Conflicts of interest: The authors did not specify any links of interest.

000443 | Real world evidence; tolerability of a rapid protocol in one day in polysensitized patients

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Background: Polysensitization has been related with higher severity of allergic symptoms; allergen immunotherapy mixtures have always been discused because of the efficacy and safety of these mixtures, above all safety in peadriatic population. The aim of this study is to seek the safety of an accelerated step up protocol of 1 day and the overall safety during a year of treatment with a polymerized without aluminum allergen immunotherapy of olive tree and grasses.

Method: This is a real world multicentric study in South West Spain were we included patients that had received a polymerized allergen immunotherapy of *Olea europaea* and grass, with a rapid schedule of 1 day; after it, there was a follow up of one year where all the adverse reactions were gathered and correlated to the demographic data of the patients.

Results: We recluted 57 patients, (63.2%) men, with a mean age of the study population of 17.47 years old (± 12.18 years old) where 71.9% were children.

There were none systemic reactions along the study and 5 local reactions (7%), which gave us a ratio of 0.54% adverse reactions each 100

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injections. The incidence of adverse reactions in adults was of 12.5% and the incidence in children of 4.9%, no other demographic data was related to an increase of adverse reactions. No patient had to quit immunotherapy treatment and all the adverse events were resolved immediatly.

Conclusion: We presented a study of a rapid step up protocol with a polymerized allergen immunotherapy mixture, with higher prevalence of pediatric population, where we had a very low incidence of adverse reactions and patients tolerated well the treatment, saving time and costs not only to the patient but also to the health care centers.

Conflicts of interest: The authors did not specify any links of interest.

000281 | Oral immunotherapy improves quality of life and psychological burden in parents of children with food allergy

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*Presenting author: S. Shin

Background: Food allergy (FA) has a profound effect on poor quality of life (QoL), stress, and anxiety of patients and their parents. We aimed to investigate changes in QoL and psychological burden in parents of children undergoing oral immunotherapy (OIT) for FA.

Method: Children aged 3 to 14 years with IgE-mediated FAs (egg white, cow's milk, and wheat) were enrolled. Parents were asked to complete the Korean version of the Food Allergy Quality of Life-Parental Burden (K-FAQL-PB), the Korean version of Food Allergy Quality of Life- Parental Form (K-FAQL-PF), Beck Anxiety Inventory (BAI), and Patient Health Questionnaire-9 (PHQ-9) before the OIT (T1) and 2 months after up-dosing (T2). The Student's t-test, paired t-test and Wilcoxon signed rank test were used to compare the scores between and within groups, respectively.

Results: A total 99 of parent-child pairs participated in this study. The K-FAQL-PB scores were decreased at T2 compared to those at T1 ($p < 0.001$). A greater improvement in total K-FAQL-PB scores was noted in parents with higher parental burden (K-FAQL-PB score ≥ 74) at baseline than those with lower one ($p < 0.001$). The PHQ-9 scores were also significantly reduced at T2 compared to those at T1 ($p = 0.011$). No differences were observed in the BAI and the K-FAQLQ-PF scores between T1 and T2 ($p = 0.084$ and 0.126, respectively). Among the K-FAQLQ-PF domains, "food anxiety" scores were lower at T2 than those at T1 ($p = 0.048$), while there were no differences in "social and dietary limitation" and "emotional impact" scores between T1 and T2 ($p > 0.050$). Parents of children who experienced anaphylaxis had lower PHQ-9, K-FAQL-PB, and K-FAQLQ-PF scores at T2 compared to those at T1 ($p = 0.002$, <0.001, and 0.047, respectively). In patients aged 3 to 5, scores of the PHQ-9 and the total K-FAQL-PB scores were reduced at T2 compared to those at T1 ($p = 0.005$ and <0.001, respectively).

Conclusion: Our results suggest that OIT improves QoL and psychosocial burden in parents of children with FA. Greater changes in parental psychological burden are associated with worse baseline QoL, history of anaphylaxis, and younger age of patients with FA.

Conflicts of interest: The authors did not specify any links of interest.

000716 | Sublingual versus subcutaneous immunotherapy: A retrospective study among paediatric patients

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Background: Allergen immunotherapy (AIT) comprises the only clinical approach capable of changing the underlying immunological causes of allergic diseases. Both commonly used routes, subcutaneous (SCIT) and sublingual immunotherapy (SLIT), require patient adherence to be successful. However, non-compliance constitutes a major barrier to achieving the aforementioned optimal outcomes. This study analyses the rate and the main causes of non-compliance with SCIT and SLIT immunotherapy among paediatric patients with allergic respiratory diseases.

Method: Rates and causes of paediatric (<15 years) patients´ non-compliance with SCIT and SLIT treatments were retrospectively analysed from a sample of AIT treatments initiated between 01/01/2019 and 12/31/2021 in the paediatric service of the Hospital of Sagunto (Valencia, Spain). All treatments underwent at least 1-year of observation period.

Results: A total of 807 AIT treatments were analysed. Among all these treatments, 676 (83.8%) were of SCIT and 131 (16.2%) of SLIT. Within SLIT treatments, 79 (60.3%) and 52 (39.7%) were administered via liquid drops and tablets, respectively. The median age of nonadherent patients was 11 years, (Range 4-15). The mean of drop out was 9 months +/- 7.28 SD. Diagnose of those non-compliant patients (69% ♂, 31% ♀) was rhinoconjunctivitis in 60%, asthma in 3% and both conditions in 37%. While SCIT showed a low rate of patient non-compliance (6 treatments, 0.9%), SLIT treatments provided a much higher frequency of non-compliance (29 treatments, 22.1%) having been administered via liquid drops 93.1% of the non-complied treatments. Causes of patient non-compliance with the AIT treatments were classified according to seven different categories: perception of lack of clinical efficacy, lack of comfort with the administration of the treatment, lack of comfort with the treatment schedule, excessive rate of oversights, undergoing of unpleasant adverse reactions, treatment price and other causes. Among non-compliances with SCIT treatments, undergoing unpleasant adverse reactions and the lack of comfort with the administration of the treatment were the main two causes of non-compliance since 50% and 25% of the causes were related with these two items, respectively. Regarding non-compliances with SLIT treatments, experiencing an excessive rate of oversights and undergoing unpleasant adverse reactions constituted the principal

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two reasons for non-compliance as 38.5% and 20.5% of the causes were associated with these two issues.

Conclusion: SLIT showed a much higher level of patient non-compliance compared to SCIT. Most patients who discontinued AIT did it during the first year of therapy, being the main reason for non-compliance with SLIT to experience an excessive rate of oversights, but most SLIT dropouts were from AIT with liquid drops.

Conflicts of interest: The authors did not specify any links of interest.

001660 | Mapping of IgE epitopes of AMB A 6, the nonspecific lipid transfer protein from common ragweed (*Ambrosia artemisiifolia*)

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*Presenting author: M. R. Buzan

Background: Common ragweed is an allergenic weed species which produces high pollen loads throughout its distribution area. The allergen content differs depending on environmental conditions. Amb a 6, the nonspecific lipid transfer proteins (nsLTP), belongs to a ubiquitous plant protein family, known to elicit food-pollen syndrome due to structural homology. In areas with high pollen load, pollen LTPs function as primary sensitizers. Mapping the epitopes of these potentially cross-reactive proteins is an important tool for the design of allergen immunotherapies (AIT).

The aim of this study was to map the IgE epitopes from the Amb a 6, the nsLTP of common ragweed (*Ambrosia artemisiifolia*).

Method: Peptides covering the Amb a 6 sequence have been designed based on the hydrophobicity/hydrophilicity of the amino acid residues. After conjugation with a keyhole limpet hemocyanin (KLH) protein, rabbits were immunized with the peptides. Peptide-specific IgG antibody production was tested in ELISA against Amb a 6, as well as the ability of peptide-specific IgG to inhibit IgE binding towards Amb a 6. The IgE binding capacity of peptides was also verified.

Results: Four peptides with a length of 14-30 amino acids covering the entire sequence of Amb a 6 were designed based on the hydrophobicity/hydrophilicity and chemically synthesized. The highest titre of IgG antibodies against Amb a 6 was obtained after rabbit immunization with peptide 4 (OD = 2.2), followed by peptide 2 (OD = 1.6), peptide 3 (OD = 1.4) and peptide 1 (OD = 0.6). Most of the peptides did not bind IgE from serum of Amb a 6 sensitized patients, only peptide 4 and 3 managed to bind IgE in two patients. Patients showed different patterns of IgE inhibition, overall the highest inhibition was achieved with IgG for peptide 4 (38%), whereas peptide 1 specific IgG showed lowest inhibition (5%).

Conclusion: Overall, the inhibition obtained with peptide specific serum did not exceed 40% in sensitized patients. The results suggest that IgE against Amb a 6 binds mainly to conformational epitopes alongside possibly one sequential epitope. This information is important for further investigations regarding the design of ragweed AIT.

Conflicts of interest: The authors did not specify any links of interest.

000849 | High polysensitization rate to house dust mites (HDM) and storage mites (SM) in a cohort of German allergic patients

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*Presenting author: C. Cacheiro

Background: Mites are one of the main causes of allergic symptoms. Sensitization to HDM is well known, but the prevalence of sensitization to SM in the general population is less studied. Although SM are predominantly considered a hazard of some occupational groups (e.g., farmers, bakers), where they represent an important risk factor for developing occupational asthma, some species have also been found in house dust and sensitization is also found in the general population. Therefore, an accurate diagnosis is required to identify the responsible allergenic mite species and to target therapy to patients. The aim of this work was to evaluate the rate of polysensitization to HDM and SM in a cohort of German allergic patients.

Method: Five hundred allergic patients from different regions of Germany were included in the study. The diagnosis of allergy was based on case history, clinical allergic signs (allergic rhinitis and/or bronchial asthma) and data of skin prick-tests to aeroallergens.Sera samples were collected and analyzed by ImmunoCAP™ to determine the specific IgE levels to 16 main allergenic sources. After this analysis and depending on the results obtained, sIgE to 17 related allergenic sources was determined.In the present sub analysis of the study, we have evaluated the sensitization profile to SM in those patients with a sensitization to HDM.

Results: Out of the 500 subjects included in the study, 204 (41%) were sensitized to mites. From these patients, 202 (99%) were sensitized to *Dermatophagoides pteronyssinus* and 95% of them additionally to *Dermatophagoides farinae*, 62% to *Euroglyphus maynei*, 47% to *Acarus siro*, 36% to *Lepidoglyphus destructor*, 35% to *Blomia tropicalis*, 31% to *Tyrophagus putrescentiae* and 17% to *Glycyphagus domesticus*. The 2 remaining patients (1%), were monosensitized to SM. Only 34% were monosensitized to HDM and 66% of the HDM-sensitized patients were polysensitized to one or more SM.

Conclusion: The present analysis has shown a high rate of polysensitization to HDM and SM and supports the recommendation to include SM in standard sensitization testing and improving personalized immunotherapy treatment.

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Conflicts of interest: Prof. Dr. Mösges reports grants and personal fees from LETI, during the conduct of the study; personal fees from ALK, grants from ASIT biotech, personal fees from allergopharma, personal fees from Allergy Therapeutics, grants and personal fees from Bencard, grants, personal fees and non-financial support from Lofarma, non-financial support from Roxall, grants and personal fees from Stallergenes, grants from Optima, personal fees from Friulchem, personal fees from Hexal, personal fees from Servier, personal fees from Klosterfrau, non-financial support from Atmos, personal fees from Bayer, non-financial support from Bionorica, personal fees from FAES, personal fees from GSK, personal fees from MSD, personal fees from Johnson&Johnson, personal fees from Meda, personal fees and nonfinancial support from Novartis, non-financial support from Otonomy, personal fees from Stada, personal fees from UCB, non-financial support from Ferrero, grants from BitopAG, grants from Hulka, personal fees from Nuvo, grants and personal fees from Ursapharm, personal fees from Menarini, personal fees from Mundipharma, personal fees from Pohl-Boskamp, grants from Inmunotek, grants from Cassella-med GmbH & Co. KG, personal fees from Laboratoire de la Mer, personal fees from Sidroga, grants and personal fees from HAL BV, personal fees from Lek, personal fees from PRO-AdW ise, personal fees from Angelini Pharma, outside the submitted work.

000827 | FEL D 1 specific IgE measurement for the diagnosis of dog and cat co-sensitization patients who adopted dogs exclusively

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Background: Cats and dogs are the most important causes of inhalant allergy. As these allergens are sticky, sensitization to a patient who does not adopt a pet is common. Cross-reactivity between pet dander allergens is well known. In the real world, many exclusive dog owners are co-sensitized to dog and cat allergens. Discrimination of genuine cat sensitization from cross-reactivity is an essential issue. We evaluated the usefulness of Fel d 1 specific IgE (sIgE) measurement for discrimination.
Method: We enrolled 33 dog dander respiratory allergic patients who adopted dogs exclusively. We measured dog, cat and Fel d 1 sIgE, respectively, using ImmunoCAP. We also conducted ImmunoCAP inhibition assays for the evaluation of cross-reactivity by the presence of Fel d 1 sIgE.
Results: Among 33 patients, 25 (75%) had sIgE to cat, and 14 of 25 cat-sensitized groups had Fel d 1 sIgE. In the Fel d 1 positive group ($n = 8$), dog dander extract did not inhibit cat sIgE (0%), whereas cat dander extract showed 95% self-inhibition at the highest concentration (50 μg/mL). In Fel d 1 negative group ($n = 5$), the highest dog dander extract inhibited only 28.1% of cat sIgE, while cat dander extract exhibited 94.6% of self-inhibition.
Conclusion: Real co-sensitization is significant in exclusive dog owners. The negative Fel d 1 sIgE does not exclude the possibility of genuine sensitization of cat dander allergen in these patients.
Conflicts of interest: The authors did not specify any links of interest.

000856 | Real-life effectiveness and safety of oral food immunotherapy in children

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Background: For food allergy, dietary avoidance is the only currently approved treatment. Oral immunotherapy (OIT) has emerged as an active and disease-modifying treatment of IgE-mediated allergies to the most common allergenic food in childhood.The aim of this study is to evaluate the effectiveness and safety of oral immunotherapy in children in real-life conditions.
Method: We retrospectively analyzed the medical records of patients with IgE-mediated food allergy,aged 5 to 16, who underwent an open-label OIT treatment program with milk, peanut and egg and completed OIT treatment between March 2018. and December 2021. at Srebrnjak Children's Hospital, Zagreb, Croatia. Initial dose-escalation, build-up, and maintenance phases were followed by a double blind placebo controlled oral food challenge at least 3 months after reaching maintenance doses. Children who successfully passed the challenge discontinued OIT and avoided all specific food consumption for 4 to 6 weeks, after which were rechallenged for evaluationofsustained unresponsiveness.
Results: A total of 46 children at a median age of 8.3 years who underwent OIT with milk ($n = 15$), peanut ($n = 6$), egg ($n = 25$), were analyzed. The most children (86.5%) weresuccessfully desensitized, but the rates of sustained unresponsiveness were significantly lower (33.4%, average value for 3 foods). The all subjects who successfully completed the study protocol had a significant, 15-20-fold increased threshold to milk, egg or peanut Children who had a high degree of sensitization (class 5 and 6), and who did not undergo omalizumab therapy experienced more adverse reactions during in-clinic up-dosing phase which requiring injectable epinephrine (39% vs. 7.9% respectively, $p < 0.001$).
Conclusion: OIT is successful in desensitizing most children with IgE-mediated food allergy. All treated children significantly increase threshold to applied food. Children undergoing milk, egg or peanut OIT are at increased risk for severe reactions during up-dosing phase of OIT. Omalizumab should be administered to children who have a high risk of severe adverse reactions during OIT.
Conflicts of interest: The authors did not specify any links of interest.

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001392 | Potency testing of allergoids: Development of immunological test systems for quantification of cross-linked, aluminium hydroxide-adsorbed medicinal products

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Background: Type I allergy-related disorders can be treated with allergen immunotherapy (AIT) through desensitization via repeated administration of the causative allergen. In order to reduce allergenicity and enhance immunogenicity of the natural allergen extracts, subcutaneously injected allergen extracts can be chemically modified to generate an "allergoid", which is usually also adsorbed onto aluminum hydroxide. Currently, only a limited number of assays is available for official batch release testing of these products at the level of the finished product. However, determination of allergoid content in aluminium-adsorbed formulations represents a considerable factor to ensure safety and efficacy of AIT products. Test systems, like allergoid-determining immunoassays will present a valuable tool for a more comprehensive assessment of batch-to-batch consistencies and may allow for comparability of allergoid AIT products from different manufacturers.
Method: Allergoid-specific antisera were generated by immunization of rabbits with respective allergoid drug substances for treatment of grass pollen allergy. Isoelectric focusing (IEF) blotting was used to characterize binding of anti-grass allergoid sera to different allergoid drug substances and unmodified allergen extract product components, also to determine the specificity of the antisera. The allergoid content in aluminum adsorbed finished products was determined via an in-house direct immunoassay.
Results: IEF blotting experiments showed specific binding of anti-grass allergoid serum to components of corresponding allergen extracts or allergoid drug substances. However, binding between anti-grass allergoid serum and nonspecific allergoids drug substances, i.e. mugwort or mite, became also apparent. Suitable experimental conditions were defined and optimized in the development of the direct immunoassay utilizing the allergoid-specific sera. Multiple experiments have shown a dose-dependent signal intensity for allergoid AIT products, thus underlining the capacity of the immunoassay for quantitative allergoid analysis in the finished product.
Conclusion: Experiments with self-developed direct immunoassay using characterized anti-grass allergoid sera indicate applicability of this assay for aluminium-adsorbed grass allergoid AIT products of various manufacturers.
Conflicts of interest: The authors did not specify any links of interest.

001238 | Long-term effectiveness of sublingual grass immunotherapy in allergic rhinitis: Patients' perspectives

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Background: Evidence from randomized trials suggest that at least 3 years of allergen immunotherapy provide beneficial effects in patients with allergic rhinitis that can persist for several years after discontinuation of therapy. However, data from real-life is limited. Our aim was to investigate long-term effectiveness of sublingual immunotherapy with grass pollen assessed by satisfaction and "bad/severe" days.
Method: In this observational study adults with allergic rhinitis with/without asthma who completed three-year course of sublingual immunotherapy with grass pollen before at least three years were included. Outcome measures were "bad/severe" days calculated from patients' diaries and satisfaction assessed by Satisfaction Scale for Patients Receiving Allergen Immunotherapy (the ESPIA questionnaire).
Results: A total number or 51 patients were included. Mean age 33 years (SD 9.96); years after SLIT completion – 6,63 (SD 37). The mean number or bad/severe days were 4,33 during the pollen season and 32 (62.75%) patients had no bad/severe days in that period. High ESPIA questionnaire scores was obtained for all dimensions as followed: activities and environment score – 81,31 (SD 20,77); perceived efficacy score – 77.75 (SD 22,72); cost-benefit balance – 82.32 (SD 21.83); general satisfaction – 86,25 (SD18,73): ESPIA overall score – 82.06 (SD 19,99). Number of bad days correlated significantly with satisfaction of patients (correlation coefficient –0.45).
Conclusion: When assessed by two standardized patient reported outcomes grass pollen SLIT seemed to have a long – term beneficial effect years after discontinuation. We believe that these results could stimulate the more frequent use of allergen immunotherapy in allergic patients.
Conflicts of interest: The authors did not specify any links of interest.

001561 | Immunological activity of house dust mite therapeutic preparations compared to native extracts

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Background: House dust mites (HDM) are known as the major source of indoor allergens that can cause allergic rhinitis and asthma. IgE reactivity as well as T-cell reactivity is a characteristic feature of allergens and allergy therapeutics whereby the latter one is a basic requirement of molecules used for allergen specific immune therapy. Therefore,

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allergenic preparations based on non-modified allergens should display both clear IgE-reactivity and T-cell reactivity. Aim of the study was to investigate the biologic activity of Alum-adsorbed *D. farinae* and *D. pteronyssinus* extracts on a functional level by help of cellular assays.

Method: The Alum-adsorbed allergens were used in form of Novo-Helisen Depot (NHD) preparations of *D. farinae* and *D. pteronyssinus* and all analyses were performed in comparison to the extracts of which the NHD preparations originated. The basophil activating capacity was examined by a whole blood FACS assay with fresh samples from house dust mite allergic subjects. The expression of CD203c was measured after stimulation of the basophils with serial dilutions of the extracts and the corresponding NHD preparations. T-cell reactivity was investigated by measuring the proliferation of Der p/f 1 and Der p/f 2 specific T cell lines (TCL) after antigen-presentation by autologous PBMCs using the ^{3}H-thymidine incorporation method.

Results: The experiments revealed that the basophil activation was comparable in NHD mite preparations compared to native extracts. In general, a slightly reduced allergenicity was seen in the NHD preparations in comparison to the extracts, what was noticeable either by a shift of the curve toward higher concentration or by a lower percentage of activated basophils or by both. The T-cell reactivity was completely maintained in the Alum-adsorbed preparations compared to native extracts. A lower stimulation dose of 1 PNU/ml gave clear responses in most of tested TCLs whereas higher dosages revealed considerable toxic effects.

Conclusion: The NHD preparations of *D. farinae* and *D. pteronyssinus* revealed comparable IgE reactivity in terms of basophil activating capacity as well as similar T-cell stimulating capacity as the extract of their origin. The allergenicity of the preparations is even slightly reduced which was expected and can be related back to the Alum adsorption. This makes NHD preparations safer by simultaneous retention of their immunogenicity as seen by T-cell reactivity.

Conflicts of interest: The authors are or have been employees of Allergopharma GmbH & Co. KG

001022 | Shared decision-making between physician patients in allergen immunotherapy (AIT): A Delphi consensus study for a respiratory allergic patient questionnaire

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Background: To assess the preferences of patients starting allergen immunotherapy treatment using an objective approach, a DELPHI consensus was conducted to validate a questionnaire to be used by allergists in their routine clinical practice.

Method: Delphi consensus-driven process was used. Firstly, the final questionnaire was elaborated by 15 allergists who composed the scientific committee which led the study. Secondly, Two-hundred panelists from different Spanish regions were invited to complete, on a nine-point Likert scale, a 16-item questionnaire covering six topic blocks. Consensus was achieved if ≥66.6% of panelists reached agreement or disagreement.

Results: A total of 195 from 200 experts invited to participate (97.5%) answered the questionnaire. The panel experts reached a consensus on "agreement" on a total of 12 of the 16 (75.0%), covering a total of six categories: (a) patient knowledge (2 questions), (b) barriers to patient adherence (3 questions), (c) patient behavior (4 questions), (d) future actions (3 questions), (e) treatment costs (2 questions), and (f) final patient preferences (2 questions).

Conclusion: A set of twelve recommended questions for patients which objectively assessing their preferences and suitability for the most common allergen immunotherapy (AIT) options available was validated by a Delphi study consensus. To assists allergist in making an objective, non conditioned decision how to decide the best AIT option treatment for each patient through a questionnaire, when all routes of administration are previously informed, is the main intention of this questionnaire.

Conflicts of interest: Lectures fees: Stallergenes-Greer, ALK-Abelló, GSK, Astra-Zeneca, Allergy Therapeutics, Leti — Industry sponsored AIT clinical trials: ALK-Abelló, Roxal, Leti, Stallergenes-Greer, HAL, Astra-Zeneca — Advisory: Stallergenes-Greer, ALK-Abelló, Leti.

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001664 | Decline in the bee population – Its impact on the number of allergic reactions to bee venom

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Background: Climate change, associated with increasing temperatures and shifting worldwide weather patternsaffect allergens and patients suffering from allergies in many ways, both directly and indirectly. Thedisruption in seasonality and increasing temperatures are also causing global decline in beepopulations, especially among large bees, due to their inferior heat tolerance. It is also hypothesisedthat the steadily increasing stress that the climate change puts on bees may inadvertently stimulatethe proliferation of wasp populations.

Method: We analysed the medical records of 271 patients qualified for venom immunotherapy (VIT) in ourtertiary allergology centre in years 2012-2022. We noted the frequency of positive skin and allergen-specific results to honeybee and wasp extracts, as well as patients clinical history. We then built adatabase to assess the frequency and ratio of both bee and wasp venom anaphylaxis and VIT in eachyear.

Results: During the time of analysis, the percentage of patients diagnosed and treated for bee venomanaphylaxis dropped from 47% in 2012 to 32% and 9% in 2017 and 2022, respectively.

Conclusion: The worldwide decline of bee populations may have significant effects on the frequency ofhymenoptera venom allergies, reducing the occurrence of bee stings and the resulting anaphylaxis-incidents. Further data are required to explain the possible reasons of such phenomenon.

Conflicts of interest: The authors did not specify any links of interest.

000987 | Cross-reactivity between respiratory and food allergens increases burden of disease in children and adults with grass, tree, ragweed, and house dust mite allergic rhinitis

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Background: Allergy immunotherapy (AIT), administered as SQ sublingual immunotherapy (SLIT)-tablets, is an effective and well-tolerated treatment of allergic rhinitis (AR) as shown for the four most common respiratory allergens: grass; tree; ragweed; and house dust mite (HDM). Cross-reactivity between especially pollen and food allergens is well-documented. In birch pollen allergic patients, the SQ tree SLIT-tablet has shown potential effect on symptoms in an apple challenge.[1] However, despite food allergy decreasing quality of life, few international guidelines address the concern of cross-reactivity and its possible impact on AR patients. This review aims to increase clinical awareness of cross-reactivity between respiratory (grass, tree, ragweed, and HDM) and food allergens and the burden of disease that it may add to AR patients.

Method: PubMed was searched for English literature published in 2012-2022 using the MeSH terms "oral allergy syndrome", "pollen food syndrome", and "allergy, food" AND "allergy, house dust mite".

Results: Of 166 screened publications, 25 were included for review. Several factors impacted estimates of prevalence and clinical severity of cross-reactivity between respiratory allergens and food items e.g., geographical variation, underreporting and -diagnosis, and controversial syndrome definitions. Reported prevalence varied between 5-70% in AR patients. In tree pollen allergic patients, it was up to 90%. Children and adults as well as males and females were similarly affected. Although symptoms were primarily mild oropharyngeal lasting minutes-hour, gastrointestinal and systemic reactions (<10%) including anaphylaxis (<2%) also occurred. Reactions occurred all-year-round, but frequency and severity may increase during or directly after the relevant pollen season. Table 1 presents a suggestive categorisation of triggering food items by respiratory allergen sources. Current management includes patient education, allergen avoidance, diet evaluation, symptom-relieving medication, and, in specific cases, access to self-injectable adrenaline.

Conclusion: Estimating prevalence and clinical severity of cross-reactivity between respiratory and food allergens is complicated. This complexity and lack of effective treatment increase burden of disease of affected AR patients. The SQ tree SLIT-tablet has shown potential effect on birch/apple-cross-reactivity, but further research is needed to evaluate the full benefit of AIT.

1. Till SJ *et al. Allergy.* 2020;75(8):2059-61

TABLE 1 Suggested categories of cross-reacting respiratory allergen sources and triggering food items.

Respiratory allergen source	Triggering food items*†			
	Fruits	Vegetables/Spices	Nuts/Seeds/Legumes	Shellfish
Grass	Fig, kiwi, melon, orange, tomato, watermelon	Potato, Swiss chard	Peanut	
Tree‡	Apricot,§ apple, avocado,§ banana,§ cherry, fig,§ kiwi,§ nectarine,§ peach, pear, plum,§ raspberry,¶ strawberry, tomato§	Carrot,§ celery, chicory,§ cilantro,§ cumin,§ dill,§ fennel,§ green pepper,§ parsley, parsnip,§ potato§	Almond, beans,§ hazelnut, lentil,§ peanut,§ peas,§ soybeans,§ walnut, wheat§	
Ragweed	Banana, honey dew, melon, watermelon	Cucumber, squash, zucchini	Sunflower seeds	
HDM				Shrimp

Table 1 is adapted from Kelava N *et al. Acta Clin Croat.* 2014; 53(2):210-9 and Mastrorilli C *et al.* Medicina (Kaunas). 2019;55(10):641

HDM, house dust mite

* Triggering food items are listed in alphabetical order within each category

† Triggering food items are subject to geographical variation

‡ Members of the birch homologous group (birch, alder, hornbeam, hazel, oak, and beech)

§ Demonstrated for birch only

¶ Demonstrated for alder only

Conflicts of interest: TB has given advice to or got an honorarium for talks or research grant from AbbVie, ALK-Abelló, Almirall, Celgene-BMS (Amgen), Lilly Deutschland GmbH, Mylan & Viatris, Novartis, Phadia-Thermo Fisher, Sanofi-Genzyme, and Regeneron.SJT has received grants from ASIT Biotech and consultant fees from Aimmune. JMCSS has no conflicts of interests to declare.

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001563 | Drago application: Implementing adherence to pollen allergen immunotherapy

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Background: Pollen allergies affect approximately 40% of allergic patients. Allergen immunotherapy (AIT) is the only disease-modifying treatment for patients suffering from IgE-mediated allergic conditions to these pollens. The DRAGO[R] application (APP) is a French free application to optimize the use of AIT through education modules, timing track and implementation of adherence based on games and avatar evolution. Patients were offered to voluntarily use the application simultaneously to their AIT. We aimed to demonstrate the impact of the DRAGO[R]APP in the adherence to pollens AIT.
Method: We studied data related to patients' adherence to pollen AIT over the last 2 years, across 3 seasons. Data generated were anonymized and stored following the French regulations. Adherence was defined as the overall process by which patients take AIT as agreed with their healthcare provider. Compliance referred to the implementation of the dosing regimen (as measured by the % of dose increase each 3 months). In order to study persistence, users were divided into groups according to the start date of treatment in 3-month increments. For each variable, we have defined an average objective corresponding to the middle of the period.
Results: From overall 3,357 users after 27 months of launch, 1,328 (39.5%) were undergoing pollens AIT, receiving 107 mean number of doses. Most of patients were children aged less than 12 years (46%), 217 (35%) were adolescents and 497 (37%) adults. Mean rate of compliance was 59%, following seasonal trends. Mean persistence was estimated in 271 days, with 60% of mean percentage adherence. Mean compliance was higher in adolescents (65%), but mean persistence (293 days) and adherence (67%) were considerably higher in children.
Conclusion: Positive impact on adherence was observed in patients using DRAGO[R]APP and undergoing pollen AIT, in particular in the children population. Although the presented data is French based, the English version of DRAGO[R]APP will soon be available for international use and validation of our outcomes.
Conflicts of interest: The authors did not specify any links of interest.

000950 | Symmetrical drug-related intertriginous and flexural exanthema (SDRIFE): A pediatric case report

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Background: Symmetrical drug-related intertriginous and flexural exanthema (SDRIFE) is anuncommon form of cutaneous drug reaction. It affects the intertriginous or flexural areassymmetrically in the absence systemic symptoms following systemic administration of a drug.Themanifestations of SDRIFE should be known because they do not always suggest toxidermia.
Method: We report a case of DB, a 9 year old child with a previous history of eruption similar to thisepisode 2 years ago after taking acetylic acide medication. who presented with symmetricalextensive pruritic generalized lesions suggestive of a febrile fulminans purpura. The rash startedfrom the perineal area one day after taking acetylsalicylic acid. The examination of the other deviceswas unremarkable. The children progressed well on antihistamines and prednisolone.
Results: Baboon syndrome has recently been grouped with other dermatoses affecting the pelvic region andlarge flexural folds under the acronym SDRIFE. The criteria are: (1) rash that is secondary to systemicdrug exposure, (2) combination of well-limited erythema of the perianal area and/or V-shapederythema of the inguinal and perigenital areas, (3) involvement of at least one of the folds, (4) symmetrical rash, and (5) absence of systemic signs and symptoms. This syndrome has been reportedwith the use of multiple drugs and its pathophysiology is poorly understood. It is thought to be adelayed hypersensitivity for which patch testing may be of interest. It appears a few hours to a fewdays after taking a drug.
Conclusion: Although SDRIFE is rare, allergists should be aware of itspresentation when evaluating patients with drug allergies.
Conflicts of interest: The authors did not specify any links of interest.

000996 | The loxoscelism: A pediatric case report

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Background: The loxoscelism is an envenomation resulting from the bite of spider of the genusloxosceles, the cutaneous attack comes in the first place, with cutaneous necrosis in the extremecases. the cutaneous-visceral loxoscelism is rarer and potentially fatal. We report an observation ofenvenomation by spider bite, very suggestive of cutaneous loxoscelism.

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Method: M.j A 14-year-old child, without any pathological history, who consulted for a diffuse cutaneous eruption in acontext of fever that occurred within 24 hours after the bite of a spider at home, with a consultationdelay of 3 days and the notion of locating the spider nearby. The bite occurred on the anterointernalaspect of the right arm, creating an edematous erythematous-squamous inflammatory placardcentered on a necrotic lesion of 2 cm in diameter. A slightly scaly pruritic morbiliform erythemainvolving the back, the trunk, the upper and lower limbs and initially sparing the hands, the feet andthe face. General signs such as fever of 39, asthenia, diffuse myalgias and intermittent vomiting werereported by the patient.Biological tests showed an elevated crp and hypereosiniphilia. Local care andgeneral corticosteroid therapy were administered with a favorable evolution in oneweek.

Results: The Loxoscelism is the syndrome resulting from the bite of a spider of the genusLoxosceles, it is due to a venom of variable toxicity. The disorders can be limited to a localinflammatory reaction, not very painful, healing spontaneously, sometimes after small eschar andminimal ulceration. However, in its major form, loxoscelism is characterized by a more or lessextensive necrosis or a state of shock. More rarely, within 2 to 3 days after the bite, a state of shockmay occur with hemolysis, hemoglobinuria, jaundice, fever, renal failure and consciousnessdisorders. This syndrome is unpredictable and does not seem to depend on the age of the subject,the site of the bite, or the importance of the first symptoms.

Conclusion: The diagnosis of Theloxoscelism is based on a set of clinical arguments including the identification of the spider by thepatient and the clinical presentation of the lesions. The treatment is symptomatic, sometimesrequiring surgical removal.

Conflicts of interest: The authors did not specify any links of interest.

ALLERGY DIAGNOSIS + SYSTEMS MEDICINE 2

000106 | Perioperative anaphylaxis workup study in Hong Kong (PAWS-HK): a decade of exploring – evaluating diagnostic tools and uncovering female preponderance in Suxamethonium allergy

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Background: Studies on perioperative anaphylaxis (PA) in Asia are lacking. Furthermore, allergy workup for PA has largely been limited to the "silver standard" of skin tests (ST). Utilizing *in-vitro* tests as an adjunct to ST may improve and overcome these diagnostic challenges. The Perioperative Anaphylaxis Workup Study in Hong Kong (PAWS-HK) cohort was thus established to evaluate the clinical characteristics and diagnostic tests of patients with suspected PA.

Method: Patients with a diagnosis of PA over a 10-year period were recruited into PAWS-HK. We reviewed the medical records, tryptase elevation and diagnostic tests including ST, specific IgE and basophil activation tests (BAT).

Results: In 151 patients with PA, diagnosis was reached in three-quarters of the cases (113/151, 74.8%). The most common culprits identified were neuromuscular blocking agents (NMBA) (25.8%), β-lactams (17.2%) and chlorhexidine (13.9%). Severe anaphylaxis was associated with female sex, older age, elevated acute tryptase levels, and more cardiovascular manifestations during induction. ST remained the most sensitive diagnostic modality overall (66.2%). BAT demonstrated better performance for chlorhexidine and gelofusine anaphylaxis with sensitivity of 80.0% and 79.6% respectively. sIgE demonstrated even higher sensitivity (95.2%) than ST (85.0%) and BAT (80.0%) for chlorhexidine anaphylaxis but performed poorly for other drugs.

Conclusion: NMBAs remain the most common culprit in PA. There was a higher prevalence of gelofusine anaphylaxis in our cohort compared to literature. ST remain the most sensitive testing modality. *In-vitro* tests for chlorhexidine and gelofusine showed promising results, but further studies to further elucidate its use are warranted.

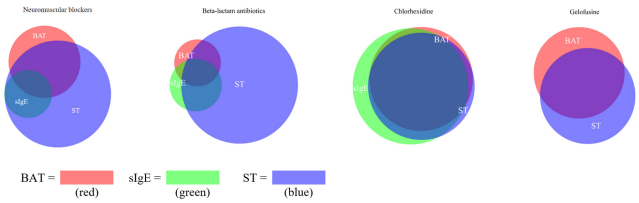

FIGURE 1 Venn diagrams of positive and overlapping investigations for patients with NMBA, BL antibiotics, chlorhexidine and gelofusine anaphylaxis. BAT, basophil activation tests; sIgE, specific IgE tests; ST, skin tests.

Conflicts of interest: The authors did not specify any links of interest.

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000874 | Put a ring on it? When the ring is not what you wished

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Background: Beta-lactam antibiotics are widely used; however, they are responsible for a large amount of drug hypersensitivity reactions. Although they all share a four membered beta-lactam ring, due to the recently increased use of semisynthetic penicillins in the last years, sensitization to the side chain is much more frequent than to the beta-lactam ring itself with this being an unusual circumstance.
Method: An allergy study was performed including skin tests, specific serum IgE (penicilloyl V, penicilloyl G and amoxicillin) and a drug challenge test (DCT) if necessary.
Results: Clinical records were revised, from 2015 to 2022. The study was performed in less than one year after the reaction. From the total of 3524 patients studied with suspected allergy to beta lactams, we found 376 cases attributable to sensitization to a side chain and 7 cases of beta-lactam allergy due to sensitization to the beta-lactam ring. They were all, immediate reactions. There were 6 females and 1 male. The culprit agent was amoxicillin in 4 of the cases and amoxicillin-clavulanic acid, piperacillin/tazobactam and ampicillin. Four patients presented as an anaphylaxis, the other 3 as urticaria, one of them accompanied by angioedema. One patient had a positive skin prick test (SPT) with penicilloyl G (PNG) and amoxicillin (AMX). Another had a positive intradermal test (IDT) with PNG and AMX. The third patient had a positive SPT with AMX and a positive IDT with PNG, the next one had a positive IDT with PNG, the fifth had a positive IDT with penicilloyl polylysine (PPL) and a positive IgE with PNG0.8 kU/L) and penicilloyl V (PNV) (0.83 kU/L). The sixth patient had a positive IgE with PNG (0.87 kU/L) and PNV(1.71 kU/L). The last patient showed a positive IgE with PNG (0.91 kU/L), PNV (0.81 kU/L) and AMX (0.7 kU/L) and a positive IDT with *AMX*.
Conclusion: As this is a rare event, we thought that it is important to consider the possibility of sensitization to the β-lactam ring, in order to avoid the entire group, with the implications that this entails. All our patients had a positive test (either a skin test or serum IgE) with penicilloyl G, which is a natural penicillin, even though the culprit agent that caused the allergic reaction belonged to another β-lactam group, demonstrating a cross reactivity between them, caused by the shared beta lactam ring.
Conflicts of interest: The authors did not specify any links of interest.

000986 | Usefulness of the basophil activation test to confirm the diagnosis of Kounis syndrome is secondary to hypersensitivity to levofloxacin

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Background: Kounis syndrome (KS) is characterized by the coexistence of acute coronary syndromes in the context of mast cell and platelet activation in response to hypersensitivity reactions. Induced by various conditions including drugs.
Objectives: To describe the case of an acute coronary syndrome secondary to an allergic reaction after intravenous administration of Levofloxacin in a man with no history of coronary artery disease and to show the usefulness of BAT as a diagnostic tool.
Method: A 74-year-old hypertensive man, COPD, and type II diabetic attended the emergency department with a respiratory infection and after administration of Levofloxacin intravenously, 30 minutes later, developed disseminated urticaria, severe chest pain, dyspnea with wheezing, loss of saturation, hypotension (90/60 mmHg) with presence of tachycardia and loss of consciousness.
Electrocardiogram showed ST segment elevation in inferior leads. Adrenaline, Morphine Sulfate, Amiodarone, Methylprednisolone, Diphenhydramine and Ranitidine were administered. With this treatment the referred clinical and electrocardiographic alterations improved shortly.
Blood test results revealed increased troponin I levels.
Subsequent coronary angiography revealed no evidence of coronary artery disease.
Levofloxacin and BAT skin tests for different quinolones were performed.
Results: Skin tests with prick test (5 mg/ml) and intradermal reaction (0.005 mg/ml and 0.05 mg/ml) with Levofloxacin were positive at the maximum concentration tested in the RDI.
BAT by flow cytometry labeled with anti-CD63 and anti-CD123 with Levofloxacin and Ciprofloxacin showed clear basophil activation for both Levofloxacin (IS:5.26) and Ciprofloxacin (IS:7.82) at different concentrations.
Given the results, a controlled exposure test was not performed with any quinolone and a study was carried out with an alternative: Amoxicillin-Clavulanic acid, with negative results.
Conclusion: Our patient was diagnosed with coronary spasm due to allergic reaction to Levofloxacin (KS type I, since he had normal coronary arteries). He was advised to avoid all drugs of the Quinolone family.
All patients admitted to the emergency department with chest pain and ST segment alterations in the electrocardiogram should be questioned for allergic triggers.
In severe cases in which a controlled exposure test is not indicated, it could be useful to perform BAT to determine the etiology of the reaction and establish appropriate recommendations.
Conflicts of interest: The authors did not specify any links of interest.

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001135 | Anaphylaxis due to novel food proteins: A case report of grasshopper allergy

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*Presenting author: S. Terlouw

Background: In search for alternative protein sources, novel proteins such as grasshopper and cricket become popular on the market and are promising candidates for human consumption. Case presentation: a 50 year old man was presented to the Erasmus MC out-patient clinic, with a history of 2 episodes of anaphylaxis probably caused by eating grasshopper. 13 years ago patient was eating a roasted grasshopper (Locusta migratoria) on a stick during a boat trip in the Amazon. He experienced redness of the skin, and extreme itch all over the body, one hour later he collapsed shortly. The symptoms diminished without treatment. During the summer of 2021, patient was eating a cricket (Acheta domesticus) burger and again he experienced redness of the skin, with angioedema of the neck, and malaise. He was treated with prednisolone. Patient has a mild sensitization for HDM, with no seasonal rhinitis, no asthma, no eczema, no food allergies. Written informed consent was obtained from the patient.

Methods and results: After a positive skin prick test with homemade extracts of grasshopper (HEP 0.48) and cricket (HEP 0.57), and positive sIgE for mealworm (Tenebrio molitor Ten m: 0.57 kUAL) and cricket (Acheta domesticus Ach d: 0.43 kUAL), patient underwent a positive food challenge with 7 incremental doses grasshopper (3, 10, 30, 100, 300, 1000, and 3000 mg) at the Erasmus MC day care. After dose 7 patient experienced erythema of the skin (face and back), headache, sense of throat swelling, itchy eyes, rhinitis, and nausea. Patient was treated with cetirizin 10 mg, clemastin 2mg IM, and due to persistent complaints received adrenalin 0.3 mg IM. Patient stayed for prolonged observation at the day care during the evening. Baseline tryptase: 10.9 µg/l, tryptase after challenge: 18.3 µg/L. C-Kit mutation in blood was negative. sIgE Der p 10 tropomyosin negative, Arginine kinase (Der p 20) negative, and Myosine (Der p 11) negative. Der f 2: 2.65 kUAL, Der p 2: 2.63 kUAL (both NPC2 family), Cystein protease (Der p 1) 0.44 kUAL.

Conclusion: Patient has a challenge proven IgE-mediated food allergy to grasshopper, with possible cross-sensitization to cricket and mealworm.

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Conflicts of interest: The authors did not specify any links of interest.

001298 | Characterization of amoxicillin and clavulanic acid hypersensitivity: A retrospective study in a tertiary hospital in Madrid

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Background: An increasing number of patients show selective hypersensitivity reactions to clavulanic acid and amoxicillin, probably due to their increased prescription. This study aims to make a comparative description of patients with hypersensitivity to amoxicillin and/or clavulanic acid.

Method: A retrospective study was performed, selecting patients referred to the Allergy department of Ramón y Cajal Hospital in Madrid, between October 2018 and March 2022 with suspected amoxicillin/clavulanic acid hypersensitivity. After an allergological workup, patients were divided into allergic to amoxicillin, allergic to clavulanic acid, negative study and not studied, according to the results of the different tests performed.

Results: 146 patients referred with suspected amoxicillin/clavulanic acid hypersensitivity were included. 27 were diagnosed as allergic to clavulanic acid, 13 allergic to amoxicillin, 54 patients had a negative study and 52 patients were not studied. Of the patients allergic to clavulanic acid, 18 presented immediate reaction and 9 delayed. 8 patients were male and 19 were female. The clinical presentation was the following: 4 of the patients experienced anaphylaxis, 4 angioedema, 18 had skin rash and 1 case of respiratory reaction occurred. Of those patients allergic to amoxicillin, the clinical presentation was 7 anaphylactic reactions and 6 patients angioedemas. 10 patients presented immediate reactions and 3 delayed. 5 of these patients were male and 5 were female.

Conclusion: Clavulanic acid hypersensitivity predominates in our sample. The clinical manifestation experienced by patients allergic to clavulanic acid is mostly cutaneous, with scarce cases of other reactions, while amoxicillin allergic patients experience anaphylactic and cutaneous reactions in similar proportions. Immediate reactions are the most frequent in both clavulanic and amoxicillin allergy groups. Patients allergic to clavulanic acid are mainly women, while in the group of patients allergic to amoxicillin, men predominate.

Conflicts of interest: The authors did not specify any links of interest.

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001305 | Fenugreek allergy in children: prevalence in sensitized children and diagnostic values of skin prick test and specific IgE

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Background: In the past 25 years, several cases of fenugreek allergy have been reported, mostly in adults and most of the times associated with peanut allergy. The main objectives of our study were to evaluate the prevalence and severity of allergy to fenugreek in sensitized children and determine diagnostic values of skin prick-test (SPT) and specific IgE.
Method: A retrospective observational study was conducted. All children sensitized to fenugreek and who underwent a fenugreek oral food challenge (OFC) in the Pediatric Allergy Department of the University Hospital of Nancy between January 2017 and March 2022 were included. Data collected were demographic characteristics, atopic comorbidities, SPT, sIgE, prior allergic reactions, and OFC to fenugreek.
Results: Among the 46 children included, OFC was positive for 10 children (21.7%), with a median cumulative reactogenic dose of 96.9 mg [58.3-135.5] and 60% of severe allergic reactions. Positive predictive values for SPT and specific IgE to fenugreek were respectively 40% for 11mm and 28.6% for 22kU/L. All children had a relevant peanut allergy. Children with fenugreek allergy had a significant higher SPT value to fenugreek than children sensitized but tolerant ($p = 0.02$).
Conclusion: In children sensitized to fenugreek, one in five had a confirmed allergy, mostly with a severe reaction. As diagnostic values of SPT and sIgE are low, OFC is needed in case of sensitization. Sensitization to fenugreek should be systematically explored in children with peanut allergy and fenugreek allergy cases should be reported to the anaphylaxis registry, in order to increase knowledge.
Conflicts of interest: The authors did not specify any links of interest.

001312 | The molecular profile of children with coeliac disease based on IgE determined in blood serum using multiplex

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Background: After diagnosis of coeliac disease (CD) some patients may have persistent symptoms, even if a gluten-free diet was introduced. Proper dietary verification often requires the exclusion of other disorders, such as lactose intolerance or food allergy. The aim of this study was to determine the frequency of allergen sensitisation in CD paediatric patients.
Method: 100 children (62 girls), with age range 2.2 – 17.3 years (mean age 8.4 years), newly diagnosed with CD at the Department of Gastroenterology Hepatology and Nutrition of the Children´s Memorial Health Institute in Warsaw, according to ESPGHAN guideline were analysed in serum using IgE multiplex tests (ALEX2, Macro-Array DX, Austria), containing 117 extracts and 178 molecular components of allergens (with blocker anti-CCDs. Optical density was measured with the use of a microplate reader (ImageXplorer) and Raptor analysis software. The specific IgE to molecular components higher than 0.3 kU_A/L was as positive.
Results: The specific IgE to 87 molecular components (64 inhalant, 21 food and 5 innych) from 178 tested were detected in 42% of patients with CD. The most often sensitization was observed to Phl p 1 timothy grass (20%), Lol p 1 ryegrass (18%), Bet v 1 birch (14%) and Der p 23 *Dermatophagoides pteronyssinus* (14%). In individual groups of families, the following order was observed: for the family PR10: Bet v 1 (14%)>Aln g 1; Cor a 1.0103, Cor a 1.0401; Fag s 1; Mal d 1 (11%) > Ara h 8 (9%) > Api g 1; Dau c 1; Gly m 4 (6%); for profilin family Bet v 2; Cuc m 2; Hev b 8; Mer a 1; Phl p 12; Pho d 2 (3%); for polcalcin family Aln g 4; Phl p 7 (2%), dla nsLTP Api g 2; Api g 6; Art v 3.0201; Can s 3 (1%) for defensin Art v 1.0101(3%) > Amb a 4 (1%); for lipocaline Can f 4; Can f 6; Cav p 1; Equ c 1; Mus m 1 (3%) > Fel d 4 (2%) > Can f 1; Can f 2; Fel d 7; Ory c 1; Phod s 1 (1%), for NPC2 Der f 2; Der p 2 (12%) > Gly d 2 (10%) > Lep d 2 (6%) > Tyr p 2 (4%); for cysteine proteases Der f 1 (12%) > Der p 1 (10%); for β- expansins Phl p 1 (20%) > Lol p 1 (18%) > Cyn d 1 (12%). No sIgE to wheat molecules was found in children with CD (even with a cutoff of 0.1 kU/L).
Conclusion: This preliminary study showed the high frequency of allergic sensitisation to inhaled and food molecular allergens in CD paediatric patient. Some of these allergens are able to cross-react with food proteins, what can affect dietary treatment in CD.
Conflicts of interest: The authors did not specify any links of interest.

000472 | Hypersensitivity reaction to gadoterate meglumine: A case report

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Background: The gadolinium-derived paramagnetic contrast media (PCM) are divided into macrocyclic and linear, the first include: meglumine gadoterate, gadoteridol, and gadobutrol; while the linear include: dimeglumine gadopentate, dimeglumine gadobenate and gadodiamide. The estimated incidence of hypersensitivity reactions due to PCM is 0.07% and they are mainly caused by linear drugs

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Method: We present the case of a 24-year-old man with no history of exposure to PCM. Pilonidal sinus was diagnosed and a magnetic resonance imaging (MRI) of the lumbosacral region was performed with meglumine gadoterate. A few minutes after administration, he presented ocular and pharyngeal pruritus that became generalized, accompanied by urticaria that resolved in less than 2 hours after the administration of dexchlorpheniramine 5 mg. The allergy study was performed 10 weeks later, which included: 1) Skin tests with gadobutrol, gadobenate dimeglumine, which were negative, and with gadoterate meglumine, which were positive 2) Basophil activation tests with gadobutrol, gadobenate dimeglumine and gadoterate meglumine were negative. 3) Although it was possible to perform a challenge with the PCM the patient refused it

Results: The hypersensitivity reactions to PCM are rare. The main risk factor is having had a previous reaction with these drugs. Gadobenate dimeglumine is commonly implicated, and to a lesser extent by gadodiamide and gadoterate meglumine. The cross-reactivity is unclear, although it appears to be absent between macrocyclics and linears

Conclusion: Any PCM can trigger hypersensitivity reactions, although meglumine gadoterate is considered low risk, as it belongs to the group of macrocyclics, although it must be taken into account that this drug can cause IgE-mediated reactions even in the first exposures to it, that's why the proper allergy study is essential to preserve the safety of patients in subsequent exposures

Conflicts of interest: The authors did not specify any links of interest.

001105 | Management of FPIES: The usual and the unusual

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Background: Food protein–induced enterocolitis syndrome (FPIES) is a non-IgE-mediated food allergy, previously considered a rare disease, whose diagnosis and clinical awareness is increasing. Management is challenging, since little is known about its pathophysiology and natural history. We aimed to describe the clinical presentation and the natural history of a group of patients with FPIES followed in our allergy department.

Method: A cross-sectional retrospective analysis of the clinical records of patients with the diagnosis of FPIES evaluated between 2017 and 2022. Diagnosis was based on clinical history of repeated delayed and reproducible gastrointestinal symptoms following specific food intake. Information regarding clinical presentation, food triggers, atopy, comorbidities and allergic work-up was included.

Results: A total of 22 patients had a diagnosis of FPIES, 54.5% male, median age of presentation was 1 year (range 6 months to 57 years). The implicated foods were: egg ($n = 7$), cow's milk ($n = 6$) fish ($n = 5$), shellfish ($n = 3$), banana, rice, oat and chestnut ($n = 1$). Two patients had symptoms with 2 unrelated foods. Clinical presentation was repetitive vomiting (100%), diarrhea (54%), prostration (50%) and abdominal pain (23%) that started between 2h and 5h (mean 2.5 h) after food consumption; 40% required emergency room visit and 20% fluid rehydration. All except one, who had positive sIgE to egg, did not present IgE mediated sensitization (measured by skin testing or serum sIgE) to the suspected food. Oral food challenges (OFC) were performed to evaluate tolerance to the culprit allergen and they were positive in 9/15 patients. All were advised to avoid the culprit foods and some underwent periodic OFC to verify tolerance. Nine (40%) acquired spontaneous tolerance to the allergen during follow-up.

Conclusion: FPIES is a clinical entity with increasing clinical awareness. It can be triggered in the same patient by different food allergens. Although it typically occurs in childhood, there may be some late-onset cases of FPIES during adulthood. FPIES may naturally resolve, however, in our sample most of the patients remained symptomatic after the first OFC. Therefore, long term follow-up and rechallenges are warranted.

Conflicts of interest: The authors did not specify any links of interest.

001085 | Positive basophil activation test in immediate hypersensitivity due to fosfomycin: A case report

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Background: Fosfomycin is a bactericidal agent derived from phosphonic acid. It inactivates the enzyme phosphoenolpyruvate transferase, key in the synthesis of N-acetylmuramic acid, a peptidoglycan component of the bacterial wall. Its spectrum of action includes gram-negative and gram-positive bacteria and some anaerobes, which is why its use is common for the treatment of uncomplicated urinary tract infections. In spite of its widespread use, there are few reported cases of allergy to fosfomycin, and even fewer with positivity to in vitro tests.

Method: We report a case of a 32-year-old woman referred to our Allergology Department, who had facial erythema, generalized heat sensation and wheals predominantly on the neckline and face, 20 minutes after taking a single dose of 3 grams of fosfomycin indicated for urinary tract infection. She did not experience any other symptomatology. The aforementioned episode happened one year prior to her first consultation with us, as well a similar occurrence 3 years before, also after taking fosfomycin. Intraepidermal (prick) and intradermal (ID) skin tests with fosfomycin were performed and basophil activation test (BAT) against the drug was requested.

Results: Prick skin tests against fosfomycin at 100 mg/ml and ID at 1 mg/ml and 10 mg/ml were negative. BAT was positive with an activation index for CD203c>2 in all three tested concentrations (0,5mg/mL, 2,5mg/mL and 5mg/mL, respectively). CD63 expression remained negative after incubation with the drug. To exclude the posibility of a false positive result, BAT was performed in two

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control patients with confirmed good tolerance to the drug, BAT was negative in both of them. In our case, BAT to fosfomycin was repeated 2 years after the initial reaction with a negative result.

Conclusion: To date, this is the first case reported to positive CD203c BAT to fosfomycin. Therefore, CD203c could be considered a biomarker to confirm the diagnosis of fosfomycin hipersensitivity. It is important to consider its possible negativization 2 years after the initial reaction.

Conflicts of interest: The authors did not specify any links of interest.

001198 | Allergy induced by betamethasone phosphate after intra-articular infiltration

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Background: Glucocorticoids are prescribed for their immunosuppressive, antiproliferative, anti-inflammatory effects and are integral to the management of numerous conditions, including autoimmune and allergic diseases, and asthma.

Intra-articular glucocorticoid injections appear to be beneficial in the treatment of shoulder inflammation, leading to improved range of motion and pain reduction. Successful treatment depends upon the duration of symptoms: patients who receive injections early in their course are more likely to obtain benefit, possibly due to a reduction of synovitis.

Hypersensitivity reactions to systemic corticosteroids are considered rare reactions. Hydrocortisone and methylprednisolone succinate esters are the most frequent substances triggering immediate type adverse reactions, while halogenated corticosteroids are rarely involved. We describe the case of an allergy reaction in a patient, occurring after an intra-articular infiltration of Betamethasone Phosphate.

Method: The patient is a woman of 71 years old with a clinical history of previous hypersensivity reactions to macrolides and iodinated contrast agents.

After shoulder intra-articular infiltration with Lidocaine and Bethamenthasone presented in a lapse of 9 hours symptoms of irritative cough with white expectoration, rhinorrhea, dyspnea, pharyngeal oppression and burning facial edema on the face and thorax. The symptoms subsided in few hours after treatment with Hydrocortisone and Polaramine. The auscultation and blood oxygen levels (SpO2) were normal.

The patient was submitted to our unit where we performed exposure tests with Lidocaine, Bethamethasone and Methylprednisolone.

Results:

- Controlled exposure test: Negative to Lidocaine
- Controlled exposure test: Positive to Bethamethasone presenting clinical manifestations such as facial and eyelid edema.
- Controlled exposure test: Negative to Methylprednisolone up to therapeutic doses.

Conclusion: We describe a case of a reaction to second generation corticosteroid molecules as Bethamethasone after intra-articular infiltration presenting tolerance to Methylprednisolone.

Conflicts of interest: The authors did not specify any links of interest.

001196 | Two cases of anaphylaxis due to oats ingestion

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Case report: Few cases of oat allergy have been described and its allergens haven't been precisely identified. We report two cases of anaphylaxis due to oats ingestion.

Case 1 – 13-year-old boy with a history of atopic dermatitis and the use of emollients containing oat extract. He had an episode of generalized exanthema, dyspnea, dry cough, and labial angioedema, 20 minutes after the ingestion of a slice of cake made of oat flour. Three months later, he presented with a similar episode after eating a cereal bar containing oats. Skin prick tests (SPTs) and prick-by-prick were positive with oat flour extract and oats, respectively. Specific IgE levels were high for oats (68.10 KUA/L) and lower for other cereals such as barley, rye, wheat, and corn (1.23-4.87 KUA/L), which he was eating regularly. Allergen microarray immunoassay showed positive results for Ana o 2 (0,5 ISU-E) and Gly m 6 (0.6 ISU-E), but he tolerated cashew and soy.

Case 2 – 22-year-old man with a history of atopic dermatitis, allergic rhinitis, and nsLTP syndrome with non-anaphylactic reactions to peach and nuts. He presented with an episode of generalized exanthema, abdominal pain, wheezing, and diarrhea immediately after eating an apple crumble made of oats flour, which he had never tried before, and ripped apples, which he ate often. SPTs were positive for oat flour extract. Specific IgE levels were positive for oats (72.50 KIU/L) and lower for rice, barley, rye, and wheat (3.81-54.20 kIU/L), which he tolerated. An allergen microarray immunoassay showed positive results for several nsLTP (Ara h 9, Cor a 8, Jug r 3, Pru p 3, Art v 3, Ole e 7, Pla a 3), PR-10 proteins (Bet v 1, Aln g 1, Cor a 1.0401, Mal d 1, Pru p 1, Ara h 8, Act d 9); species-specific compounds from grass, weed and tree pollen, dust mites, and also species-specific food compounds – Ana o 3, Tri a 14 and Bos d lactoferrin.

These are two cases of anaphylaxis due to the ingestion of oats, with a demonstrated IgE-mediated hypersensitivity mechanism. In the first case, the chronic use of emollients with oats on damaged skin could have been the route of sensitization, as previously described. The second case happens in the context of multiple sensitizations, most of them with no clinical relevance. Immunoblotting could be important because no reports of oats allergy due to LTPs or PR-10 proteins were found. Both patients showed asymptomatic sensitization to other cereals and were advised to keep regular ingestion of all, except oats.

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JM Case reports session: 18243

Conflicts of interest: The authors did not specify any links of interest.

001394 | White perilla seeds: A new allergen for bird lovers

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Background: The use of seeds in our environment has grown in recent years. The white perilla (*Ocymoides linn*) comes from a plant that is cultivated in Afghanistan, India and China. It is widely used among bird lovers because of the benefits it provides.

Method: We present the case of a 4-year-old boy who was referred to our clinic because after handling homemade birdseed, he began to suffering from nasal congestion, facial urticaria and eyelid angioedema. The mixture contained seeds of: linseed, hempseed, white perilla, canaryseed, millet, pipe, scallop, wheat and chia. He did not report symptoms after handling or eating other seeds or foods.

Skin prick tests (SPTs) were performed to commercial common aeroallergens, including pollens, dust mites, molds and dander. Prick-Prick tests (PPTs) were carried out with all the seeds included in the mixture.

White perilla (WP) seeds extract was prepared. Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) immunoblotting and Matrix-Assisted Laser Desorption/Ionization Mass Spectometry (MALDI-TOF MS) were done. Finally, the results were compared with a nonredundant protein sequence database (National Center for Biotechnology Information) using the Mascot software (http://www.matrixscience.com).

Results: SPTs were positive (wheel ≥ 3mm) for grass pollen, olive and plain. PPTs were positive for white perilla (7mm wheel and pseudopods). The rest of components were negative.

SDS-PAGE immunoblotting detected a 50- and 25-KDa band. When compared with the database we found that the resulting proteins corresponded to a vicicline and a 2S albumin, respectively.

Conclusion: We present a case of contact allergy to white perilla seed with vicilin and 2S albumin as the relevant allergens. Although there are several publications reporting red perilla allergy (*Perilla futescens*), to our knowledge, there are no cases regarding white perilla seeds (Ocymoides linn) hypersensitivity. New foods are being introduced in our diet and that of our beloved pets every day, so knowing the potential allergens in foods and seeds can help us to prevent future reactions.

Conflicts of interest: The authors did not specify any links of interest.

001602 | Delayed symptoms post negative oral food challenge to nuts and seeds in children

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Background: Oral food challenges (OFC) are widely used to confirm or exclude suspected food allergy. Current practice in many allergy centres in the UK and abroad is to carry out one single food OFC per day in children and after negative OFCs, patients are asked to wait 48 hours before food introduction in case of delayed allergic symptoms.

Little is known about the frequency of delayed allergic symptoms within the 48-hour period post negative OFC, particularly for nuts and seeds. Anecdotal experience suggests this is not common and this study will address this knowledge gap.

Objective: To determine frequency and nature of delayed allergic symptoms in the first 48 hours post negative OFC to nuts and seeds.

Method: We conducted an observational cross-sectional study using a structured telephone questionnaire in children who had a negative OFC to nuts and seeds between March–June 2022 in our centre to assess symptoms within 48 hours post-OFC discharge.

Results: We identified 108 negative OFC in 87 patients. Mean age was 101.3 months (SD: 57.9). The foods tested were: peanut ($n = 19$), almond ($n = 17$), hazelnut ($n = 16$), cashew ($n = 11$), sesame ($n = 10$), walnut ($n = 9$), brazil nut ($n = 9$), pistachio ($n = 8$), pine nut ($n = 5$), pecan ($n = 2$), macadamia ($n = 1$), mustard ($n = 1$). Eighty-one (93%, 81/87) patients undergoing 102 OFCs could be contacted and questionnaires completed. Only 2 patients (2%, 2/102) reported delayed mild and largely subjective symptoms within 48h from discharge;(one with stomach pain and nausea, another with itchy facial rash), leading to inconclusive outcomes.

Conclusion: Frequency of delayed symptoms to nuts and seeds within 48 hours post-discharge in negative OFC is very low. Offering 2 consecutive OFC to nuts and seeds in one day might be a feasible, resource-efficient approach to conducting OFC to nuts and seeds in children. Most parents interviewed were interested in this innovative approach to reduce time off school, work and travel costs.

Conflicts of interest: The authors did not specify any links of interest.

001670 | The new kid on the allergy block: Tracking early sensitization to allergy of sesame seed in the high risk pediatric atopic dermatitis population

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Background: Sesame seed (SS) has become a common allergen in the pediatric atopic dermatitis population (PAD). Skin test protocols

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and recommendations for SS introduction in early life has yet to be published. This study attempts to highlight trends in SS sensitization and allergy in a high risk PAD.

Method: A retrospective chart review was conducted in a community allergy clinic in a PAD at an early visit (V1) and re-evaluation at a later visit (V2) for SS sensitization and allergy. Children were selected based on positive skin prick testing (SPT) results at V1 encounter between ages of 0-3 years in 2019 and followed at V2 allergy encounter in 2022. Records of all food allergen SPT results, in addition to SS positive clinical reactivity were recorded and compared. Families were contacted after V2 to update their clinical reactivity to SS. Results were collected from a single site allergy center.

Results: A sample of 114 children with atopic dermatitis tested positive to either sesame, egg, peanut or any combination were analyzed for their history and result of SPT in 2019 (mean age = 2.1 yrs) and 2022 (mean age = 5.1 yrs). One hundred and five (92%) tested positive for SPT to egg, peanut, or both but negative to sesame seed in 2019. Nine children (8%) tested positive for sesame seed at V1 with a mean SPT size 8.7mm. By V2, two SS positives (mean SPT 6.5mm) lost their sensitization and tolerated SS. At V2, 12 more children acquired SS allergy (mean SPT 9.0mm) for a total SS positive rate of 17% (mean SPT 10.0mm) in the AD child population. All 19 children at V2 had clinical SS allergy. SS allergy was never found in isolation and always associated with allergy to egg alone (52/105, 50%) or peanut alone (34/105, 32%) or both egg and peanut (19/105, 18%).

Conclusion: In the PAD, beyond the common egg and peanut sensitization and allergy, SS sensitization is present in nearly 1 in 12 children, becoming more common by early toddler in the same population, with nearly 1 in 5 affected clinically. Its recognition as an early sensitizer is essential for study in possible early introduction to prevent clinical allergy.

Conflicts of interest: The authors did not specify any links of interest.

000668 | Cefazoline allergy: Cross-reactivity with other beta-lactams?

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Background: Cefazolin is a first-generation cephalosporin, non-aminocephalosporin that is often used in preoperative prophylaxis. We aimed to assess tolerance to other beta-lactams (BL) in patients with cefazoline allergy.

Method: Retrospective study of perioperative hypersensitivity reactions in the period 2011-21. Diagnosis of cefazolin allergy was defined by: a) compatible clinical history plus positive skin tests; b) negative skin tests plus formal contraindication to a drug challenge plus absence of another cause.

Results: Cefazolin allergy was confirmed in 21 patients (66.6% women; median age 44 years), all with immediate hypersensitivity reactions. In 19 patients (90%), the clinical presentation was anaphylaxis, 14 with associated hypotension; 2 patients had exclusively mucocutaneous symptoms. No patient had a history of BL allergy or previous exposure to cefazolin. The allergological study was performed 9 months (mean) after the reaction. Cefazolin prick tests were all negative and intradermal tests were positive in 18 patients. In the 3 patients with a negative test, no other cause for the reaction was identified, so the diagnosis was assumed based on the index reaction.

Regarding tolerance to other BL, Penycillolyl G and V specific IgE was positive in 1/18 patients tested; skin tests with penicillin were negative in 88% of the 17 patients tested, all of whom tolerated challenge with Amoxicillin-clavulanate. In 12 patients, a third generation cephalosporins was also studied, with negative results.

Conclusion: The diagnosis of allergy to cefazolin was made in the context of severe reactions, which limited the allergological study. Despite our limited sample, 12% of the patients studied were positive for penicillin. Thus, we believe penicillin sensitization should always be excluded in patients with confirmed cefazolin hypersensitivity. Third generation cephalosporins seem to be safe, and the question remains open regarding tolerance of other first and second generation cephalosporins.

Conflicts of interest: The authors did not specify any links of interest.

000130 | Component analysis breakthrough in unsolved cases

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Case report: Two cases in which the history and routine investigations like SPT were not conclusive were subjected to component resolved diagnostics(CRD) by microarray technology.

Case I: 5-year-old male child strictly breast fed came at age of 5 years with history of repeated episode of vomiting especially following milk ingestion and a constant nasal congestion. In infancy he had developed rash on milk ingestion so it had been stopped. It was restarted 1 year back but no rash had developed. No family history of allergies. Family was strict vegetarians including eggs. There was a cat in neighbour's house and cattle being unhygienically bred in immediate neighbour's house. On examination except inferior turbinate hypertrophy no significant finding.

Aeroallergens such as pollen, mites, moulds, pigeon, dog, cat, cockroach, insects, latex and all plant food, animal food and Cows milk Bos d4, 5 and 8 were negative. The positive results were Cattle meat Bos d6 (serum albumin) 3.51 kUA/L, Goat epithelia Cap epithelia 2.5 Total IgE < 20 kU/L

Case II: 45 years male developed urticarial rashes and swelling of lip immediately within 30 minute of eating sea food such as prawns and shrimps. No rashes on consuming fish or any other foods. The rash

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would subside in 24 hours with or without treatment. No History of any respiratory complaints or gastro intestinal complaints. Patient not on any medication. The SPT for prawns was negative. Total IgE < 20 All aeroallergens, foods including sea food was <0.10. Only mealworm component Ten m was positive with a value of 0.34kUA/L

Discussion: Case I Bos d 6 is a heat labile allergen from cow's milk and beef. The degree of cross-reactivity between Bos d 6 and other members of the Serum Albumin allergen family is usually high. A very high degree of cross-reactivity has been described between Fel d 2 from cat and Sus d 1 from pig (cat-pork syndrome). Sensitization to beef was detected. Allergic symptoms associated with beef range from gastrointestinal symptoms to anaphylaxis. Also, a major manifestation is exacerbation of underlying eczema. Beef allergy can be caused via sensitization to Serum Albumin (Bos d 6), or via sensitization to alpha-Gal, a heat resistant sugar in non-primate mammals. Clinical reactions to alpha-Gal often have delay of3-6 hours. Tick bites are the main sensitization route.

The positivity and clinical corelation in a strictly vegetarian child can be explained by the environmental history.

Case II: Sensitization to edible insects (mealworm) was detected. Allergic symptoms associated with edible insects range from oral allergy syndrome to anaphylaxis. The degree of cross-reactivity is high to other insects (e.g., cockroach) and also to mites and seafood.

Conclusion: Routine investigation such as a specific IgE or SPT being normal may not rule out allergy to the causative allergen. There is a need to look at cross reactive proteins including component analysis of the allergens.

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001012 | Evaluation of basophil activation test in anaphylaxis to penicillins: Our experience

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Background: Basophil activation test (BAT) has been proposed as a useful in vitro assay for the diagnosis of penicillin allergy.

The purpose of our analysis was to assess the diagnostic value of BAT-technique as the first decision step in allergic patients with severe reactions to penicillins.

Method: BAT was performed based on clinical history, using penicillin G-(PEN),amoxicillin-(AMX), ampicillin-(AMP),amoxicillin-clavulanic acid-(AMX-C), clavulanic-acid-(CLA) in 50 patients with an anaphylaxis history (EAACI_classification) with penicillin-derivatives drugs from 2018 to 2021.

Skin test-(ST) with penicilloylpolylysine-(PPL),minor determinant mix-(MDM), AMX, AMP, CLA was practiced. Some ST, specific IgE-(sIgE) and oral provocation tests-(OPT) were not performed because of a positive BAT result.

Data summarized by descriptive analysis.

Results: Fifty patients (36% male, 64% female; average age:45 +/-20,97 years-old) were studied for anaphylaxis to penicillins (32 patients had anaphylaxis grade 2_EAACI, 18 grade 3_EAACI; <12months in 74%). Drugs involved were AMX in 26(52%) patients, AMX-C in 23(46%) patients and PEN in 1(2%) patient.

Percentages of positivity to BAT were 34% to AMX,34% to PEN,64% to AMX-C,68% to CLA.

22% out of 27 patients studied had positive ST. Four out of 35 cases determined had positive sIgE: two of which were in agreement with the BAT result. OPT was performed in 31 patients: 2(4%) AMX-C (culprit) were positive (1 with CLA-BAT positive and 1 had AMX-C-BAT negative, and 29(60%) negative). In 14(28%) cases OPT was done with the drug involved, while in 19(34%) cases with an alternative drug.

Concordance between BAT-results and clinically involved drugs was positive in 56% patients. BAT and ST-results were in agreement in 22(44%) out of 27 cases: 7 patients presented positive results for TAB and ST, 15 had negative results for both tests.

Conclusion: Moderate concordance between BAT-clinical history and BAT-ST was found. BAT has been used as the first step in many cases and we realized that to improve the diagnosis and its usefulness we should perform a standardized procedure with different tests. It is known that BAT could be useful in patients with a severe reaction to avoid undergoing in-vivo exposure.

Conflicts of interest: The authors did not specify any links of interest.

001462 | Universalization of the diet: New allergens?

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Background: Soya (*Glycine max*), a member of the legume family, is one of the eight most clinically relevant food allergens in Europe. In most cases, it is caused by hypersensitivity to PR-10 or 11S-globulin proteins. Despite the multiple forms of soybean presentation (flour, sauce, beverage, sprouts, lecithin), few cases of allergy to edamame, the Japanese name for the culinary preparation of immature soybean pods, have been described so far.

Method: 11-year-old boy, under follow-up for legume and peanut allergy since the age of 6 years, had an episode of anaphylaxis after eating Chinese noodles (edamame and soy sauce) and dumplings. On another occasion he presented with skin erythema and facial hyperemia after inhalation of chickpea cooking steam. He tolerates nuts,

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peas, broad beans, and green beans, but has a diet free of chickpeas, lentils, and white beans. The patient's sensitisation profile was analysed using food allergen battery prick tests, specific IgE and Western Blot.

Results: Specific IgE results were ≥0.35 KU_A/L for peanut, soybean beta-conglycinin, soybean glycinin, chickpea, green pea, lentil, soybean seed, and negative for Gly m 4 (PR-10). Patient IgE recognises several proteins around 50 kDa and 15-20 kDa, which may correspond to 7S globulins (vicillins) and their variants, respectively, for all samples tested.The high molecular mass of proteins (50-75 kDa) from cooked chickpea were not recognised by the patient's IgE but were recognised in chickpea flour due to their thermolability.When inhibiting chickpea flour with edamame, 14 and 16 kDa proteins are not recognised as well as 50 kDa proteins.

Conclusion: We present a paediatric patient who presented with anaphylaxis after ingestion of Chinese noodles and dumplings, with edamame and soy as hidden allergens. In vitro analysis showed sensitisation and recognition to vicillins (7S-globulins). In addition, lability to cooking temperature was demonstrated, with aeroallergens being responsible for symptoms related to inhalation of cooking vapour.

Conflicts of interest: The authors did not specify any links of interest.

001243 | Omega-5-gliadin allergy in a tertiary center in the last 6 years

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Background: Omega-5-gliadin allergy is a rare wheat allergy that often presents with severe anaphylaxis in the context of exercise or other cofactors, however we can also find other phenotypes.

Method: This is a retrospective, observational, descriptive review with demographic and clinical data of adults with omega-5-gliadin allergy in the last 6 years.

Results: In total 5 patients were included (2 women and 3 men, mean age 62 years old). The 80% had other allergic antecedent and the mean age of onset of symptoms was 40.6 years old.

Four out of the five patients presented anaphylaxis preceded by previous recurrent urticaria and one patient had only digestive symptoms.

Wheat skin prick test was positive only in one patient. The mean baseline total IgE was 500 kU/L and the mean omega-5-gliadin specific IgE was 9.6 kUA/L.

Cofactor was found in 2 patients (exercise and nonsteroidal anti-inflammatory drug) and the other 3 patients had no identifiable cofactor.

Mean time between clinical onset and diagnosis was 18.6 months due to delay in referral to the allergy department.

In the patients with the identifiable cofactor the management strategy was to avoid wheat in combination with the cofactor and the other three avoid wheat, all with actually good control.

Conclusion: Diagnosis of omega 5 gliadin is still often delayed and in some patients cofactor is not identifiable. Gliadin is not always well represented in wheat extracts and specific IgE to omega-5-gliadin should be tested in all patients with unexplained anaphylaxis and recurrent urticaria.

Conflicts of interest: The authors did not specify any links of interest.

001651 | Comparison of patient experience: Microsampling blood collection device vs capillary fingerstick for specific IgE testing

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*Presenting author: E. Laderman

Background: In allergy diagnostics, the most widely used method of collecting patient samples is via venipuncture. Despite the accuracy of the results obtained via venipuncture, the large sample volume required to conduct all necessary allergen-specific IgE testing has proved particularly challenging among children and adolescents. Microsampling devices can better fit the needs of patients by drawing smaller increments of blood (~600 µL) through capillary action into microcontainers with built-in clot factors to separate serum. We present patient experience data comparing a pain-free microsampling collection device with capillary fingerstick.

Method: Two microsampling devices (arm collection device and capillary fingerstick) were used to collect blood from 33 volunteers to evaluate each device's accessibility and efficacy (Eurofins Biomnis, Lyon, France). These samples were analyzed on a magnetic microparticle immunoassay analyzer to demonstrate ability to generate sIgE results from collected samples. Patients were surveyed after collection to assess which device performed per instructions for use, and which had better overall patient satisfaction. Categories explored in the survey included approachability, usability, accessibility, and accuracy. Results were scored on a scale of 0-10, with 10 being the highest score.

Results: Results are summarized in Figure 1. In all 6 measured categories, the arm collection device outscored fingerstick collection. The highest difference in score was seen with usability, with a difference between the mean scores (Δµ) of 4.40 points, followed by patient recommendation with a mean difference of 3.99 points. The device was also rated higher in approachability, accessibility/invasiveness, and accuracy of collection (Δµ = 2.87, 1.45, and 2.51 respectively). Lastly, mean overall patient satisfaction with the arm device was 3.00 points greater than that of the fingerstick method.

Conclusion: When the two microsampling devices were compared, the arm collection device was better received than the fingerstick method in all patient experience survey categories. This demonstrates the potential for the device to be used in place of venipuncture and capillary fingerstick collection. By requiring only 4 µL of sample per test on the sIgE immunoassay instrument, patients are presented with a pain-free and minimally invasive solution for comprehensive allergy testing.

Conflicts of interest: The authors did not specify any links of interest.

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Figure 1. Mean Scores (μ) and Differences (Δμ) between Microsampling Blood Collection Device (Arm) and Capillary Fingerstick Collection (Fingerstick) in 6 Patient Experience Categories.

Metric	Device	Score (μ)	Difference (Δμ)
Approachability	Arm	8.47	**+2.87**
	Fingerstick	5.60	
Accessibility/ Invasiveness	Arm	7.85	**+1.45**
	Fingerstick	6.40	
Patient Recommendation	Arm	8.09	**+3.99**
	Fingerstick	4.10	
Usability	Arm	8.50	**+4.40**
	Fingerstick	4.10	
Blood Collection Accuracy	Arm	8.31	**+2.51**
	Fingerstick	5.80	
Overall Patient Satisfaction	Arm	8.20	**+3.00**
	Fingerstick	5.20	

001583 | A case report: Storage mite cross reactivity causing reactions to nuts and legumes

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Introduction: Food allergy diagnosis can be challenging. Taking a detailed history of exposure is key to reach a correct diagnosis. Molecular allergy testing can be extremely helpful in such cases.

Case description: This is a case of 44 year old Indian lady known to have: Hypothyroidism On L- Thyroxine 75 mics. She was referred to the immunology clinic to investigate a possible food allergy. Patient reported few episodes of immediate allergic reactions after food intake. Her allergic symptoms ranged from a simple urticarial rash, to a full-blown anaphylaxis with angioedema of tongue, hoarseness of voice and wheezy chest. She was also found to be hypotensive upon presenting to the ED. Those symptoms occurred 15 minutes after food intake. All episodes occurred after taking homemade food and in the absence of other illness, excretion and intake of medications. Summary of all reactions up to date: 1- Homemade Chicken and Egg sandwich with Pepper and spices wrapped in readymade paratha bread (Wheat and multi four). Resulted in anaphylaxis. That ws treated with adrenaline. 2- Walnuts: anaphylaxis. 3- Homemade Face mask made with Split chickpeas: facial redness and itchiness. 4- Pomegranate: anaphylaxis. 5- Peanuts: anaphylaxis.

European house dust mite	Der p 2	NPC2 Family
American house dust mite	Der f 2	NPC2 Family
European house dust mite	Der f 1	Cysteine protease
Kiwi	Act d 10	nsLTP
Peach	Pru p 3	nsLTP
Strawberry	Fra a 1+3	PR-10+LTP
Grapes	Vit v 1	nsLTP
Walnut	Jug r 3	nsLTP
Cat	Fel d 1	Uteroglobin
Dog	Can f_Fd1	Uteroglobin

Diagnosis: The results of her allergy testing are in keeping with LTP allergy, which explains the reactions to Walnuts and fruits. However, reaction to breads and legumes is likely explained by HDM/storage mite cross reactivity.

Discussion: HDM *(Dermatophagoides pteronyssinus)* is one of the most prevalent allergies. It is also known to cross react to some extent with storage mite (*Acarus siro, Tyrophagus putrescentiae).* The later can be found mainly in poorly stored flours, especially in environments with increase humidity. This is frequently found in dry food items like flour, grains & cereal. This unique case report suggest that Storage mite may also be present in other food like nuts and legumes.

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Conflicts of interest: The authors did not specify any links of interest.

ASTHMA 2

000534 | Bioequivalence study of omalizumab: Two new prefilled syringes with an autoinjector or with needle safety device versus current prefilled syringe with needle safety device

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*Presenting author: T. Severin

Background: Omalizumab is an anti-IgE humanised monoclonal antibody designed to treat IgE-mediated diseases, including allergic asthma, chronic spontaneous urticaria and chronic rhinosinusitis with nasal polyps. Omalizumab is available as 75 mg/0.5mL and 150 mg/mL solution for injection in a prefilled syringe (PFS) with a needle safety device (NSD), and 75 mg and 150 mg lyophilised powder in a vial for reconstitution. To reduce the number of injections for a given patient and to improve patient convenience, new product configurations of omalizumab solution for injection formulations were developed. The aim of this study was to demonstrate bioequivalence between the current PFS-NSD and a higher strength solution in a new PFS assembled with an autoinjector (PFS-AI) and a new PFS-NSD.

Method: This was a Phase 1, open-label, randomised, single-dose, 12-week, 3-treatment, parallel-group study. Healthy male and female volunteers were randomised 1:1:1 to receive subcutaneous omalizumab injection either as: single-dose 300 mg/2mL via the new PFS-AI; single-dose 300 mg/2mL via the new PFS-NSD, or 2×150 mg/mL injections using the current PFS-NSD, at one of three sites (abdomen, thigh or upper arm). Blood samples were taken on Day -1 and post-dose on Days 1–4, 6, 8, 11, 15, 22, 29, 43, 57, 71 and 85 to evaluate pharmacokinetics (PK), immunogenicity and tolerability. PK parameters were analysed by an analysis of covariance (ANCOVA) model with treatment group, body area of injection and body weight strata as fixed effects and baseline IgE as a covariate. A stepwise

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approach using the Bonferroni-Holm method (for multiple comparisons) was used to evaluate bioequivalence.

Results: 193 healthy volunteers were randomised to new PFS-AI ($n = 66$), new PFS-NSD ($n = 64$) and current PFS-NSD ($n = 63$) treatment groups. Formal bioequivalence was established between: (1) new PFS-AI and current PFS-NSD; (2) new PFS-NSD and current PFS-NSD; and (3) new PFS-AI and new PFS-NSD; the confidence interval (CI) was contained within 80–125% for Cmax, AUClast, and AUCinf following a single dose of omalizumab **(Table 1)**. Overall, omalizumab administered as PFS-AI and PFS-NSD was generally well tolerated at the tested dose with no discontinuations.

Conclusion: Single-dose omalizumab administered as the new PFS-AI or the new PFS-NSD was bioequivalent to the current PFS-NSD and the formulations can be used interchangeably for administration of omalizumab.

TABLE 1 Statistical comparison of omalizumab serum PK parameter values for the new PFS-AI, new PFS-NSD, and current PFS-NSD.

Parameter	New PFS-AI	New PFS-NSD	Current PFS-NSD	New PFS-AI vs Current PFS-NSD	New PFS-NSD vs Current PFS-NSD	New PFS-AI vs New PFS-NSD
	Geometric LSM	Geometric LSM	Geometric LSM	GMR (%) [95% CI]	GMR (%) [95% CI]	GMR (%) [90% CI]
Cmax (ng/mL)	41,900 (n = 66)	38,800 (n = 64)	38,600 (n = 63)	108.45 [99.62 – 118.06]	100.59 [92.29 – 109.63]	107.81 [100.37 – 115.81]
AUClast (ng*h/mL)	35,900,000 (n = 66)	33,400,000 (n = 64)	32,800,000 (n = 63)	109.31 [99.67 – 119.89]	101.58 [92.50 – 111.55]	107.61 [99.56 – 116.32]
AUCinf (ng*h/mL)	40,100,000 (n = 60)	37,400,000 (n = 58)	36,500,000 (n = 57)	110.01 [100.09 – 120.91]	102.66 [93.26 – 113.02]	107.15 [98.98 – 116.00]

AUCinf, area under curve from time zero to infinity; AUClast, area under curve from time zero to last measurable concentration sampling time; CI, confidence interval; Cmax, maximum (peak) observed drug concentration after single dose administration; GMR, geometric mean ratio; LSM, least squares mean; n, number of observations used in the model; PFS-AI, prefilled syringe assembled with an autoinjector; PFS-NSD, prefilled syringe with a needle safety device; PK, pharmacokinetics

Conflicts of interest: The authors did not specify any links of interest.

000537 | Efficacy and safety of dupilumab in children aged 6 months to 5 years with atopic dermatitis with and without type 2 comorbidities

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*Presenting author: M. Boguniewicz

Background: Atopic dermatitis (AD) is a chronic inflammatory systemic disease that frequently occurs with type 2 comorbidities, which can add to patient burden. Here, we evaluate the efficacy of dupilumab with concomitant topical corticosteroids (TCS) for moderate-to-severe AD in children with and without asthma, allergic rhinitis, and food allergies.

Method: In LIBERTY AD PRESCHOOL (NCT03346434), a double-blind, 16-week, phase 3 trial, 162 children aged 6 months to 5 years were randomized 1:1 to receive dupilumab treatment ($n = 83$) every 4 weeks based on baseline weight (200 mg: ≥ 5 to <15 kg; 300 mg: ≥ 15 to <30 kg) or placebo ($n = 79$), with concomitant low-potency TCS. Type 2 comorbidity history was ascertained by caregiver report.

Results: Type 2 comorbidity history and disease severity at baseline were comparable in the dupilumab and placebo groups. At Week 16, significantly more patients receiving dupilumab vs placebo, with or without a type 2 comorbidity, achieved Investigator's Global Assessment score of 0 or 1 (with asthma: 23.8% vs 0%; without asthma: 29% vs 5.4%; with allergic rhinitis: 24.3% vs 0.1%; without allergic rhinitis: 30.4% vs 7.2%; with food allergies: 25.4% vs 1.8%; without food allergies: 33.3% vs 9.3%). At Week 16, significantly more patients receiving dupilumab vs placebo achieved ≥ 75% improvement in Eczema Area and Severity Index (with asthma: 52.4% vs 4.5%; without asthma: 53.2% vs 13.1%; with allergic rhinitis: 54.1% vs 3.2%; without allergic rhinitis: 52.2% vs 17.3%; with food allergies: 44.1% vs 7.5%; without food allergies: 75% vs 19.1%). Lastly, significantly more patients receiving dupilumab vs placebo achieved a ≥ 4-point reduction of weekly average of daily worst itch score at Week 16 (without asthma: 52.7% vs 7%; with allergic rhinitis: 46.2% vs 8.6%; without allergic rhinitis: 49.6% vs 9.1%; with food allergies: 47.9% vs 8.3%; without food allergies: 48.6% vs 10.5%). There was no significant difference ($p = 0.4$) between the proportion of patients with asthma achieving a ≥ 4-point reduction of weekly average of daily worst itch score at Week 16 treated with placebo (13.6%) or dupilumab (34.6%). Overall safety was consistent with the known dupilumab safety profile.

Conclusion: Dupilumab with concomitant TCS was equally efficacious in improving itch and AD signs in children aged 6 months to 5 years with and without a history of type 2 comorbidities.

Conflicts of interest: Boguniewicz M: Regeneron Pharmaceuticals Inc., Sanofi – research grants; AbbVie, Eli Lilly, Incyte, Janssen, LEO Pharma, Pfizer, Regeneron Pharmaceuticals Inc, Sanofi – advisory board member/consulting. Sher LD: Aimmune Therapeutics, Optinose, Regeneron Pharmaceuticals Inc., Sanofi – advisory board member; Regeneron Pharmaceuticals Inc., Sanofi – speaker fees; Aimmune Therapeutics, Amgen, AstraZeneca, Circassia, DBV Technologies, Galderma, GSK, Lupin, Merck, Mylan, Novartis, Novo Nordisk, Optinose, Pearl Pharmaceuticals, Pfizer, Pulmagen, Roxane, Sanofi, Spirometrix, Teva, Vectura, Watson Pharmaceuticals – clinical trials funding. Paller AS: AbbVie, Dermavant, Eli Lilly, Incyte, Janssen, Krystal Biotech, LEO Pharma, UCB – investigator; Aegerion Pharmaceuticals, Azitra, BioCryst, Boehringer Ingelheim, BMS, Castle Creek Biosciences, Eli Lilly, Janssen, Krystal Biotech, LEO Pharma, Novartis, Regeneron Pharmaceuticals Inc., Sanofi, Seanergy, TWi Biotechnology, UCB – consultant; AbbVie, Abeona Therapeutics, Catawba Research, Galderma, InMed Pharmaceuticals – data and safety monitoring board. Chen Z, Shah P: Regeneron Pharmaceuticals Inc. – employees and shareholders. Marco AR: Sanofi – employee, may hold stock and/or stock options in the company.

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000452 | Nuclear factor of activated T cells 1 (NFATc1) in CD11c+ dendritic cells drives eosinophilic inflammation in asthmatic patients

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*Presenting author: Z. Yang

Background: Allergic asthma is a chronic inflammatory lung disease characterized by Th2 cell hyperactivity and local eosinophil accumulation, which has become a significant public health problem worldwide. Dendritic cells (DCs) play an essential role in allergic sensitization, as well as Th2 cell responses via CD40/CD40L axis in allergic asthma. We recently reported that NFATc1 in dendritic cells engaged in disease pathogenesis in a murine model of asthma induced by house dust mite (HDM). Hereby, targeted deletion of NFATc1 in dendritic cells induced regulatory T cells and reduced serum IgE and lung Th2 cell proliferation, which resolved eosinophilic airway inflammation in these mice. Here, we translated our findings into a human study to see whether these discoveries can be represented in patients with asthma and whether NFATc1 in dendritic cells can be a potential target for the clinical treatment of asthma.
Method: For the human study named "AZCRA" (investigation of the role of cytokines, chemokines and their receptors in the inflammatory process in asthma patients), we recruited a cohort including healthy controls and asthmatic subjects (18-65 years old). Here we measured their lung function, analyzed their differential blood cell count, and isolated PBMCs from them for flow cytometry analysis.
Results: Here we found that, the percentage of CD11c cells in PBMCs from the healthy controls and asthmatic subjects were comparable, while the CD11c+NFATc1+ cell population in the patients with asthma was significantly increased. In addition, the CD11c+NFATc1+ cell population in the asthmatic patients correlated positively with peripheral blood eosinophils, which was not seen in the healthy controls. Furthermore, we also found that CD11c cells in asthmatics had higher CD40 expression. These results might imply that NFATc1 mediates the expression of CD40 in dendritic cells leading to the enhancement of DC-T cell interaction, thereby resulting in Th2-mediated eosinophilic inflammation in patients with asthma.
Conclusion: Our human cohort study showed that NFATC1 and CD40 expression was upregulated in dendritic cells leading to Th2-mediated eosinophilic inflammation in asthmatic patients. Thus, we reveal a critical role of NFATc1 in dendritic cells, which could be used as a potential therapeutic target for allergic asthma.
Conflicts of interest: The authors did not specify any links of interest.

000509 | Interleukin 1-beta correlates with cough reflex sensitivity in children with asthma

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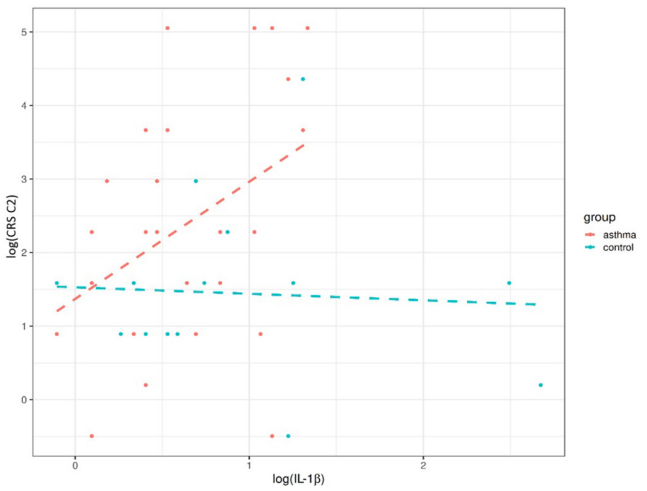
*Presenting author: P. Kunc

Background: Bronchial asthma is the most common chronic respiratory disease of childhood. Cough is one of its defining symptoms. This study investigated the associations between selected inflammatory biomarkers and cough reflex sensitivity after capsaicin inhalation in children with mild and moderate well-controlled type 2 endotype asthma compared with non-asthmatic probands.
Method: We enrolled 25 asthmatic children and 15 healthy controls in the study. Sensitivity to the cough reflex was measured by recording the cough response after capsaicin inhalation. The sandwich ELISA method was used to measure serum concentrations of the investigated potential inflammatory biomarkers (interleukin 13, interleukin 1β, eosinophil-derived neurotoxin). The acquired data were statistically evaluated according to descriptive analyses for summarization and comparison between cough reflex sensitivity parameters and individual biomarker values in the observed and control groups modeled by a simple linear regression model. Statistical significance was defined as $p < 0.05$.
Results: We showed a statistically significant association (p-value 0.03) between cough reflex sensitivity – C2 value (capsaicin concentration required for two cough responses) and interleukin -1β serum concentrations in the asthma group compared with the control group of non-asthmatic children.
Conclusion: Our results support the possibility of interleukin-1β as a potential additive inflammatory biomarker used in clinical practice in children with asthma because of its correlation with the activity of the afferent nerve endings in the airways.



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Cross-plot of acquired data by statistical analysis showing log (CRS_C2) versus log (IL-1β) in asthma (red dots) and control (cyan dots) groups with fitted lines obtained from a linear regression model. None of the predictors was statistically significantly associated with the asthma/control group variable in the multivariate logistic regression model.

parameter	estimate	std. error	t-value	p-value
intercept	1.37	0.54	2.56	0.02
log IL-1β	1.59	0.70	2.29	0.03
group control	0.16	0.80	0.20	0.84
log IL-1b: group control	-1.68	0.85	-1.97	0.06

Parameters of the estimated log (CRS_C2) regression model in the log (IL-1β) group.

Conflicts of interest: The authors did not specify any links of interest.

000805 | Exploring the interaction between genetic risk score and exercises on asthma by a genome-wide association study

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*Presenting author: T. H. Tai

Background: Asthma is a common chronic respiratory inflammatory disease.According to the report from WHO in 2017, about 235 million people worldwide suffer from this disease. However, there are few studies on asthma in Asian and Taiwanese groups, and the causes of asthma are complex, such as genetic or environmental factor, among which the relationship between exercise and asthma is still controversial. Therefore, this study aims to explore the interaction between genetic risk score and exercise on asthma by using the Taiwan Biobank (TWB) data.

Method: A genome-wide association study (GWAS) is an approach used in genetics research to explore candidate genetic variations with particular diseases. Questionnaires and genetic data from the Taiwan Biobank were used in this study. We calculated the genetic risk score (GRS) to predict the risk on asthma of each genotype. And discussed its interaction with asthma according to different exercise patterns.

Results: Among 24,879 TWB participants, 768 were asthma cases. And the average age was 48.81 years old. The study result shows that rs1837253 (OR = 2.311, 95%CI = 1.193-4.478) and rs10508372 (OR = 3.723, 95%CI = 1.837-7.646) were most significantly associated with asthma in study population. In the prediction model of asthma, as the gene risk score increases, the risk of suffering from asthma increases accordingly.We also observed interactions between the GRS for asthma and different exercise status.

Conclusion: Our study has shown that the genetic risk score has a good predictive ability for the risk of disease. As the genetic risk score increases, the individual's risk of developing asthma also increases. However, the interactions between some kinds of exercise and GRS model for asthma have no significant results. In the future studies, a large sample size or a longitudinal study would be necessary.

Conflicts of interest: The authors did not specify any links of interest.

000969 | Effect of omalizumab on asthma outcomes in adolescents/adults with asthma and food allergy

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Background: In patients with asthma, food allergy (FA) is a common comorbidity. In the 008/009 trials, omalizumab (OMA) treatment reduced asthma exacerbations in adult patients with moderate-to-severe allergic asthma. In this analysis, we use the 008/009 trial results to examine baseline characteristics and assess whether OMA treatment influenced asthma outcomes and quality of life (QoL) outcomes in adolescents/adults with allergic asthma regardless of their FA status.

Method: This post-hoc analysis examined data from the pooled 008/009 phase 3, randomized, double-blind, placebo-controlled trials (conducted pre-registration requirements). Patients aged 12 to 75 years with moderate-to-severe allergic asthma ($N = 1071$), who had inadequate asthma control with inhaled corticosteroids (beclometasone dipropionate, 500-1200 mcg), were randomized to OMA or placebo with a 16-week steroid-stable treatment period. Patients with asthma were categorized by whether or not they had physician-reported food sensitivity (termed FA for this analysis). Poisson regression was used to analyze categorical outcomes and simple linear regression was used to analyze continuous outcomes.

Results: Baseline demographic characteristics (Table) were similar and balanced between patients with FA (asthma+FA) and patients without FA (asthma-FA), and patients on placebo or OMA. For asthma exacerbations, asthma-free days, asthma symptoms score, missed work/school days, and AQLQ score, response to OMA versus placebo appeared to be similar for patients with and without FA (interaction *p*-values between 0.53-0.86). Overall safety results for this study are available in Soler ERJ 2002;18:254-261 and Busse JACI 2001;108;184-90.

Conclusion: Patients 12 to 75 years with moderate-to-severe allergic asthma appeared to have improvements in asthma outcomes and QoL with OMA, versus placebo, regardless of their FA status.

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These findings add to the growing evidence that anti-IgE therapy with OMA is efficacious across atopic conditions and ages.

Table

Baseline Characteristics Mean (SD)*	Placebo Asthma+FA n=126	OMA Asthma+FA n=122	Placebo Asthma-FA n=403	OMA Asthma-FA n=420
Sex, Female, n (%)	77 (61.1)	78 (63.9)	214 (53.1)	219 (52.1)
Race, White, n (%)	113 (89.7)	114 (93.4)	358 (88.8)	380 (90.5)
Age, Years	39.3 (12.3)	37.9 (12.4)	39.0 (14.2)	40.2 (14.2)
Age Category				
12-17, n (%)	6 (4.8)	6 (4.9)	32 (7.9)	32 (7.6)
18-64, n (%)	117 (92.9)	111 (91.0)	358 (88.8)	367 (87.4)
≥65, n (%)	3 (2.4)	5 (4.1)	13 (3.2)	21 (5.0)
BDP (mcg)	678.7 (254.1)	671.7 (216.5)	671.0 (233.4)	670.0 (224.0)
FEV1 (mL)	2439.7 (730.9)	2507.8 (748.3)	2440.9 (755.9)	2402.0 (721.1)
Duration of Asthma (y)	25.2 (13.3)	22.0 (12.9)	19.5 (14.0)	20.0 (13.7)
Serum IgE (IU/mL)	208.6 (165.2)	189.1 (145.7)	192.4 (147.9)	200.7 (161.2)
Eosinophils (cells/mcL)	299.9 (210.1)	308.0 (177.3)	336.3 (200.1)	301.1 (192.4)
Q4W Schedule, n (%)	75 (59.5)	72 (59.0)	231 (57.3)	237 (56.4)
Patient in hospital last year, n (%)	3 (2.4)	3 (2.5)	28 (6.9)	14 (3.3)
Patient in ER last year, n (%)	9 (7.1)	15 (12.3)	55 (13.6)	46 (11.0)

*Unless stated

FA, food allergy; OMA, omalizumab; BDP, beclometasone dipropionate; FEV1, forced expiratory volume in the first second; y, years; IgE, immunoglobulin E; Q4W, dosed every 4 weeks; ER, emergency room

Conflicts of interest: AF: fees from Danone SA and Novartis; advisory boards for Danone SA. RSC: grant support from Aimmune, Astellas, Consortium for Food Allergy Research (CoFAR), DBV Technologies, Food Allergy Research & Education (FARE), National Institute of Allergy and Infectious Disease (NIAID), and Regeneron; advisory boards for Alladapt, Allergenis, Genentech, Inc., Intrommune, and Novartis, outside the submitted work. DMF: research support from Aimmune and DBV Technologies; advisory boards for Aquestive, DBV Technologies, Dots Technologies, Genentech, Inc., Nasus Pharma, and Novartis; royalties from UpToDate. PS: advisory boards for Genentech, Inc.; speaker bureau for Aimmune, Genentech, Inc. SSM: speaker bureaus for AstraZeneca, CSL Behring, Genentech, Inc., GlaxoSmithKline, and Regeneron. SG, MHZ, BT, AI: employees of Genentech, Inc.; stockholders in Roche. IJA: personal fees from Abbott, Amgen, AstraZeneca, Bayer, Bial, Faes Farma, Hypera, Menarini, Organon, Roxall, Sanofi, and UCB, outside the submitted work.

001340 | Use of leukotriene-receptor antagonists and risk of neuropsychiatric adverse events: A nationwide population-based cohort study

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*Presenting author: H. F. Kao

Background: Leukotriene-receptor antagonists (LTRA) are a class of remedies commonlyused for treating patients with asthma and/or allergic rhinitis. However, the evidence aboutthe association between LTRA use and neuropsychiatric adverse events from observationalstudies has been inconclusive. Most results are based on pediatric populations, little is knownin relation to potential neuropsychiatric adverse events among adults, especially Asianpopulations.

Method: We used medical claims data derived from the entire National Health InsuranceResearch Database in Taiwan to identify study patients during 2008 and 2018. Exposure wasdefined as patients having at least 1 dispensed prescription for LTRA after asthma diagnosisduring study period. Inverse probability of treatment weighting using propensity score wasapplied to control for the systematic differences at baseline between LTRA users and non-users. Main outcomes are primary diagnoses of neuropsychiatric adverse events (psychoticdisorder, mood disorder, anxiety disorder, sleep-related disorder, cognitive disorder,movement disorder, and personality disorder) during the subsequent 12 months afterinitiation. Cox proportional hazards models with covariate adjustment were performed todetermine the associations between LTRA exposure and neuropsychiatric adverse events.

Results: A total of 1,010,556 patients with asthma (222,075 LTRA users and 788,481 non-users) was identified in the study cohort. The results suggest positive significant associationsof LTRA exposure with psychotic disorder and movement disorder among study patients(adjusted hazard ratio (AHR) = 1.59; 95% confidence interval (CI): 1.07-2.36 for psychoticdisorder and AHR = 1.34; 95% CI: 1.01-1.77 for movement disorder).

Conclusion: This study suggests that LTRA use is associated with increased risk ofneuropsychiatric adverse events, specifically psychotic disorder and movement disorder,during the subsequent 12 months after LTRA initiation. Our findings suggest that cliniciansadministering LTRA to patients with asthma should monitor potential neuropsychiatricadverse events during LTRA treatment.

Conflicts of interest: The authors did not specify any links of interest.

000841 | Bronchodilator response and methacholine testing in young children with suspected asthma: which test is more helpful in clinical practice?

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*Presenting author: S. Zielen

Background: The diagnosis of asthma in young children is difficult. The Bronchodilator response (BDR) with salbutamol and methacholine (MCT) are important techniques for confirming the diagnosis of asthma. A comparison of both tests has not yet been carried out in young children.

Method: In this real-life study, both tests were performed between April and November 2022 in 92 young children with asthma and "virus induced wheezing". A skin prick test, spirometry and BDR with 400 µg salbutamol were performed at the first visit. Then the parents and patients were invited for the MCT 7-21 days later. Evaluable MCT and BDR were available for 72 patients with a median age of

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4.9 (3.2–6.9) years. A positive reversibility test was defined as a 12% increase in FEV1, a positive MCT and severe MCT as a 20% decrease in FEV1 at a methacholine dose of <1 mg and <0.1 mg, respectively.

Results: The BDR was positive in 9 (12.5%) patients, while the MCT at <1 mg was positive in 66 (91.6%) and <0.1 in 39 (54.2%) patients. All patients with a positive BDR were MCT positive. Airway obstruction prior to salbutamol inhalation showed a correlation to FEV1 increase.

Conclusion: In young children with suspected asthma, the MCT outperforms the BDR. Although, it is well known that the MCT often normalizes by school age in children without sensitization, a positive test at an early age is helpful in identifying patients who will benefit from asthma therapy. The MCT should be performed more frequently in clinical practice.

Conflicts of interest: Dr. Zielen reports grants and personal fees from T-Balance, grants and personal fees from Böhringer Ingelheim, grants from Novartis GmbH Deutschland GmbH,grants from ALK Arzneimittel, personal fees from Lofarma GmbH, personal fees from IMS HEALTH GmbH & Co. OHG, personal fees from GSK, personal fees from Stallergen, personal fees from Procter and Gamble, personal fees from Allergopharma GmbH, grants and personal fees from Allergy Therapeutics, personal fees from Engelhard Arzeneimittel, personal fees from Sanofi-Pasteur, personal fees from AstraZeneca, personal fees from Erydel, personal fees from Bionorica GmbH, outside the submitted work.

000474 | ConectAR – collaborative network of patients with chronic respiratory diseases and carers actively involved in health research: An initiative for the patient and public involvement

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Background: Patient and public involvement (PPI) is a powerful way to ensure that health research addresses the needs of patients and is key to developing innovative solutions impacting patients' lives. In Portugal, specific PPI initiatives for patients with chronic respiratory diseases (CRD) have yet to be established. We aimed to develop ConectAR, a sustainable network of patients with CRD and their carers involved as co-researchers.

Method: Patients with CRD and carers above 18years were invited to join ConectAR using social media platforms and through a direct invitation to patients who participated in previous research projects of the research team. We then performed focus groups ($n = 15$ patients/carers/citizens) to define the mission, vision, governance, and activities of ConectAR. We also conducted a workshop ($n = 13$) to establish the communication strategy and recruitment and engagement tools.

Results: The focus groups' main conclusions were that ConectAR should promote transparent and bidirectional relationships between patients/carers/citizens, researchers and other stakeholders involved in research to improve interventions and tools focused on the interests of people with CRD. The participants showed interest in active participation in every stage of the health research cycle. Based on the workshop's conclusions, communication between the coordination team and ConectAR members is done in an informal environment and simple language through email, periodic presential and virtual meetings and activities for team building and science communication through the arts. Currently, the ConectAR network has 104 members (median age, min-max; 38, 18-72 y.o.): 83% patients, 5% carers and 13% interested citizens (including healthcare professionals, students of health sciences and members of patient organisations). The coordination team includes 3 asthma patients and 1 carer, along with clinical researchers. So far, this network's scientific outcomes include three papers with a summary in plain language written by ConectAR members (one published, one submitted and one in preparation for submission to peer-reviewed journals) and two prizes for the best original projects in asthma.

Conclusion: The ConectAR network showed that it is feasible to involve patients with CRD and carers as co-researchers, considering their views since the start of the project and involving them in coordination activities. We expect to incorporate the learnings from this project into developing recommendations for future PPI actions.

Conflicts of interest: The authors did not specify any links of interest.

000462 | MicroRNA regulation of developmental pathways in *Drosophila melanogaster*

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Background: Parental smoking is known as a risk factor for wheeze and asthma, but the underlying mechanisms are ill understood. In earlier work, we showed in flies that early-life smoke exposure alters airway developmental pathways. miRNAs are highly conserved epigenetic regulators of transcription. We therefore asked how specific developmental pathways are regulated by miRNAs.

Method: RNA-Seq data from *Drosophila melanogaster* larval airways exposed to cigarette smoke or air were categorized into specific

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pathways (HIPPO, BMP and EGFR). 25 miRNAs predicted to target all three pathways (targetscan.org) were selected and transgenic lines each lacking one of the identified miRNAs were ordered. The larval length (Microscope OLYMPUS BX51, cellSens Entry v1.14), the area and the number of the branches of airway terminal cells (ImageJ NeuronJ v1.44) were measured and development assay of the fly lines were performed.

Results: So far 15 out of 25 lines had a stable construct and showed fluorescence in tracheal tissue being essential for further analysis. The larval length (L3 stage) of fly lines lacking either miRNA-4, miRNA-9b, miRNA-9c, miRNA-10, miRNA-133, miRNA-210 or miRNA-263b was comparable to the wild-type (Yellow-White) control. The area and the number of branches of the terminal cells were similar among these fly lines. The development assays showed reduced relative numbers of pupae in flies deficient for miRNA-4, miRNA-9b and miRNA-10, whereas the development to imagos was not affected in these animals.

Conclusion: Fly lines deficient for three distinct microRNAs have a lower capacity for successful pupation. So far, 7 fly lines have been characterized with the remaining 8 lines to follow. How HIPPO, BMP and EGFR pathways are regulated by these miRNAs needs further investigation by accessing physiological fitness parameters as well as airway morphology of all 15 transgenic fly lines to understand how single miRNAs can influence airway development.

Conflicts of interest: The authors did not specify any links of interest.

000513 | An efficient approach for recombinant expression and purification of the full-length wheat allergen TRI A 19

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Background: The importance of the major wheat allergen ω5-Gliadin (Tri a 19) in food-dependent exercise-induced anaphylaxis (FDEIA) has been long established. Availability of highly pure Tri a 19 is essential in molecular diagnostics of FDEIA. However, the purification of this protein from natural wheat extract is not feasible due to its low abundance. To date, only a truncated version of recombinant Tri a 19 (TA19-Trunc) has been reported, due to plasmid instability and sequence complexity of the full-length construct. We have expressed and purified both the full-length Tri a 19 (TA19-FL), and TA19-Trunc in *E. coli*, and compared their IgE reactivity, purity, and stability.

Method: The coding sequences for TA-19-FL (residues 20-420) and TA19-Trunc (residues 243-420) were subcloned, and the proteins were expressed in *E. coli* cells under IPTG induction. Both proteins were purified from the insoluble fraction by stepwise dialysis followed by metal affinity and gel filtration chromatography. The purified proteins were analyzed by SDS-PAGE, and mass spectrometry. The IgE reactivity of the proteins was assessed using sera from wheat allergic individuals in a chimeric ELISA.

Results: TA19-FL and TA19-Trunc were present mainly in the insoluble fraction and were refolded and purified to ~95% purity, as assessed by SDS-PAGE, and intact mass spectrometry. TA19-FL showed higher yield, solubility, and stability throughout the purification process relative to TA19-Trunc. TA19-Trunc has a requirement for 400mM Arginine for stability, whereas TA19-FL is stable in presence of 40mM Arginine, making the protein more malleable for use in various applications. Both TA19 recombinant forms reacted to the same sera (5/11) from wheat allergic individuals, with TA19-FL exhibiting ~25% higher levels of IgE reactivity relative to the truncated protein.

Conclusion: Despite the sequence complexity, the TA19-FL coding sequence was successfully subcloned, expressed in *E. coli*, and purified from the insoluble fraction to high purity. TA19-FL showed higher yields, solubility, stability and enhanced IgE reactivity relative to TA19-Trunc. TA19-FL may exhibit additional IgE epitopes and seems to be the superior protein form for use in molecular diagnostics of FDEIA.

Conflicts of interest: The authors did not specify any links of interest.

000563 | The effect of allergen-specific immunotherapy on the quality of life of school-age children with asthma and sensitization to cat allergens

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Background: Asthma in school-age children remains one of the most crucial challenges in pediatric allergology. It can have an impact on the patients' quality of life as well as their academic progress (Monteiro FP, et al., 2017; Montalbano L, et al., 2020, Battula M, et al., 2020).The aim of this study was to assess the effect of allergen-specific immunotherapy on the quality of life of school-age children with asthma and sensitization to cat allergens.

Method: The study enrolled children aged 6 to 17 years with asthma and sensitization to cat allergens. All study participants provided informed consent. The children were examined using the multiplex allergy test ALEX2 (Macro Array Diagnostics GmbH, Austria). 32 children who received allergen-specific immunotherapy in addition to basic therapy (Group 1) and 40 children who received only basic therapy (Group 2) had their quality of life domains evaluated using the Mini Pediatric Asthma Quality of Life Questionnaire (MiniPAQLQ). In these groups, the clinical course was comparable. As part of allergen-specific immunotherapy, cat fur allergen extract (Inmunotek, S.L., Spain) was administered subcutaneously to 13 children and sublingually to 19 children.

Results: Baseline total quality of life score was 4.93 (95% CI 4.83–5.04) in Group 1 and 4.83 (95% CI 4.70–4.95) in Group 2, with no statistically significant difference ($p = 0.077$). After 12 months, it was 5.64 (95% CI 5.51–5.76) ($p < 0.001$) and 5.09 (95% CI 4.96–5.22) ($p < 0.001$), respectively, with a statistically significant difference

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($p < 0.001$) between groups of children who received allergen-specific immunotherapy and those who did not. The quality of life assessment according to symptoms, emotional function, and activity showed identical dynamics. A correlation was found between the quality of life index at 12 months and the allergen-specific immunotherapy ($r = 0.620$; $p < 0.001$).

Conclusion: The study showed that the combination of basic therapy and allergen-specific immunotherapy improved the quality of life in school-age children with asthma and sensitization to cat allergens.

Conflicts of interest: The authors did not specify any links of interest.

000654 | Self-reported and physician diagnosed asthma amongst allergic rhinitis patients enrolling in an ILIT trial

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Background: Asthma is a highly prevalent condition in Western countries. Allergic rhinitis is both a risk factor for developing asthma and a common co-morbidity. It is therefore important to evaluate patients suffering from allergic rhinitis for possible asthma, and all asthma patients should be tested for air-borne allergies.

Method: In 2019, we initiated the ILIT.NU trial – a multi-center, randomized placebo-controlled trial investigating the effect of Intralymphatic immunotherapy in grass pollen allergic patients (EudraCT 2020-001060-28, BASEC Nr 2021-023001), Clinicaltrials: NCT05191186.

People interested in participating in the study were asked to fill out an online questionnaire including retrospective symptom scores and the RHINE 3 questionnaire. Data on self-reported asthma and doctor-diagnosed asthma were extracted from all completed questionnaires.

Results: In total, 2274 participants completed the online screening in Denmark (2102), Sweden (112) and Switzerland (60).

Of these 710 individuals reported asthma (31.2%), 680 (29.9%) of these individuals reported doctor-diagnosed asthma, all of them included in the 710 participants reporting asthma, i.e. 95.8% of the self-reported asthma cases had an asthma diagnosis made by a physician. We found no differences in self-reported asthma between countries (Denmark 31.1%, Sweden 33.1,%, Switzerland 33.3%. However significantly more of these patients reported physician diagnosed asthma in Denmark (96.6%) and Switzerland (95%) compared with Sweden (81.1%).

Conclusion: We found a high prevalence of asthma in a population screened online to participate in a multi-center trial of Intralymphatic immunotherapy. This stresses the importance of examining patients suffering from allergic rhinitis for co-morbid asthma.

Conflicts of interest: The authors did not specify any links of interest.

000658 | Chronic eosinophilic pneumonia and asthma: A diagnostic and management challenge

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Case report: A 50-year-old non-smoker patient came to our allergy department for evaluation. She was diagnosed in another center 10 years ago with chronic rhinitis and allergic bronchial asthma due to sensitization to dust mites and was treated with allergen immunotherapy for 5 years with clinical improvement. Some years later she required urgent medical assistance for bronchospasm and a chest X-ray made in the emergency room was normal. She was stable for several years until 4 weeks prior consultation when she presented with dyspnea, inspiratory rhonchi and nocturnal wheezing. The laboratory data showed an absolute eosinophil count of 5.70 × 10e9/L, and an nsIgE of 811kU/L. CT revealed bilateral alveolar infiltrates, confluent consolidations in the upper lobes and diffuse bronchial wall thickening with mucoid impactions in randomly distributed subsegmental bronchi. Fiberoptic bronchoscopy showed no abnormal findings in the bronchial lumen. Bronchoalveolar lavage (BAL) fluid had an elevated eosinophil percentage. On the basis of the analysis of the BAL fluid, the marked peripheral eosinophilia, the alveolar infiltrates on chest CT, and the negative findings for other potential causes, the diagnosis of CEP was established. Treatment with prednisone 30 mg/d was given, with biweekly tapering of the dosage during 4 months and we noticed marked improvement in the eosinophil count and resolution of the alveolar infiltrates after 4 weeks. Three months later the patient started again with dyspnea and cough. Imaging showed infiltrates in the upper lobes and lingula and increased eosinophil count in blood work. We started treatment with mepolizumab 100 mg per month. She responded well to the therapy, about 1 month of treatment her symptoms disappeared, and her blood eosinophil counts decreased to the normal range. The infiltrative shadows disappeared on her chest CT taken 3 months after the start of therapy. The patient has had no relapse of CEP up to now with the continuation of mepolizumab.

Conclusion: CEP is often associated with severe and worsening asthma, with more than one-third of the patients eventually requiring long-term oral corticosteroid therapy. In this case we used mepolizumab for treatment of both conditions with good response so far. The use of mepolizumab to treat CEP has shown induction of remission, reduction in extent and severity of chest imaging opacities, and reduced use of glucocorticoids.

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Conflicts of interest: The authors did not specify any links of interest.

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000810 | Severe bronchial hyperresponsiveness along with house dust mite allergy indicates persistence of asthma in young children

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Background: Significant risk factors for persistence of asthma later in life are family history of allergies, early allergic sensitization and bronchial hyperresponsiveness (BHR).To examine the evolution of BHR in young children without allergic sensitization and with house dust mite allergy (HDM).

Method: In this retrospective analysis, electronic charts of 4850 young children with asthma and wheezy bronchitis between 2005 and 2018 were reviewed in order to study all patients <6 years with BHR assessed by methacholine provocation tests (MCT) at least once ($n = 1175$). Patients with more than two follow-up measurements were divided in group 1 (no allergic sensitization; $n = 110$) and group 2 (HDM allergy; $n = 88$). Additionally, skin prick test, eNO, asthma treatment were analyzed.

Results: Forty-seven patients of group 1 aged median 4.3 range 2.9 - 6.9 years and 49 patients of group 2 aged median 4.7 range 3,1-6.7 years showed initially severe BHR<0.1 mg. At follow-up, MCT in patients with HDM were more likely to persist with a severe BHR than in group 1 (severe BHR group 1: $n = 5$ (10.6%) vs. group 2: $n = 21$ (43.8%), $p = 0.004$). While eighty-nine percent of group 1 had mild to moderate or no BHR at the last MCT, compared to only 44% of group 2 ($p < 0.001$). There was a significant difference in eN0 (median group 1: 9 ppb vs. group 2: 26 ppb, $p < 0.001$, at follow-up. Age, sex and asthma therapy had no effect on BHR.

Conclusion: In young children without sensitization BHR normalize, whereas HDM allergy indicates a persistence of asthma beyond infancy.

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000473 | Overlap of severe asthma and alpha-1 antitrypsin deficiency

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Background: Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation presenting symtomps such as wheeze, shortness of breath, chest tightness and cough. Poor asthma symptom control itself substantially increases the risk of exacerbations. Moreover, several additional independent risk factors have been identified including genetic disoders such as alpha-1 antitrypsin deficiency (AATD). AATD is a heterogeneous disorder with a broad spectrum of alpha-1 antitrypsin phenotypes which impart a varying susceptibility to obstructive lung disease and emphysema. Protease inhibitor (Pi) Z is the commonest allele for the homozygous (PiZZ) severe deficiency; PiMZ, the heterozygous condition, carries only a slightly higher independent risk of obstructive lung disease. Atopy which predisposes to asthma has also been reported to be more prevalent in those with AATD. Along with the enhanced susceptibility to the development of chronic obstructive pulmonary disease, may also be an enhanced susceptibility to asthma. We report a patient with difficult to control asthma and alpha-1 antitrypsin deficiency.

Method: Since 2012, a 37 years old patient is being followed in our Unit, with perennial allergic rhinitis, severe Type 2 asthma and nasal polyposis that required twice surgical interventions. Since October 2022, he refered poor symptom control despite good adherence and correct inhaler technique with optimal dose ICS-LABA and LAMA. Moreover, systemic corticosteroids therapy were often required. Skin prick testing, blood testing including alpha-1 antitrypsin, spirometry before and after bronchodilator test, FeNO measuring, asthma control test (ACT), and thorax computerized axial tomography (CAT) scan were performed.

Results: Skin prick testing with common environmental allergens: positive to Dermatophagoides pteronyssinus.

- Spirometry test: FVC 98% (4.75L); FEV1 72.9% (2.97L); FEV1/FVC 62.62%; Bronchodilator reversibility testing: FEV1 1316% (3.91L) (>12% y +200cc).
- FeNO: 64 ppb.
- ACT = 9
- Blood test: eosinophils count 830/µL (0-500), alpha-1 antitrypsin 72mg/dl (90-200)
- Genetic testing: Alpha-1 antitrypsin deficiency whith M/Z result.
- Thorax CAT scan: Pansinusitis and nasal polyposis. There is no evidence of pulmonary emphysema or other lung injuries.

Conclusion: We present a patient with severe asthma. Also, alpha-1 antitrypsin deficiency was diagnosed. Asthma diagnosis

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confirmation, aggravating factors, comorbilities and confounding diseases have to be ruled out in difficult to control ashtma patient.

Conflicts of interest: The authors did not specify any links of interest.

000586 | Difficult-to-treat asthma: Importance of additional investigation in pediatric patients

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*Presenting author: A. R. Pinto

Background: Severe asthma, a heterogeneous disease characterized by chronic airway inflammation, constitutes 2 to 5% of pediatric asthma, but is responsible for the majority of morbidity and human/material resources expenditure. Difficult-to-treat asthma, a subgroup characterized by social/environmental factors or comorbidities that adversely influence response to treatment, always requires additional investigation. We report a pediatric patient with difficult-to-treat asthma with unexpected findings during investigation that were crucial to disease control.

Case report: 11-year-old male, with family history of atopy, who, since his 1st year of life, developed symptoms of cough, wheezing and difficulty breathing, with good clinical response to inhaled bronchodilators. In two separate occasions in early childhood, he required pediatric ward admission for acute exacerbations with hypoxemia in the context of respiratory infections. Symptoms improved and became intermittent after starting an inhaled corticosteroid. At the age of 9 he had COVID-19, with little symptoms associated, but since this event his mom reported an increase in frequency and gravity of crisis. She also reported a self-limited episode in which he chocked after aspiration of a plastic he was chewing on, with associated cyanosis, but with recovery after material exteriorization. After multiple attempts to control his now persistent symptoms with suboptimal results, he was referred to our hospital for further investigation.

In our hospital, inhaled medication dosage and inhalation technique were first optimized. Subsequently, prick tests excluded atopy and analytical evaluation excluded alfa-1 antitrypsin deficiency or immunodeficiency. Anatomical abnormalities were excluded after radiologic evaluation and seriated spirometry revealed both negative and positive responses to bronchodilation. A sweat test was unsuccessful due to insufficient sample. Finally, a flexible bronchoscopy revealed a foreign body lodged in the apical portion of the upper right lobe, which was later removed with rigid bronchoscopy (piece of plastic). After this process, his symptoms gradually and significantly improved, eventually allowing therapeutic step down.

Conclusion: The identification and management of modifiable risk factors and comorbidities, followed by clinical suspicion-guided complementary exams, such as flexible bronchoscopy, is crucial to reduce morbimortality in difficult-to-treat asthma.

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Conflicts of interest: The authors did not specify any links of interest.

BASIC IMMUNOLOGY 2

000999 | Assessment of the immune status of schizophrenia patients using flow cytometry

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Background: Schizophrenia (SCZ) is a multifactorial mental disorder which likely to be caused by genetic, environmental factors and other brain changes. Patients with SCZ have immune imbalances including monocytes/macrophages shift in pro-inflammatory states. This study assesses the state of the immune system comparing SCZ patients with non-psychiatric (healthy) donors (HD).

Method: Immune parameters of 42 patients (54.8% female, 45.2% male) with confirmed diagnosis of SCZ (F20.0 ($n = 25$), F20.01 ($n = 14$), F20.09 ($n = 2$), F20.61 ($n = 1$), 39 (33–42) years old) and 45 HD (69% female, 31% male, 37(27–51) years old) were compared. Leukocytes, lymphocytes, subsets of T -cells, B-cells, NKT-cells and monocytes were identified and counted using flow cytometry (Attune NxT). The expression levels of HLA-DR, CD80, CX3CR1, CD192 (CCR2), CD195 (CCR5) on monocytes were assessed.

Results: The absolute content ($\times 10^6$cells/ml) of leukocytes (HD: 4.7(3.8–5.7), SCZ: 3.95(3.4–4.8), $p = 0.03$), lymphocytes (HD: 29.4(21.3–34.0), SCZ: 23.10(15.90–27.70), $p = 0.002$) and T-helpers (HD: 0.5(0.3–0.6), SCZ: 0.35(0.2–0.6), $p = 0.03$) was greater in HD group compared to SCZ. The absolute content of $CD3^+$ cells (HD: 0.9 (0.6–1.2), SCZ: 0,6 (0.4–0.9), EKT (HD: 0.07 (0.03–0.1), SCZ: 0.03(0.02–0.07) ($p = 0.001$) was greater in HD group compared to SCZ. There was no difference in the absolute content of cytotoxic, activated and T-regs subsets. The absolute content of B-cells (HD: 0.07(0.03–0.1), SCZ: 0.03(0.02–0.05, $p = 0.00004$) and monocytes (HD: 0.09 (0.05–0.14), SCZ: 0.04(0.03–0.06), $p = 0,001$) was significantly less in SCZ compared to HD. Despite the lower monocyte counts, increased expression of activation markers CD80 (HD: 25.8 (14.0–40.6), SCZ: 47.12(33.80–54.30) %, $p = 0.00004$) and HLA-DR (HD: 1345.9 (947.8–2021.3), SCZ: 3836.6(2061.9–5751.6) MFI, $p = 0.0001$) was observed in SCZ group. There was no difference in the expression of CX3CR1 ($p = 0.16$), CD192 ($p = 0.07$), CD195 ($p = 0.15$) by monocytes comparing SCZ and HD groups.

Conclusion: Lower contents of major subsets of immune cells was observed in SCZ compared to HD. Increased expression of activation markers CD80, HLA-DR on monocytes suggests pro-inflammatory changes in the immune system of patients with SCZ.

Conflicts of interest: The authors did not specify any links of interest.

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001367 | **DMTMM methylamidation enables MALDI-MS analysis of N-glycans with conserved sialic acid residues in biofluids**

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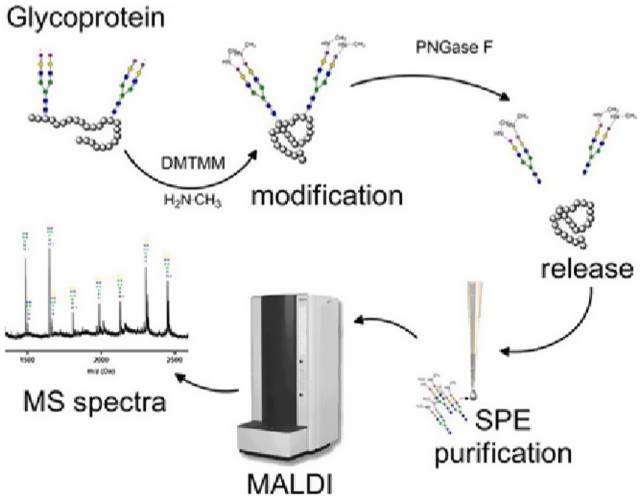
*Presenting author: S. A. Gentile

Background: Evaluation of *N*-glycosylation pattern has increasing interest in immunology as it plays a crucial role in the structure and function of antibodies and the molecules of the immune system. *N*-glycans can modulate the activity and specificity of antibodies, of complement components as well as the pathogen-host interaction. *N*-glycans influence the ability antibodies to bind to antigens and elicit an immune response. Alterations in *N*-glycan structures are implicated in a large variety of diseases such as rheumatoid arthritis, cancer and viruses. Thus, characterization of the *N*-glycosylation profile of biofluids plays a role in understanding the disease mechanisms and developing new treatments strategies.

Method: Here we present a method for *N*-glycan analysis stabilizing sialic acids in antennary positions of glycans. Through modification and derivatization of the carboxylic acid group using 4-(4,6-dimethoxy-1,3,5-triazin-2-yl)-4-methylmorpholinium chloride (DMTMM) and methylamine, increased stability in water and improved *N*-glycan detection is achieved. Glycosylated proteins serve as a solid phase support for glycan derivatization and purification from excess reagents. Hydrolysis of glycans from proteins is performed by the enzyme PNGASE-f. The *N*-glycans are then purified and concentrated via HILIC microextraction, and then analysed using MALDI-MS in positive mode. MS spectra were analysed with the software Glycoworkbench and a user definite database allowing detection of custom made modifications, which resulted in annotation of the single *N*-glycans

Results: Using this method,different biofluids were evaluated. Sera of BALB/c mices, predominantly contained mono- and di-sialylated *N*-glycans *N*-Glycolylneuraminic acid (Neu5Gc) as the dominant sialic acid and N-Acetyl neuraminic acid (Neu5Ac) being present only in trace amounts. In BALB/c mouse intestinal lavages, glycoproteins contained *N*-glycans without sialic acids.

Conclusion: The presented method allows a rapid, accurate and cost-effective identification of *N*-glycans in biofluids, opening future developments in diagnostics and identification of new relevant biomarkers in many pathological conditions.



Conflicts of interest: The authors did not specify any links of interest.

001002 | **Molecular mimicry between humans and aspergillus fumigatus aquaporins. Possible implication as new allergens in atopic dermatitis**

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Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease with a high impact on quality of life. The recognition of allergens through specific IgE induced the immune response and allergy symptoms. The identification of allergens facilitates the diagnosis and the design of specific treatment strategies and some studies suggest that auto-IgE response is associated with AD severity. However, not all AD related allergens and/or auto-allergens have been described. Fungus species as *Aspergillus fumigatus* have been demonstrated as an important AD allergen sources. Therefore, the identification of new allergens allows to new approaches that bring us closer to personalized medicine for AD patients. We aid to analyze the molecular mimicry of human AQP3 with the *Aspergillus fumigatus* aquaporin and different allergen sources, as possible news AD allergens.

Method: Through *in silico* analysis, the human and *A. fumigatus* aquaporin amino acid sequences were compared between them and other 25 aquaporin proteins from different allergen sources. The sequences were retrieved from the UniProt and NCBI databases. Local and global alignment were done using PRALINE. To determinate molecular relationship, phylogenetic analysis was done with MEGA software. The proteins without 3D structure reported in the database, were modeled by homology with "Swiss Modeller" and compared through PYMOL. Conserved regions between aquaporin

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were located in the 3D model and antigenic regions were predicted by ElliPro server.

Results: The global identity between aquaporins studied was 32.6%, but in one antigenic site, the specific conserved local region was 71.4%. A total of five monophyletic clade were constructed (A to E). The group B present the highest identity among them (95%), with 6 mammals' aquaporin including AQP3. From *A. fumigatus* aquaporin, the highest identity was present with *Malassezia simpodialies* (35%). Three lineal and three discontinuous epitopes were found in both human and *A. fumigatus* aquaporins. The RMSD from the overlapping among aquaporin was 1.006.

Conclusion: We identify possible linear and conformational epitopes of human AQP3. In one antigenic region the identity between aquaporins was high, suggesting a possible molecular mimicry between the aquaporins from human and *A. fumigatus*, and possible autoreactivity. We hypothesize that this could be a potential antigenic site involved in cross-reactivity reactions. Further *in vitro* and *in vivo* studies need to be performed to confirm our observations.

Conflicts of interest: The authors did not specify any links of interest.

001023 | Features of the immune system in pregnant women with a history of infertility of various origins

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Background: Levels of immune blood cells based on the CD phenotype and expression of intracellular cytokines may differ in pregnant women with a history of various forms of infertility.

Method: 436 non-pregnant women (reference group *n*), 280 healthy pregnant women without complicated history (group *N*) and 88 pregnant women with a history of infertility of different origins – with endocrine (Group 1), tubular-peritoneal (Group 2) and combined (endocrine and tubular-peritoneal) (Group 3) were assessed using FACSCan cell cytofluorimetry (Becton Dickinson, USA) and monoclonal antibodies (MKAbs) to differentiated lymphocyte antigens CD3, CD4, CD8, CD19, CD56, activation markers (HLA-DR, CD25, CD69) and intracellular cytokine expression (IFN-γ, TNF-α IL-4, IL-10) of CD3+CD4+-cells.

Results: A significant increase in Group 2, compared with non-pregnant women, occurred in the levels of CD3+- and CD3+CD4-lymphocytes with a high expression of markers of activation – HLA-DR and CD25, as well as activations of CD3+CD8+-, NK T CD3+CD4+CD56+- and CD3-CD56+-lymphocytes an expression of HLA-DR and an increase in the CD3+CD4+-IFN-γ+ and -TNF-α+-cells. The expression of anti-inflammatory IL-4 and IL-10 did not differ from the normal women in all 3 groups. The phenotypic features of immunocompetent cells in all groups did not differ from healthy pregnant women at gestation periods of 6-10 weeks, except for a decrease in the levels of CD3+CD4+IL-10+ -lymphocytes, which can be prognostically dangerous for maintaining a normal pro-/anti-inflammatory cytokine balance.

Conclusion: In women with a history of tubular-peritoneal inflammatory gynecological diseases, there is greater activation of T-cytotoxic killer cells and T-helper/inducers, including those with high intracellular secretion of pro-inflammatory cytokines IFN-γ and TNF-α, with a significant decrease in anti-inflammatory IL-10.

Conflicts of interest: The authors did not specify any links of interest.

000953 | Selective allergy to raspberry (*Rubus idaeus*): Identification of a 30 kDa allergen

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Background: Few cases regarding allergy to raspberry have been reported. In the Mediterranean area, raspberry allergy is mainly due to lipid transfer proteins (LTP). Other allergens such as PR-10, chitinase or cyclophilin have also been described.

Method: We present a Spanish 49-year-old female, without previous food allergy or atopy history who suffered, for 10 years, several reactions after consumption of raspberry. She described these episodes as generalized hives and palpebral angioedema 15 minutes after the consumption of this fruit. These reactions were completely resolved within 1 hour with oral antihistamines. She tolerated regularly other rosaceae family fruits such as strawberries, blackberries and peach, as well as nuts.

We performed skin prick tests to commercial extracts with a battery of fruits (melon, peach, plum, apple, pear, kiwi, banana, orange), profilin, LTP and betula. Prick by prick to raspberry and strawberry was performed, as well as serum specific IgE. SDS-PAGE with a raspberry extract and immunodetection with the patient´s serum was performed.

Results: Skin prick tests to fruits, profilin, LTP and betula resulted negative to all of them. Prick by prick to strawberry was negative. However, prick by prick to raspberry was positive (10x8 mm). Prick by prick to raspberry was performed in 3 non atopic control patients with negative result.

Total IgE was 25 UI/mL, Pru p 3 (LTP) 0.01 JU/l, Pru p 4 (profilin) 0.01 KU/l, Pru p 1 (PR-10) 0.00 KU/l, strawberry 0.01 KU/l, raspberry 1.70 KU/l.

SDS-PAGE and Western blot with raspberry extract was performed under reducing conditions and after the incubation with the patient's serum, revealed an IgE-binding protein of 30 KDa.

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Conclusion: We present a case of a patient with exclusive allergy to raspberry in which a 30 KDa protein was detected as the most likely allergen implicated.

Conflicts of interest: The authors did not specify any links of interest.

000170 | Optimizing logistics for pollen data collection to support a multi-country pivotal seasonal grass allergen immunotherapy study

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Background: Pollen measurements are key for evaluation of efficacy in Phase III field allergy studies. They are used to define pollen seasons which are part of the primary endpoint of respiratory allergy studies and considered a critical factor for pivotal study success.

A large multi-country pivotal Phase III study with PQ Grass, a modified subcutaneous immunotherapy (SCIT) product with adjuvant system of MicroCrystalline Tyrosine (MCT®) and Monophosphoryl Lipid A (MPL), is currently ongoing. Here we describe the procedures for pollen collection and measurement.

Method: A streamlined process has been developed to achieve full coverage of pollen count collection for 112 clinical sites, contributing to this Phase III study spread over Europe and the US to obtain reliable grass pollen counts for this pivotal Phase III study with PQ Grass.

Results: Pollen counts are collected by well-trained personnel using hirst-type volumetric pollen and spore traps. Tapes with 7 days pollen recordings are shipped from US to Europe in plastic tubes using a specially designed tracking tool. A 3-dimensional (3D) virtual-slide microscope is used for central reading of all pollen counts in Europe with various 3D frames being provided.

Conclusion: A global pollen collection sampling network is operational with well-trained operators and qualified sites using hirst-type pollen traps to collect daily pollen counts during the grass pollen season for a pivotal Phase III study with PQ Grass, a modified SCIT product developed for US and Europe. The training, weekly pollen collections and central reading procedures provide reproducible and high quality counts to support the primary study results.

Conflicts of interest: The authors did not specify any links of interest.

001661 | Urticarial vasculitis following mRNA COVID-19 vaccination with concomitant COVID-19 infection: A case report

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Background: Chronic spontaneous urticaria (CSU) starting one to two weeks following mRNA COVID-19 booster immunizations is frequently observed. There are also several case reports on urticarial vasculitis after COVID-19 vaccination. The mechanism on how mRNA vaccines promote CSU and urticarial vasculitis is unknown. The delayed occurrence suggests an involvement of adaptive immunity. Here, we present a case of urticarial vasculitis following mRNA COVID-19 vaccination and concomitant COVID-19 infection.

Observation: A 41-year-old man was referred to our allergy outpatient clinic with urticarial lesions since 2 days. Symptoms had started after the third dose of an mRNA COVID-19 vaccine. The patient showed erythematous, elevated wheals persistent over 24 hours, and joint pain. Besides the wheals, the clinical examination and blood work-up were normal, however, a COVID-19 PCR from a nasal swab demonstrated SARS-CoV-2 infection. Histopathology of a skin biopsy revealed a disruption of the walls of the small vessels, endothelial swelling, erythrocyte extravasation, and mild perivascular infiltration comprising neutrophils, eosinophils, and lymphocytes. Direct immunofluorescence failed to show deposition of immune complexes. Autoimmune serology was unremarkable. Laboratory examinations were within normal levels. Based on clinical, histopathological and laboratory findings, normocomplementaemic urticarial vasculitis, possibly triggered by mRNA COVID-19 vaccination as well as COVID-19 infection, was diagnosed and treated with corticosteroids. Symptoms resolved rapidly, but urticarial lesions, without joint pain, reappeared upon discontinuation of corticosteroids and persisted for the following eight months. During this time, there was partial improvement by treatment with the H1-antihistamine bilastine. Thereafter, urticarial lesions resolved spontaneously.

Conclusion: Here, we report a rare case of normocomplementaemic urticarial vasculitis that developed after mRNA COVID-19 booster vaccination and concomitant COVID-19 infection. Although not observed in the biopsy of our patient, we hypothesize that immune complexes might be involved in the pathogenesis of urticarial vasculitis as well as CSU following mRNA COVID-19 vaccination. Whether the pathomechanism involves the SARS-CoV-2 spike protein and anti-spike-IgG or, alternatively, self-reactivity associated with molecular mimicry has yet to be clarified.

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Conflicts of interest: The authors did not specify any links of interest.

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000785 | The involvement of SIRT2 in hyperoxic acute lung injury

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Background: High-concentration oxygen treatment can be used for therapeutic purposes, but prolonged exposure causes hyperoxic acute lung injury (HALI). HALI is characterized by excessive inflammatory responses, endothelial and epithelial cell injury and death. Sirtuin2 (SIRT2), a nicotinamide adenine dinucleotide (NAD)-dependent deacetylase, has been shown to be involved in fibrosis, apoptosis, and inflammation in previous studies. However, the role of SIRT2 in pathogenesis of HALI is unknown. In this study, we demonstrated that SIRT2 is involved in HALI.

Method: We used wild-type (WT) mice and SIRT2 null mutant ($SIRT2^{-/-}$) mice, and mice were placed in a chamber and supplied with oxygen, concentration of >95% at 5L/min for 72h. SIRT2 expression was evaluated by quantitative real-time polymerase chain reaction (RT-PCR). Total cell counts were performed by obtaining cells from bronchoalveolar lavage (BAL) fluid. Levels of pro-inflammatory cytokines were investigated by quantitative RT-PCR and enzyme-linked-immunosorbent serologic assay (ELISA). For in-vitro study, Beas-2B, the human airway epithelial cells, were exposed to >95% oxygen for up to 72h. Cell lysates were also analyzed for the SIRT2 and pro-inflammatory cytokine expression.

Results: SIRT2 expression levels were elevated in hyperoxia-induced WT mice. Total cell counts in BAL fluid were increased in WT mice exposed to hyperoxia compared to WT mice in room air, and were alleviated in $SIRT2^{-/-}$ mice exposed to hyperoxia for 72h. mRNA and protein levels of pro-inflammatory cytokines, such as interleukin(IL)-6, IL-1β were lower in hyperoxia-induced $SIRT2^{-/-}$ mice than in hyperoxia-induced WT mice. The mRNA levels of SIRT2 in human airway epithelial cells were also increased in a time-dependent manner after exposure to hyperoxia.

Conclusion: These findings indicate that the expression of SIRT2 is related to HALI, and SIRT2 can be a new therapeutic target to diminish lung injury in patients exposed to hyperoxia.

Conflicts of interest: The authors did not specify any links of interest.

000477 | Structural analysis of human IgE monoclonal antibody recognition of dog natural allergen Can f 1

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Background: Human hybridoma technology was used to express allergic subject derived human IgE monoclonal antibodies (hIgE mAb) against the major dog allergen Can f 1. These hIgE mAb contain the natural pairing of heavy and light chains and are therefore ideal for analyses of IgE epitopes and affinity.

Method: The hIgE mAb 1J11 specific for dog allergen Can f 1 was obtained using hybridoma technology by cytofusion of B cells from an allergic individual with a myeloma partner. The binding affinity of purified hIgE mAb 1J11 to natural Can f 1 was measured by localized surface plasmon resonance (LSPR) using an OpenSPR^{TM}instrument. The hIgE mAb was individually immobilized on a standard sensor and various concentrations of Can f 1 were flowed over to measure the dissociation constant (K_D). Antigen binding fragments (Fab) from hIgE mAb 1J11 were expressed in CHO cells and purified to mix with Can f 1 at 1:1 molar ratio for crystallography. Specificity of the hIgE mAb 1J11 was assessed by direct binding to 10 different natural or recombinant (expressed in *Escherichia coli* or *Pichia pastoris*) lipocalins from mammals (dog, cat, horse, cow, rat, mouse) and cockroach. The capacity of Can f 1 epitope-mutants expressed in *E. coli* to bind hIgE mAb 1J11 was analyzed by inhibition assays.

Results: The hIgE mAb 1J11 showed a high affinity for Can f 1 with a calculated K_D of 149 pM. 1J11 also showed a high level of specificity to Can f 1 when binding was compared to the other mammal and cockroach lipocalins. The crystal structure of hIgE mAb 1J11-Fab with natural Can f 1 was determined at 3.1 Å and defined our first structure of a hIgE epitope on a natural allergen. Epitope mutants created based on important residues identified by our crystal structure showed up to 200-fold reduced capacity to bind hIgE mAb 1J11.

Conclusion: The specificity of binding by hIgE mAb 1J11 to Can f 1 indicates this novel epitope is Can f 1 specific and not ubiquitous among homologous lipocalins. Structural and mutagenesis analyses of hIgE mAb epitopes such as the one recognized by hIgE mAb 1J11 will reveal the allergen-IgE antibody interactions and provide the basis for a rational design of hypoallergens.

Conflicts of interest: The authors did not specify any links of interest.

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000912 | Cytokine synthesis and antioxidant systems in endurance athletes

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Background: Strenuous muscle activity is accompanied by activation of cytokine/chemokine synthesis and dysbalance in free radical oxidation and function of the antioxidant system. Decrease in sport activity induces changes in both immune and antioxidant systems associated with a decrease in daily motor activity in former athletes, as well as due to injuries. This study assesses changes in the synthesis of immune regulatory cytokines and indicators of free radical oxidation and antioxidant protection in different stages of sport activity.
Method: The concentrations of cytokines in sera of winter sports athletes (33) and boxers (6) was assayed by ELISA and multiplex assays (Luminex xMAP). Assessment of oxidative and antioxidant systems occurred in professional male athletes specializing in both cyclic and non-cyclic sports. The activity of free radical oxidation was assayed by spectrophotometry using reaction with thiobarbituric acid. Diene conjugate concentrations were assessed by spectrophotometry in the heptane phase after preliminary extraction in heptane-isopropanol mixture. Chemiluminescence methods were used to study the primary antioxidant components and total antioxidant activity (TAA).
Results: Endurance sport was associated with enhanced secretions of interleukin (IL)-2, IL-6, IL-8, vascular endothelial growth factor (VEGF), and monocyte chemoattractant protein-1 (MCP-1) and impacts synthesis of proinflammatory IL-18 and anti-inflammatory IL-10. In early post-sport periods the TAA was significantly lower, compared with the controls and sport active group showing a dysbalance between the activity of two main enzymes, superoxide dismutase and catalase, which correlated with the dysbalance in pro- and anti-inflammatory cytokines.
Conclusion: Endurance exercises impact the synthesis of cytokines/chemokines and metabolic processes. Dysbalance in immune pro- and anti-inflammatory cytokines correlates with the activity of oxidant and antioxidant systems which depend on the sport activity of athletes.
Conflicts of interest: The authors did not specify any links of interest.

000918 | Mapping of IGG-binding epitopes in major birch pollen allergen Bet V 1 for identification of hypoallergenic peptides with potential therapeutic application

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Background: Allergy is an important socio-economic health problem currently estimated to affect one billion people worldwide. Allergen immunotherapy (AIT), as the only curative approach, is associated with the stimulation of allergen-specific neutralising IgG4 antibodies and allergen tolerance. While IgE epitope mapping has been important to identify and characterise major allergens, IgG epitope mapping has not yet been a major focus of allergy research. In this project, we aim to define IgG-binding epitopes on the major birch pollen allergen Bet v 1 in order to use this information for the production of hypoallergenic peptides for improved AIT.
Method: Blood from 30 birch pollen allergic patients (and 5 non-allergic control patients) was collected at the Allergy Unit of the University Hospital Zurich. Ten of the allergic patients had received subcutaneous and 10 patients had received sublingual AIT. Serological analysis of allergen-specific IgE and IgG4 was done with ImmunoCAP. Analysis of IgG-secreting B cells was done with ELISpot and by DropMap microfluidics. Linear and conformational IgG epitopes were analysed using CLIPS™ technology (Biosynth).
Results: All allergic patients had Bet v 1 specific IgE, while control patients were negative. Both IgE and IgG4 rose upon SCIT and SLIT. ELISpot and DropMap microfluidics confirmed Bet v 1-specific IgG and IgG4, respectively. In a pilot study, specific IgG-binding Bet v 1 epitopes were identified with sera from AIT patients but not from healthy controls. Further epitope mapping with sera from the other patients is underway.
Conclusion: CLIPS™ technology enables linear and conformational mapping of Bet v 1-specific IgG binding sites. It remains to be tested if the epitopes identified stimulate allergen-neutralising antibodies when used in AIT.
Conflicts of interest: The authors did not specify any links of interest.

001435 | Induction of type IV hypersensitivity in a red tattoo induced by subcutaneous immunotherapy: A case report

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Background: A woman in her 20s presented with immediate hypersensitivity symptoms of allergic rhinitis diagnosed by positive

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prick test and increased IgE levels toward birch, alder and artemisia. Subcutaneous immunotherapy (SCIT) for birch and grasses ameliorated skin symptoms. During two years of SCIT, red but no light pink or black areas in tattoos placed a year earlier on both lower arms showed plaque elevation. The patient also reported a history of skin eczema upon oral administration of iron supplement during pregnancy and antibiotics (not further recalled) and of skin reactions to artificial fingernails containing acrylates, cheap jewelry and gold, therefore pointing at a possible nickel (Ni^{2+}) allergy.

Method: Blood samples and reactive skin biopsy were collected 10 months after the beginning of SCIT beginning and analyzed by MALDI-MS, flow cytometry and high-throughput RNA sequencing.

Results: MALDI-MS analyses identified pigment red 266, red 170 and orange 13 in the biopsy.

Using our established activation-induced marker (AIM) T cell assay, we detected Ni^{2+} and, as a control, tetanus toxoid (TT)-specific CD4+ T cells. Stimulation of blood cells with pigment orange 13, pigment red 170 and the used immunotherapy solutions did not show an increased activation of T cells. Although patient's history pointed at a possible nickel allergy, T cell receptor (TCR) sequencing showed no enrichment of Ni^{2+}- or TT-specific TCR in the inflamed skin (0% and 1.9%, respectively). Control skin biopsy and blood sample of a nickel (++)-positive patch tested patient was analyzed for comparison. Here, 44.8% of Ni^{2+}-reactive TCR were enriched in the inflamed skin and clustered among the most abundant clonotypes. Local antigen-specific T cell proliferation in skin is the prerequisite for confirming nickel as causal allergen.

Conclusion: We here describe a unique case report of a tattoo reaction after SCIT. The newly established T cell assay can reveal causal relations between putative chemical allergens and skin reactions. Nickel was excluded as sensitizing agent of the tattoo reaction. Since the tested pigments did not show T cell activation, the culprit allergen may be either a decomposition product, metabolite or another non-identified constituent of the ink. General reprogramming or stimulation of the immune system by SCIT might have led to an activation of T cells in the tattoo.

Conflicts of interest: The authors did not specify any links of interest.

001522 | Cannabinoid receptor 2 as a regulator of inflammation induced by oleoylethanolamide in eosinophilic asthma

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*Presenting author: G. Y. Ban

Background: Oleoylethanolamide (OEA), endogenously generated cannabinoid has been reported to be increased in patients with severe asthma and aspirin-exacerbated respiratory disease. Recruitment of activated eosinophils in airway tissue is a hallmark of bronchial asthma pathophysiology. To explore the direct contribution of CB2 receptor (CB2) as a cognate receptor of OEA, which induces activation of eosinophil *in vitro*, *in vivo*, and *ex-vivo*.

Method: We investigated the signaling system of OEA in eosinophilic cell line (dEol-1) *in vitro*, in peripheral blood eosinophils from asthmatics *in ex vivo* systems and BALB/c mice model. In order to confirm whether the activation of eosinophils by OEA is CB2 dependent or not, selective CB2 antagonist (SR144528) and CB2 siRNA were used. The number of airway inflammatory cells, cytokine levels in bronchoalveolar lavage fluid and airway hyper-responsiveness were studied in BALB/c mice.

Results: The level of CB2 expression was increased after OEA treatment in both peripheral blood eosinophils, dEol-1 cells. Furthermore, expression of this receptor was elevated after OEA-induced recruitment of eosinophils to the lung from animal study. However, treatment of SR144528 reduced the activation of peripheral blood eosinophils from asthma patient. Also, CB2 knockdown decreased the activation of dEol-1 cells and the levels of inflammatory and T2 cytokines. Finally, SR144528 treatment alleviated the aggravated airway hyper-responsiveness and the recruitment of circulating eosinophils to the lung.

Conclusion: These results indicate that CB2 may contribute to the pathogenesis of eosinophilic asthma. Moreover, we provide new insights into the molecular mechanisms of signal transduction by OEA in eosinophilic inflammation.

Conflicts of interest: The authors did not specify any links of interest.

001429 | A heligmosomoides polygyrus induced serum-borne factor promotes monocytosis and protects against respiratory syncytial virus infection in the lung

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*Presenting author: M. Burgess

Background: Infant respiratory viral infections are a major cause of infant hospitalisation and a risk factor in the development of persistent wheeze, airway allergic responses and ultimately asthma. We have previously shown that ongoing infection in mice with the gut helminth Heligmosomoides polygyrus (H. polygyrus) protected against respiratory syncytial virus (RSV) infection, reduced viral load, associated immunological changes and airway impairment. This protective effect was independent of adaptive immune responses or helminth secretory/excretory products, and dependent upon the induction of type-I interferons and the presence of normal gut microbiota.

Method: Mice were infected with H. polygyrus via oral gavage. Some mice were also infected with RSV via intranasal administration. Monocytes depleted by intraperitoneal injection of anti-CCR2 antibody (M. Mack). Lungs, blood and bone marrow were collected for analysis by flow cytometry, RNA extraction, serum isolation and colony forming assays.

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Results: Ongoing H. polygyrus infection induces bone marrow monocytopoiesis, driving an increase in circulatory monocyte populations and in recruited inflammatory monocytes in the lung. Treatment of H. polygyrus infected animals with an anti-CCR2 antibody depletes these expanded monocyte populations and ablates the enhanced anti-viral state in H. polygyrus infected animals. Elevating monocyte numbers through their IV administration replicates the anti-viral effect.

Finally, we demonstrate that intravenous serum transfer from mice 10 days after H. polygyrus infection to naïve mice reproduces the increase in interferon beta and interferon stimulated genes, increased monocytopoiesis, elevated lung monocyte counts, and reduced peak viral load in subsequent RSV infection comparable to that seen with host H. polygyrus infection.

Conclusion: These results show that during H. polygyrus infection host derived serum borne factor(s) are released inducing an antiviral state in the lung. These factor(s) also drive systemic monocytosis leading to increased numbers of anti-viral monocyte-derived macrophages within the lung that are sufficient and essential for mounting an effective immune response to RSV infection.

Conflicts of interest: The authors did not specify any links of interest.

001030 | Erythrocyte and blood plasma titanium content assessment in patients with hypersensitivity to titanium dioxide

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*Presenting author: L. DuBuske

Background: Titanium dioxide (TiO_2) is a popular supplement, used widely as a white pigment. Published studies on TiO_2 exposure confirms the importance of studying its biosafety.

Method: 59 patients were included in the study. Suspicion of TiO_2 hypersensitivity according to complaints, and questionnaire data occurred in 27 (46%) people versus 32 (54%) with none. Hypersensitivity to TiO_2 was studied by an oral provocative test (OPT) with 2 mg of food grade TiO_2 powder sublingually. The level of peroxidase activity before and after OPT was assessed in the oral fluid. The titanium (Ti) content in erythrocytes and blood plasma was assessed by ICPE.

Results: The peroxidase activity of the oral fluid after the OPT with TiO_2 was significantly greater (+19.7%) in patients with symptoms of allergy to metals, cosmetics, food dyes, medicines, and titanium-containing medical products compared to the control group (+1.7%) (Mann-Whitney (M-W), $p = 0.01$). The OPT confirmed the clinical history data of TiO_2 hypersensitivity in 75% of cases. The erythrocytes of patients with established hypersensitivity to TiO_2 were found to accumulate less Ti 0.2098 [0.1715 – 0.2398] μg/l than those without hypersensitivity 0.2237 [0.18 – 0.23] μg/l ($p < 0.001$ M-W). The content of Ti in plasma did not differ significantly.

Conclusion: Erythrocytes of patients with established hypersensitivity to TiO_2 accumulate less titanium than those of patients without hypersensitivity, perhaps being an important indicator in assessment of risk of titanium biosafety.

Conflicts of interest: The authors did not specify any links of interest.

000994 | Immune predictors of adverse outcomes in patients with severe bacterial infections

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*Presenting author: L. DuBuske

Background: Severe bacterial infections including pneumonia, infective endocarditis, and sepsis are among the most common reasons for hospitalization of patients. Despite the progress achieved in terms of their early diagnosis and treatment, there is still a fairly high level of adverse outcomes. Evaluation of the prognosis of the course and outcomes of severe bacterial infections is key to improving patient survival.

Method: Two groups of patients were assessed: patients with severe bacterial infections: severe pneumonia, and sepsis with different localization of the primary focus ($n = 45$) (study group); and patients (control group) without signs of bacterial inflammation ($n = 21$). The groups were comparable in gender and age. Immune study included CD-marker typing of lymphocytes (cytofluorimeter FACSCalibur,USA) with ROC analysis.

Results: The AUC of T-lymphocytes (CD3+) and T-helpers (CD3+CD4+), calculated using ROC analysis in patients with severe bacterial infection was 0.79 (95% CI 0.62-0.96) and 0.78 (95% CI 0, 6-0.95), respectively, indicative of a relatively high diagnostic value. ROC- analysis of T-regulatory cells (CD4+ $CD25^{hi}CD127^{-}$) showed area under the ROC-curve of 0.79 (95% CI 0.63-0.95). ROC analysis also showed that the AUC of B1 lymphocytes (CD19+CD5+) in patients with severe bacterial infection was 0.94 (95% CI 0.85-1.0). These results indicate that this indicator can be used as a prognostic marker for severe bacterial infections. AUC of other immune parameters assessed were less than 0.5.

Conclusion: Indicators from immune profiles may be predictors of adverse outcomes in this group of diseases allowing early diagnosis and timely initiation of intense therapy to increase survival in this group of diseases.

Conflicts of interest: The authors did not specify any links of interest.

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BIOLOGICALS 1

000050 | Safety, tolerability, pharmacokinetics, and pharmacodynamics of YH35324, a novel long-acting high-affinity IgEtrap-FC protein in subjects with atopy: Results from the first-in-human study

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*Presenting author: Y. M. Ye

Background: YH35324, a novel long-acting IgE_{Trap}-Fc fusion protein, is a drug under development as a therapeutic agent for various IgE-mediated allergic diseases. Since YH35324 binds to human IgE with high affinity, it prevents serum IgE from binding to receptors on mast cells and basophil, thereby inhibiting histamine release. This randomized, double-blinded, placebo/active controlled, single ascending dose study aimed to evaluate the safety, tolerability, pharmacokinetics, and pharmacodynamics following subcutaneous injections of YH35324 in subjects with atopy.
Method: Fifty-two subjects with atopy (a positive result to more than one inhalant or food allergens on skin prick test and/or allergen-specific IgE test) and a serum total IgE level of 30 to 700 IU/mL, who have mild allergic rhinitis, atopic dermatitis, food allergy, or urticaria were enrolled. Four subjects of Cohort 1 were randomly assigned in a 3:1 ratio to the YH35324 at a dose of 0.3 mg/kg or placebo group; from Cohorts 2 to 5, 12 subjects were randomized in a 4:1:1 ratio to the YH35324 (1, 3, 6, and 9 mg/kg) compared to omalizumab (300 mg) or placebo. Following a single subcutaneous injection, safety, tolerability, immunogenicity, pharmacokinetics, and pharmacodynamics were evaluated.
Results: Fifty (96.2%) subjects completed the study. Twenty subjects (38.5%) experienced at least 1 treatment-emergent adverse event (TEAE) (YH35324, 37.1 %; omalizumab, 50.0 %; placebo, 33.3 %), and all TEAEs were grade 1/2 excluding 1 subject in the omalizumab group (elevated creatine kinase, grade 3). The most common TEAE was headache observed in 4 subjects (11.4%), all of which were considered not related to the study drug. No subject discontinued due to adverse events (AEs). Neither serious AEs, anaphylaxis nor dose-limiting AEs were observed. Systemic exposure of YH35324 increased in a dose-proportional manner over the dose range of 0.3 to 9 mg/kg. The anti-drug antibody was found in 2 subjects (at predose in 1 subject) with low titer. None of them was a neutralizing antibody. YH35324 rapidly suppressed serum free IgE level to a greater extent than omalizumab. Median duration of serum-free IgE concentration maintained at <82.8 ng/mL increased with increasing dose of YH35342 and were longer in all YH35324 dose groups than in the omalizumab and placebo groups ($p < 0.05$).
Conclusion: YH35324 showed a favorable safety profile and therapeutic potential by resulting in greater and more sustained suppression of serum-free IgE compared to omalizumab.
Conflicts of interest: Authors affiliated with Yuhan Corporation and GI Innovation Inc. are employees of the respective companies, which are involved in the co-development of YH35324.

001358 | Affinity matters for IgE-blocking: Evidence from allergen-specific monoclonal Igg1 antibodies sourced from an individual after successful immunotherapy

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*Presenting author: M. R. Strobl

Background: The induction of allergen-specific blocking IgG antibodies is a hallmark of successful allergen immunotherapy. Only recently, passive immunotherapy with humanized allergen-specific IgE-blocking monoclonal antibodies (mAbs) successfully reduced respiratory symptoms of birch pollen and cat allergic individuals. Interestingly, cocktails of allergen-specific mAbs more efficiently prevented effector cell activation than isolated patient-derived polyclonal IgG antibodies, which displayed lower affinities than the engineered mAbs. This tempted us to assess the potential correlation of antibody binding strength and IgE-blocking capacity.
Method: RNA was isolated from peripheral blood mononuclear cells of an individual who, after daily sublingual administration of the recombinant major apple allergen Mal d 1 for 16 weeks, displayed reduced allergic symptoms to apple. Clinical improvement was accompanied by Mal d 1-specific IgG1 blocking antibodies. Fab fragments were generated by yeast display technology and selected for Mal d 1-binding. Specific Fabs were reformatted to full IgG1 antibodies and expressed in mammalian cells. The allergen-specificity of these mAbs was confirmed by ELISA. Their kinetics of allergen binding were studied with surface plasmon resonance. Also, mAbs were added to Mal d 1 at molar ratios of 1:1, 10:1, and 100:1 and tested for their ability to inhibit allergen-induced activation of basophils from non-treated individuals with birch pollen-related apple allergy. Two clones were affinity matured by light chain shuffling and their characteristics were compared to the parental clones.
Results: Four engineered IgG1 mAbs displayed strong Mal d 1-binding and three of them inhibited Mal d 1-induced basophil activation at an antibody:allergen ratio of 100:1. Affinity maturation of two mAbs resulted in a total of five descendants with a 2- to 5-fold higher affinity than their parental antibody. These descendants displayed a stronger IgE-blocking activity than their parental clones in basophil inhibition tests at each tested molar ratio of antibody to allergen.

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Conclusion: We demonstrate that a high affinity of allergen-specific antibodies is essential for efficient inhibition of IgE-mediated effector cell activation. Therefore, allergen-specific mAbs of highest affinities should be favored for optimal success of passive immunotherapy.

Conflicts of interest: The authors did not specify any links of interest.

000444 | Differences in baseline characteristics of bionaïve and switchers to anti-IL4/IL13 treatment in severe asthma patients

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Background: With the growing number of biologics for severe asthma, switching between biologics will be more common. With this study we aim to assess whether patients who initiate anti-IL4/anti-IL13 as first-line treatment differ from patients switching from another biologic treatment in regard to baseline characteristics.

Method: A retrospective study of patients initiating anti-IL4/anti-IL13 treatment from March 2020 to January 2023 in our severe asthma outpatient clinic was performed. Baseline characteristics of these patients was collected. Patients previously treated with another biologic treatment for severe asthma were characterised as switchers. Baseline characteristics for bionaïve and switchers were compared.

Results: Between March 2020 and January 2023 56 patients initiated anti-IL4/IL13 treatment. 19 patients were bionaïve and 37 patients were switchers. Before initiating biologic treatment, no difference between bionaïve and switchers was found for age, gender, blood eosinophil count, fractional exhaled nitric oxide (FeNO), FEV1 in percent of predicted, and asthma control questionnaire (ACQ) score. Compared with switchers, bionaïve had a higher sino-nasal outcome test (SNOT22), with mean SNOT22-score of 51,6 (37,1-66,1) compared with 36,1 (27,7-44,4), $p = 0{,}022$, and a lower proportion of patient in the bionaive group were on maintenance oral corticosteroid (5,3%) compared with switchers (35,1%), $p < 0{,}0001$.

Conclusion: Compared with bionaïve patients, patients switching between biologics may represent a more severely ill asthma-patient group, which may already be recognized before initiating biologic treatment for severe asthma, as a larger proportion of these patients require maintenance OCS.

Conflicts of interest: The authors did not specify any links of interest.

000047 | Clinical remission in patients with severe eosinophilic asthma with benralizumab according to body mass index status in an integrated analysis of the real-world XALOC-1 study

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*Presenting author: A. Shavit

Background: Biologic therapies may promote clinical remission in patients (pts) with severe eosinophilic asthma (SEA). Obesity, common in asthma, can be an independent driver of respiratory symptoms, including those recorded by asthma control measures. We assessed the impact of body mass index (BMI) on clinical remission in real-world pts with SEA treated with benralizumab in the retrospective, international, real-world XALOC-1 study.

Method: This integrated analysis, combining data from four countries (Canada, Italy, Spain, and UK), assessed components of remission at 48 weeks from benralizumab initiation, including no exacerbations, no maintenance oral corticosteroid (mOCS) use, and asthma symptom control (Asthma Control Questionnaire score <1.5 or Asthma Control Test score ≥16), according to BMI status (healthy weight ≥18.5–<25 kg/m^2; overweight: ≥25–<30 kg/m^2; obese: ≥30 kg/m^2). A composite remission endpoint of no exacerbations, no mOCS use, and achievement of asthma control was also assessed. Descriptive statistics were calculated.

Results: 797 pts were included; mean (standard deviation) age was 55.3 (13.8) years, age at asthma diagnosis was 38.1 (18.4) years, and 57.0% of pts were female. Over 65% of pts had overweight (32.1%) or obese (33.6%) BMIs. At baseline, 8.5% of pts had experienced no exacerbations within the last 12 months and 26.6% of pts were mOCS free. After 48 weeks of follow-up, 76.4%, 67.1% and 70.5% of pts with healthy, overweight and obese BMIs, respectively, had no exacerbations (Figure), and 79.7%, 80.2%, and 78.7%, respectively, had no mOCS use. Patients with lower BMIs had higher rates of asthma symptom control (healthy weight, 78.0%; overweight, 68.3%; obese 45.1%) and composite remission endpoint achievement (healthy weight, 57.3%; overweight, 39.8%; obese, 33.3%).

Conclusion: In this retrospective 48-week integrated analysis, the exacerbation and mOCS use components of clinical remission were relatively unaffected by BMI status in real-world pts with SEA receiving benralizumab. However, patients with higher BMIs were less likely to attain improved symptom control or clinical remission. This, in combination with previous observations of an elevated baseline disease burden in patients with higher BMIs, may reflect non–asthma-related symptoms and highlight a need for new asthma control assessment tools.

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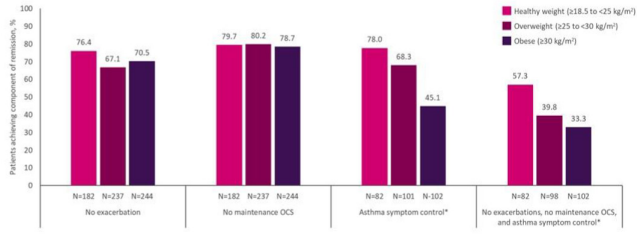
Figure: Components of remission observed at Week 48 according to BMI status



* Asthma Control Questionnaire score <1.5 or Asthma Control Test score ≥16
ACQ, Asthma Control Questionnaire; ACT, Asthma Control Test; BD, bronchodilator; BMI, body mass index; OCS, oral corticosteroid

Conflicts of interest: DJJ: consultancy and speakers' fees: AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Sanofi Regeneron and Chiesi; research grants: AstraZeneca. GP: no conflicts of interest. AP-G: grants, personal fees and non-financial support: AstraZeneca and Sanofi; personal fees and non-financial support: GlaxoSmithKline, Teva, Chiesi and Novartis; personal fees: ALK, FAES and Bial, outside the submitted work. TNT, VHS, DC, MW, SK, SB, JN, JK, AS and BE are employees of, and own stock in, AstraZeneca. PN (past 2 years): grant support to institution: AstraZeneca, Sanofi, Genentech, Teva, Cyclomedica, Foresee and Equillium; honoraria: AstraZeneca, Sanofi, GlaxoSmithKline, Arrowhead, and CSL Behring.

000857 | Alpha-gal epitopes in commercial cat and dog allergenic products

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Background: Allergy to red meat is caused by IgE-mediated reactions to the mammalian oligosaccharide epitope, galactose-alpha-1-3 galactose (alpha-gal). Alpha-gal is present on glycoproteins and glycolipids from non-primate mammals, including cat and dog. The presence of alpha-gal in cat and dog allergenic products is clinically significant and could induce an adverse immunologic response in patients receiving immunotherapy with traditional mammalian extracts, if they are sensitised to alpha-gal. We investigated whether alpha-gal epitopes were present in cat and dog allergenic products using unique human IgE monoclonal antibodies (hIgE mAb) to alpha-gal.
Method: Cat and dog allergenic products from three allergen manufacturers were analysed by immunoblotting using hIgE mAb to alpha-gal that had been derived from a 65 y/o patient with red meat allergy. Positive controls of purified bovine-thyroglobulin and cetuximab, and a negative control chicken meat extract were included in blots to verify specific reactivity to alpha-gal. Cat extracts were also screened with an anti-cat IgA mAb by Western blot, with bovine-thyroglobulin as a negative control.
Results: The hIgE mAb to alpha-gal (16D9) contained 10,360 kU/L specific IgE and had strong reactivity to alpha-gal in ELISA to bovine-thyroglobulin. Immunoblots using 16D9 identified high molecular weight bands (>100 kD) under non-reducing conditions in all the commercial cat and dog extracts tested. Reactivity was confirmed to bovine-thyroglobulin and cetuximab positive controls, whereas chicken extract showed no reactivity. The alpha-gal positive high molecular weight bands observed in cat extracts were confirmed to be cat IgA by Western blotting with an anti-cat IgA. The anti-cat IgA mAb did not display reactivity toward bovine-thyroglobulin and is assumed specific to IgA.
Conclusion: Cat and dog allergenic products contain alpha-gal. For cat extracts, the alpha-gal epitopes are present on cat IgA. This data suggests a potential for false-positive diagnosis of cat/dog allergy through skin prick testing of red meat allergic patients. The hIgE mAb used in this study provide useful tools for monitoring and improvement of diagnostic and therapeutic allergenic products for alpha-gal. This will help identify alpha-gal allergic patients who are at risk from immunotherapy with mammalian extracts.
Conflicts of interest: MB, SA, BS and MDC are employees of InBio.

000488 | STAR-0215 bound to active plasma kallikrein structure uncovers a new binding mode

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Background: Plasma kallikrein activity inhibition is a clinically validated mechanism against hereditary angioedema (HAE) attacks. The effectiveness of plasma kallikrein inhibitors as a prophylactic treatment for HAE depends on their potency and duration of action. STAR-0215 is being developed as a highly potent, selective with extended half-life antibody plasma kallikrein inhibitor for the prevention of HAE attacks. In a Phase 1 clinical study, subcutaneously administered STAR-0215 was able to effectively inhibit plasma kallikrein activity for an extended period of time. To gain further insight into the STAR-0215 inhibitory mechanism of action, we investigated STAR-0215 structure and binding to plasma kallikrein by utilizing Cryogenic Electron Microscopy (Cryo-EM).
Method: STAR-0215 fragment antigen-binding region (Fab)/plasma kallikrein complex was initially screened to evaluate the best conditions for imaging, followed by vitrification. Imaging was performed using a ThermoFisher Krios G3i electron microscope. Image data were processed, analyzed, and refined to obtain a high-resolution structure of the complex.
Results: The 2.6 Å high resolution Cryo-EM structure of the STAR-0215 Fab/plasma kallikrein complex revealed a novel allosteric binding mode. STAR-0215 inhibits the enzymatic activity of plasma kallikrein by directly binding to the N-terminal region of active plasma kallikrein destabilizing the activation loops and resulting in the distortion of S1 site and oxyanion hole. This allosteric conformational change renders plasma kallikrein inactive. These results are in agreement with previously reported biophysical assay observations.

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Conclusion: The STAR-0215 Fab/plasma kallikrein structure demonstrates that STAR-0215 inhibits plasma kallikrein by forcing it to a zymogen-like conformation. This unique binding mode also points to the high specificity of STAR-0215 against plasma kallikrein compared to prekallikrein. This finding, together with both non-clinical and clinical data, suggests that STAR-0215 is a potential best-in-class agent for prevention of HAE attacks. Clinical trials are currently ongoing.

Conflicts of interest: All authors are employees of AstriaTherapeutics and/or have a financial interest in Astria Therapeutics.

000939 | Immunocap research assay to measure anti-drug antibodies to infliximab without acid dissociation

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*Presenting author: O. Bergman

Background: Development of anti-drug antibodies (ADAs) are a common side effect of treatment by biological drugs, such as infliximab (IFX) used in rheumatoid arthritis and inflammatory bowel disease. Monitoring ADAs during treatment may be important to identify patients at risk of treatment failure due to neutralizing antibodies and increased antibody-mediated drug clearance. ADA immunoassays often suffer from low drug tolerance, leading to false negative results and may therefore use an acid dissociation step to dissolve ADA-drug complexes prior to analysis. Here we present an ImmunoCAP research assay with high sensitivity and drug tolerance for detection of ADAs against IFX without use of an acid dissociation step.

Method: The assay is based on an ADA bridging format with an initial pre-incubation step where the sample is diluted 1:20 and incubated (4h or over-night) with biotinylated IFX. Next the sample is analyzed using an IFX-coupled ImmunoCAP test on the fully automated Phadia 250 instrument. Any IFX-ADA complexes formed are identified using a streptavidin-enzyme conjugate and standard ImmunoCAP reagents.

An in-house mouse monoclonal antibody (mAb) targeting human kappa light chain, as well an IFX-specific recombinant human monoclonal antibody (hu-mAb) were used as positive controls. A sample pool of sera from healthy individuals was used to set a preliminary cut point of the assay (1.5x the response of the pool). Samples with various concentrations of rheumatoid factor (RF), human anti-mouse antibodies (HAMA), biotin, and free IFX were used to study assay interference. Serum samples from seven patients who at the time of sampling were treated with IFX were analyzed with the assay for assessment of ADAs.

Results: The ImmunoCAP IFX ADA assay shows a preliminary detection limit of 25 ng/ml (mAb) and 100 ng/ml (hu-mAb). No assay interference was seen with samples containing RF (55 IU/ml), HAMA (246 ng/ml), biotin (3.5 µg/ml) or free IFX (500x molar excess). Two of the seven patient samples tested positive for ADAs. The result could be confirmed on a commercial IFX ADA ELISA.

Conclusion: Without using acid dissociation, the ImmunoCAP IFX ADA assay shows a high sensitivity and high drug tolerance. No interference from RF, HAMA, or biotin was observed. This research assay could be used in studies of the presence and development of ADAs in patients treated with IFX.

Conflicts of interest: The authors are employed by Thermo Fisher Scientific.

000372 | Hypogammaglobulinaemia secondary to rituximab (RTX) use in anti-NMDA-R autoimmune encephalitis

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Background: Anti-NMDA-R autoimmune encephalitis is a rare encephalitis characterized by the presence of autoantibodies against the N-methyl-D-aspartate receptor (NMDAR).Rituximab is a CD20-specific chimeric monoclonal antibody, which can cause a reduction in plasma cell precursors and a consequent increase in the risk of infections. In most patients RTX does not significantly reduce antibody levels because antigen-specific IgG is produced by plasma cells that do not express CD20. However, a subset of patients may develop hypogammaglobulinaemia which may progress towards a reconstitution of normal Ig levels, or sometimes become persistent. Below we evaluate the specific application and the therapeutic implications in the context of a clinical picture of ANRE.

Method: A 62-year-old man with symptoms of vertigo and asthenia, daytime sleepiness, ataxic gait, memory disturbances that have progressively worsened in recent months, for about a year. Weight loss of about 10 kg is associated. He was admitted to the Neurology department where during his hospitalization he performed MRI of the brain and brainstem with contrast medium and lumbar puncture with detection of hyperprotidorrachia (75 mg/dl protein) and subsequent identification of anti-NMDA receptor Ab, corroborating the hypothesis of encephalitis autoimmune to anti-NMDARs. He was treated with IVIg (0.4 g/kg/day for 5 days) and then rescheduled for neurological reevaluation after three months and an IV cycle. with RTX, with subsequent clinical stabilization at neurological follow-up. About a year after treatment he was hospitalized for sepsis. He underwent immunological evaluation with evidence of B-cell depletion persistent (CD19: 0 Cells/µL), hypogammaglobulinaemia in the absence of other specific causes.

Results: Immunomodulatory therapy based on IVIg and subsequently on RTX proved to be effective in stabilizing the clinical picture of anti-NMDAR encephalitis, limiting the often rapid progression. This does not allow us to overlook the possibility of relapses, with an incidence of up to 12% of cases, for which close monitoring and immunological, neurological and oncological follow-up are necessary.

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Conclusion: Regarding the occurrence of hypogammaglobulinaemia after treatment with RTX, the incidence and clinical relevance are not well defined in the context of immune-mediated neurological diseases in the spectrum of ANRE, in part because the measurement of serum Ig levels and other relevant parameters before and after immunosuppressive treatment are often not sufficiently evaluated in many of the specialties that use RTX extensively. Often, patients do not undergo immunological evaluation prior to treatment making it difficult to discern between underlying immune dysfunction or secondary immunodeficiency iatrogenic or due to other concomitant factors. To date, no specific guidelines have been established for the clinical and laboratory monitoring of these patients, suggesting the utility of increased awareness of the importance of immune assessment, widespread adoption of a baseline immunological work-up, including regular monitoring of Ig levels before and after initiation of rituximab or other purgative therapies B – lymphocytes, necessary to evaluate the increase in infectious risk, often associated with a severe prognosis.

Conflicts of interest: The authors did not specify any links of interest.

000208 | Safety of biologicals in allergic diseases in a tertiary service of allergy and immunology

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*Presenting author: A. Capelo

Background: Introduction: Currently indicated biologicals in allergic diseases treatment are molecules, particularly monoclonal antibodies, directed to specific targets of type 2 inflammatory response such as cytokines and receptors. They are indicated for the treatment of severe uncontrolled asthma, chronic spontaneous urticaria (CSU), moderate to severe atopic dermatitis (AD) and chronic rhinosinusitis with nasal polyposis. Recent studies have shown safety in the use of these drugs.

Method: Objective: To evaluate safety of biologics in moderate to severe allergic diseases in a tertiary Allergy and Immunology care service Method: Cross-sectional study from 2017 to 2022 with all allergic patients treated with biologicals.

Results: Seventy patients were included, 80% female, mean age 41.6 years, 38.57% with severe asthma, 48.57% with CSU and 12.86% with moderate or severe AD. There were 655 subcutaneous administrations: 586 (89.5%) of omalizumab, 62 (9.5%) of dupilumab and 7 (1%) of benralizumab. Seven adverse reactions (1.07%) were observed in five patients. Four local reactions, one with keratoconjunctivitis, one with headache, and another with hypereosinophilia and subcutaneous nodules. The patient with keratoconjunctivitis was using dupilumab, was treated, returned to treatment without worsening, while the patient with hypereosinophilia had total regression of the subcutaneous nodules after discontinuing dupilumab, with biopsy showing drug reaction. The other reactions did not recurred.

Conclusion: Biological agents for allergic diseases were reported to be safe, and adverse reactions are well tolerated.

Conflicts of interest: The authors did not specify any links of interest.

000242 | Chronic eosinophilic pneumonia – Beyond corticosteroids

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*Presenting author: A. Ribeiro

Introduction: Chronic eosinophilic pneumonia (CEP) is a rare disease of unknown etiology, characterized by the marked accumulation of eosinophils in the interstitium and pulmonary alveoli.

Case presentation: A 62-year-old female, non-smoker, with a history of breast cancer, with surgery 9 months earlier and radiotherapy up to 5 months earlier, presented to the emergency department (ED) with a 4 month history of fever and dry cough, having undergone several cycles of antibiotics without improvement. A chest radiograph (CR) revealed discrete bilateral opacities. Two weeks later, after a new course of antibiotics, a new CR showed signs of deterioration. Computed tomography revealed multiple foci of parenchymal condensation with bilateral bronchial permeation. The study carried out showed: blood eosinophilia of $3.9x10^9$/L (4.2%); negative antinuclear antibodies (ANA) and antineutrophil cytoplasmic antibodies (ANCA); negative antibodies to HIV; bronchoalveolar lavage with 35% eosinophilia, negative for malignant cells and microorganisms. A diagnosis of eosinophilic pneumonia was made and the patient was discharged on prednisolone 1mg/kg/day, with clinical improvement and resolution of radiologic findings. After progressive weaning of prednisolone to 5 mg/day, the symptoms and imaging worsened, and the dose was increased again. In the following two years, several attempts at corticosteroid weaning were made, followed by clinical and imaging worsening, leading to many visits to the ED and increments in the prednisolone dose, as well as several cycles of antibiotics. The pulmonary function tests, performed every six months, were normal. However, she developed adverse effects from the treatment, namely cushingoid appearance, glaucoma and osteoporosis. In this context, benralizumab was started, with resolution of symptoms and imaging findings and corticosteroid weaning after 3 months. After two years, the patient had no further relapses. The patient consented to the case publication.

Discussion: The first-line treatment for CEP is systemic corticosteroid therapy, generally with a good response. However, more than half of patients relapse after weaning and almost a third have more than two relapses, being often exposed to long-term corticosteroid therapy, with a high risk of iatrogenesis. Biological therapy directed at the interleukin-5/interleukin-5 receptor axis is an alternative for relapsing disease, to avoid the adverse effects of corticosteroids.

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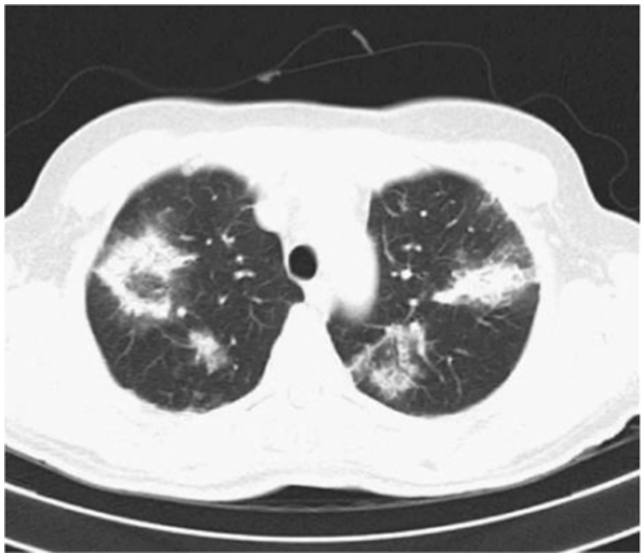

Computed tomography at diagnosis

Conflicts of interest: The authors did not specify any links of interest.

000503 | New therapies for severe eczema in job syndrome

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*Presenting author: P. Gutierrez

Background: Expose our experience using dupilumab as a treatment for severe eczema presented in a patient diagnosed with Job Syndrome.

Method: A 22-year-old patient with past medical history of Job Syndrome with severe eczema and disabling itching was admitted to our Allergology Department. In order to asses severity of these symptoms, Eczema Area and Severity Index (EASI), PruritusNRS and Dermatology Life Quality Index (DLQI) were used. After reviewing the literature avalaible (case series), we decided to initiate treatment with dupilumab, a humanized monoclonal anti body that inhibits IL-4 and IL 13 signaling. Regular dosage regimen in adults was indicated: initial loading dose of 600mg; followed by 300 mg every 15 days.

Results: Job Syndrome, or autosomal dominant hyper-IgE due to mutations in STAT3 gene; is a rare primary immunodeficiency characterized by: serum IgE > 2000UI/ml, severe eczema, recurrent staphylococcal skin abscesses, and recurrent sinopulmonar infections.

We present a 22-year-old patient diagnosed with Job Syndrome. Her most limitating symptoms were pruritus (PruritusNRS = 9) and severe eczema (EASI = 39). The eczema was characterized by a papular rash that begins on the face and scalp and spreads to the upper trunk/shoulders and buttocks. She has history of treatment with topical and systemic corticosteroids with partial response, and relapse of the rash after stopping them. Also, she underwent treatment with high-dose omalizumab, with initial improvment but no long-term efficacy.

Dupilumab was started in November 2022. We dismis previous treatment with cyclosporine, as indicated by the current protocol, because of high risk of serious infections. After two months of treatment, pruritus has almost desapeared (PruritusNRS:1) and skin lesiones have improved, presenting today minimal facial erythema and mild papular rash in shoulders with xerosis (EASI = 7). So far, she has not refered any side effects and has recognized an improvement in her quality of life (DLQI = 1)

Conclusion: Until now, treatment with dupilimab has improved patient's eczema, pruritus and quality of life. However, we can not conclude its long-term efficacy. We believe treatments with similar therapeutic targets should be considered in the future for these patients.

Conflicts of interest: The authors did not specify any links of interest.

000749 | Use of mepolizumab for the treatment of chronic eosinophilic pneumonia in adolescent patient – Case report

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Case report

Chronic eosinophilic pneumonia (CEP) is a rare and idiopathic chronic respiratory disease. It is characterized by an abnormal accumulation of eosinophils in the interstitium and alveolar spaces of the lungs. CEP symptoms lack specificity and typically affect patients in the third or the fourth decade of life, but children can be rarely affected, too. The main clinical symptoms are productive cough, dyspnoea, fever, night sweats, and weight loss. This disease is in the first line treated by corticoids, but in some cases, biological agents can be used.

We present a case report of a 15-year-old girl with prolonged cough, chest pain, dyspnoea, and increasing fatigue with a duration of more than twelve months.

Fifteen-years-old patient admitted to the University Hospital in Martin with the prolonged, progressing respiratory symptoms lasting more than 12 months. Initially, there was eosinophilia in the blood count. On the chest X-ray were described bilateral spotted inflammatory changes and basal atelectasis in the right lobe. HRCT showed signs of a pathological interstitial process in the lungs. The vital capacity of the lungs was reduced to 50 %. Bronchofibroscopic investigation revealed inflammation in the airways. We detected eosinophilia (13 %) and neutrophilia when fluid from bronchoalveolar lavage was tested. Serological tests were positive for anti-Mycoplasma pneumoniae IgM and IgG, all others were completely negative. We assumed the diagnosis of CEP. Treatment with corticoids was immediately initiated, a dosage of 1mg/kg per day. Serious adverse events and intolerance of this treatment occurred in our patient. It was not possible to taper the dose of corticoids, because of the reoccurrence and worsening of the disease. We proceeded to

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off-label treatment with a biological agent – mepolizumab (monoclonal antibody against IL-5). The dose was 100 mg subcutaneously every four weeks. Clinical symptoms, imaging findings, and the vital capacity of the lungs were improved by this biological treatment and tapering of corticosteroids was possible.

Our rare case report of CEP demonstrates the clinical efficacy of the treatment with mepolizumab in patients with the development of adverse events of corticoids. Off-label use of mepolizumab has not yet shown any adverse effects in our patient.

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Conflicts of interest: The authors did not specify any links of interest.

000743 | Characterization of patients with chronic inducible urticaria treated with omalizumab

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Background: Inducible Chronic Urticaria (InCU) refers to a heterogeneous subgroup of patients with chronic urticaria (UC) triggered by different external stimuli (physical or non-physical). In general, InCUs respond to stimulus avoidance measures and antihistamines. In those cases refractory to treatment with maximum doses of antihistamines, there are studies that support the use of omalizumab (OMZ) as an effective and safe alternative. The efficacy of OMZ in InCU would be explained by its inhibitory action on the activation of mast cells and basophils and eventually by blocking specific IgE antibodies against serum proteins present in these patients.

Method: A retrospective descriptive study of our treatment experience with OMZ in patients with InCU, in the Allergology service of a tertiary hospital. Patients treated for 16 weeks or more were included.

Objective: To describe the characteristics of our patients with InCU poorly controlled with high-dose antihistamines and their response to treatment with OMZ.

Results: Results are summarized in Table 1. Of 46 UC patients treated with OMZ, 8 patients (17%) had InCU: 3 patients with cholinergic urticaria (CholU), 3 cold urticaria (ColdU), and 2 pressure urticaria (DPU). A complete response was obtained in 4 patients (50%) with InCU and a partial response in 3 patients (37%). In responding patients, efficacy was observed from the first dose. In 2 patients, both with CholU, it was finally decided to discontinue treatment due to insufficient response.

2 patients (25%) presented mild side effects: headache and dizziness.

Conclusion: The treatment with OMZ in InCU shows a good efficacy and safety profile.

In our experience, patients with DPU presented the best response to OMZ, followed by ColdU and CholU.

Our results are consistent with more extensive published series. We recommend using OMZ in InUC that does not respond to previous treatment steps recommended in the guidelines.

TABLE 1. Results

	All n = 8	CholU n = 3	ColdU n = 3	DPU n = 2
Demographic characteristics				
Gender, *n (%)*				
Male	6 (75)	2 (67)	2 (67)	2 (100)
Female	2 (25)	1 (33)	1 (33)	0
Age (y), median	37,5	21	49	39,5
Personal medical history, *n (%)*				
Atopydiseases*	3 (37)	1 (33)	2 (67)	0
Other comorbidities	1 (13)	0	1 (33)	0
Familial medical history, *n (%)*				
Atopic diseases*	2 (25)	0	2 (67)	0
Diagnostic physical tests; *n (%)*				
Not performed	3 (37)	2 (67)	0	1 (50)
Positive tests	5 (63)	1 (33)	3 (100)	1 (50)
Analitica				
Total IgE at Baseline, median	256,5	475	157	167,7
Tratamiento OMZ				
Disease duration (y) before OMZ introdu	3,5	4	3	5,5
Response rate, *n (%)*				
Complete response	4 (50)	1 (33)	1 (33)	2 (100)
Partial response	3 (37)	1 (33)	2 (67)	0
Not controlled	1 (13)	1 (33)	0	0
OMZ interruption	2 (25)	2 (67)	0	0
OMZ optimization	1 (13)	1 (33)	0	0
OMZ dose-spacing	4 (50)	1 (33)	1 (33)	2 (100)
Physical provocation tests after OMZ tre				
Not performed	4 (50)	3 (100)		1 (50)
Positive tests	2 (25)	0	2 (67)	0
Negative tests	2 (25)	0	1 (33)	1 (50)
Adverse events, *n (%)*	2 (25)	1 (33)	1 (33)	0

ColdU: cold urticaria; DPU: delayed pressure urticaria; CholU: cholinergic urticaria; OMZ: omalizumab; y: years.

*Patients were considered positive for "atopy" if there was a positive history of allergic diseases, e.g., allergic rhino conjunctivitis or asthma.

Conflicts of interest: The authors did not specify any links of interest.

000607 | Immunodeficiency accompanying severe asthma and chronic urticaria

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Background: Asthma is a heterogeneous chronic respiratory disease characterized by exacerbations triggered by infections. An impairment in lung epithelial barrier integrity has been shown to be associated with increased susceptibility to infections, and the development of asthma. This study aims to emphasize the importance of an underlying immune system defect that predisposes individuals to asthma, urticaria, recurrent infections, and malignancy.

Method: The study included adult asthmatic patients who were diagnosed with CVID, marginal zone lymphoma (MZL), and T cell immunodeficiency between September 2018-2022, and who were treated at our tertiary level allergy and immunology clinic.

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Results: A total of four patients while receiving omalizumab for severe asthma (SA) and/or urticaria were evaluated for frequent infections, uncontrolled asthma, and fatigue. All were diagnosed with immunodeficiency (ID). The median age at diagnosis of ID was 37.5 (range, 24-51) years. They were diagnosed an average of eight years after the diagnosis of SA. Three of them were diagnosed with ID while receiving omalizumab due to SA, and one patient was diagnosed with SA and ID during follow-up while receiving omalizumab with the diagnosis of antihistamine-resistant chronic urticaria (CU). Only one patient had a total IgE < 1 IU/ml when ID was diagnosed, the others had normal or high serum IgE levels. Computed tomography of the thorax was reported as normal in 3 patients, while there was bronchiectasis in one. Two patients were investigated for frequent Pseudomonas spp. Infections and uncontrolled SA, one was investigated for fatigue and anemia etiology, and one for new-onset SA and treatment resistant CU despite receiving 600 mg omalizumab every four weeks. One patient was diagnosed with atypical T cell deficiency, one with MZL, and two patients were diagnosed with CVID. Since three patients did not respond to antibiotic prophylaxis, intravenous immunoglobulin (IVIG) was started. While IVIG was ongoing, two patients were examined for chronic diarrhea and were diagnosed with Crohn's disease.

Conclusion: ID can present as immune dysregulation, autoimmunity and/or malignancy. ID should be investigated in cases of uncontrolled SA or antihistamine-resistant chronic urticaria. These cases highlight the importance of further investigation in uncontrolled patients under optimum treatment.

Conflicts of interest: The authors did not specify any links of interest.

000800 | Mepolizumab in rare eosinophilic disorders: A real-life study

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*Presenting author: D. Eyice Karabacak

Background: Mepolizumab is a humanized monoclonal antibody developed against IL-5 to treat primarily severe eosinophilic asthma. There is not enough data about mepolizumab usage in rarely seen eosinophilic disorders like chronic rhinosinusitis with nasal polyposis (CRSwNP), hypereosinophilic syndrome (HES), eosinophilic granulomatosis polyangiitis (EGPA) and chronic eosinophilic pneumonia (CEP). Therefore, we aimed to evaluate the effectiveness and safety of mepolizumab in such rare eosinophilic disorders.

Method: We analysed the demographic and clinical features of 21 patients who were treated with mepolizumab due to eosinophilic disorders including CRSwNP, HES, EGPA and CEP. Although the patients with comorbid asthma were included, the ones whose mepolizumab was initiated due to severe eosinophilic asthma were excluded. In all patients, visual analogue scale (VAS) symptom score (VAS-SS), VAS quality of life score (VAS-QoL) and short form-12 (SF-12), additionally in patients with CRSwNP SNOT-22 were used to evaluate the effect of mepolizumab on symptoms and QoL. Also, asthma control test (ACT) and pulmonary function tests were used in patients with comorbid asthma. Patients' features obtained before and at the 6th month of omalizumab were compared.

Results: The number of patients with CRSwNP, HES, EGPA and CEP were 11, 5, 4 and 1 respectively. Twelve of them were female and the mean age was 41.1±11.9 years. The median (IQR) durations of symptoms, disease (since diagnosis) and mepolizumab treatment were 96 (54-210), 48 (36-114) and 17 (9.5-30) months respectively. Sixteen patients had comorbid asthma with the median (IQR) disease duration of 114 (63-225) months. Only one patient who had CRSwNP was unresponsive to mepolizumab. The median peripheral eosinophil counts, VAS-SS and VAS-QoL scores significantly decreased after omalizumab treatment ($p < 0.001$). Both physical (PCS-12) and mental (MCS-12) components of SF-12 showed significant improvement ($p = 0.001$). In patients with CRwNP, the median SNOTT-22 scores reduced ($p = 0.002$). No significant side effects were observed after mepolizumab injections.

Conclusion: Our findings indicated that mepolizumab is an effective and safe treatment in rarely seen eosinophilic disorders including CRSwNP, HES, EGPA, and CEP.

Conflicts of interest: The authors did not specify any links of interest.

COVID 19

000144 | Basophil activation test and predicting the allergic reactions onset to the COVID-19 vaccine

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Background: Among the tests currently used for the diagnosis of allergic reactions to the vaccine some studies indicate that the Basophil Activation Test (BAT) represents a good tool to evaluate an ex vivo reaction. The data on this topic are still limited and suggests caution in interpreting the results related to BAT. The aim of this study is to assess the frequency of allergic reaction following the administration of the Covid-19 vaccine in patients with a positive history of allergy and to verify the reliability of the Basophil Activation Test (BAT) in predicting the possible appearance of allergic reactions to the Covid-19 vaccine.

Method: The study involved 214 patients, each having an allergic history. All patients were vaccinated with the BNT162b2 mRNA Covid-19 vaccine. We evaluated the anamnesis and the presence of

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any allergic reactions to the Covid-19 vaccine with a one time structured interview. The Basophil Activation Test was performed on 157 of these patients and we evaluated the reliability of this test in predicting the allergic reactions to the Covid-19 vaccine.

Results: The results show that a patient history of anaphylaxis or allergy to drugs or previous vaccines correlates with a greater frequency of allergic reactions to the Covid-19 vaccine (4/214 patients) (Fig. 1). In particular, in our HUB, we note that the frequency of allergic/anaphylactic reactions to the Covid-19 vaccine (1.9%) tends to be more frequent than in the general population compared to previous data. The Basophil Activation Test has a good negative predictive value (88.8%), which is also confirmed in the evaluations of subgroups based on medical history data. On the other hand, the positive predictive value of the test is low and inadequate (64.1%) which is probably due to the small sample size (Table 1).

Conclusion: The Basophil Activation Test could, in general, be a reliable test, but the data should be confirmed in larger cases, especially for the positive predictive value. In particular, when it is associated with the allergy history, it is certainly suggestive of applicability in clinical practice to predict the onset of allergic reactions to the Covid-19 vaccine.

38 cases out of the total sample had no history of anaphylaxis or allergic reactions to drugs or previous vaccinations; among these, we found that 94.7% did not experience an allergic reaction to Covid-19 vaccines, while 5.3% reported moderate systemic reactions; in this group, no patients had anaphylaxis.

176 patients had a history of anaphylaxis or allergic reactions to medication or previous vaccinations; among the latter we found that 86.4% had no reaction to Covid-19 vaccines, 11.3% experienced moderate systemic reactions and 2.3% anaphylaxis.

Prevalence values for moderate/severe systemic allergic reaction to Covid-19 vaccine: 5.3% in the group with no history of anaphylaxis or drug/vaccine allergies; 13.6% in the group with history of anaphylaxis or drug/vaccine allergies.

Conflicts of interest: The authors did not specify any links of interest.

000695 | Vaccination against SARS-COV2 COVID-19 in patients with bronchial asthma

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Background: Currently, the prevalence of bronchial asthma BA in the world ranges from 4 to 10% of population. Severe asthma may contribute to anaphylaxis worsening if it occurs. Although anaphylaxis occurs in 4-8 patients per 100,000 vaccinations.

The purpose of our study was to safely vaccinate patients suffering BA without side effects.

Method: We observed 32 patients with BA, 13 of them had BA combined with seasonal allergic rhinitis, 19 had only BA. The

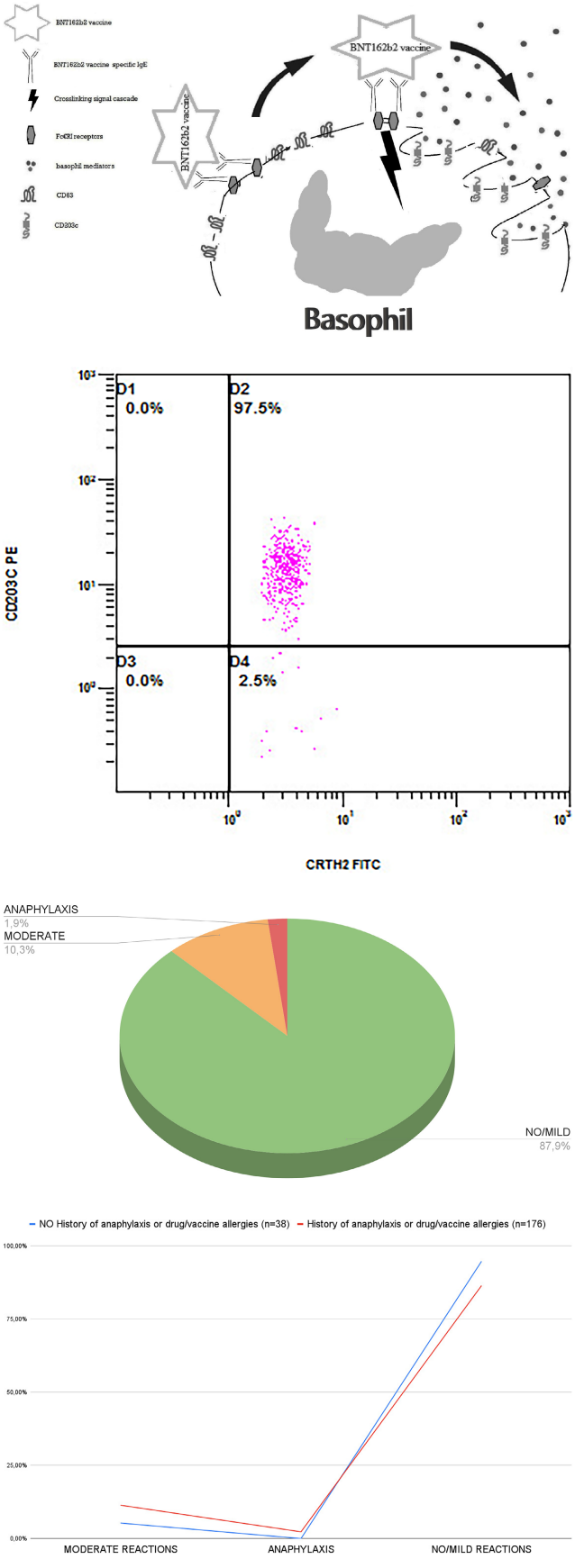

FIGURE 1 Allergic reaction to the SARS-CoV-2 vaccine and allergy history.

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study included males – 14 patients (44%), females – 18 (56%). Age: from 19 to 65 years old, mean age: 36.2±5.8. Before vaccination, all patients underwent the following studies: complete blood count, blood serum tryptase level, coagulogram, D-dimer, ECG, spirometry.

Results: In one patient, the tryptase level was 13.7 μg/l and an increase in D-dimer was detected (CT scan diagnosed the thromboembolism of the pulmonary artery small branches). Vaccination has been temporarily delayed. In 22 patients (69%), the FEV1 level was above 70%. In 10 patients (31%), FEV1 was below 70%: of these, in 5 patients, FEV1 was between 36% -46%, in 5 patients – between 53%–65%. All patients with FEV1 below 70% underwent correction of BA basic therapy. After 2 weeks of receiving the corrected basic therapy, vaccination had been carried out. All patients were given a 4-fold dose of desloratadine 30 minutes before vaccination. Hence, the vaccination was carried out without side effects.

Conclusion:

1. BA is not a contraindication for SARS-CoV_2 COVID-19 vaccination.
2. For safe vaccination, it is very important to consider all allergic conditions, including BA.
3. Patients with BA must definitely detect the level of blood serum tryptase and conduct spirometry prior to SARS-CoV_2 COVID-19 vaccination.
4. Vaccination of patients suffering BA should be carried out in the in-patient allergologic unit having been preceded by a 4-fold dose of H1-blocker.

Conflicts of interest: The authors did not specify any links of interest.

TABLE 1 Anamnesis Negative = No history of anaphylaxis or drug/vaccine allergies; Anamnesis Positive = History of anaphylaxis or drug/vaccine allergies; BAT = Basophil Activation Test; BAT + = positive reaction to BAT; BAT = negative reaction to BAT; PPV = positive predictive value; NPV = negative predictive value; SENS = sensibility; SPEC = specificity.

Table 3. BAT results and allergy history

VACCINE REACTION	ANAMNESIS	BAT	BAT +	BAT -	NPV	PPV	SENS	SPEC
Total		157	3	154				
No reactions/mild local reactions	Negative	15	0	15	94.7%			100%
	Positive	120	1	119	87.5%			99.2%
Moderate/severe systemic reaction	Negative	2	0	2		N.C.	0%	
	Positive	20	2	18		64.8%	10.0%	

001665 | Characterization and evaluation of the impact of comorbidities in patients with uncontrolled asthma and SARS-COV-2 infection

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Background: Uncontrolled asthma is defined by maintenance of symptoms despite therapeutic optimization and treatment of risk factors. The underlying comorbidities have been considered determinant in the control and prognosis, of the disease. They are associated with poor management of the disease, greater need for medical care and poor quality of life. We aimed to characterize the prevalence of comorbidities in patients with uncontrolled asthma and their relationship with symptoms of SARS-COV-2 infection.

Method: Retrospective observational study carried out by consulting medical records of the Immuno-Allergology appointment in July 2022. Data processing by using the next platforms: IBM SPSS Statistic and Microsoft Excel.

Results: 49 patients with uncontrolled asthma who had SARS-COV2 infection were identified. Of these, 40.8% ($n = 20$) had rhinosinusitis, 40.8% ($n = 20$) had a depressive disorder, 38.8% ($n = 19$) had gastroesophageal reflux, 28.6% ($n = 14$) were obese, 32.6% ($n = 16$) had anxiety disorder and 8.2% ($n = 4$) had obstructive sleep apnea syndrome (OSAS). Regarding smoking habits, 28.6% ($n = 14$) were ex-smokers and 4% ($n = 2$) were smokers. Most showed symptoms of mild SARS-COV 2 infection ($n = 27$), followed by moderate disease ($n = 20$) and only 2 showed severe disease ($n = 2$). Regarding the relationship between comorbidities and symptoms of SARS-COV2 infection, only anxiety disorder was associated with symptoms of moderate SARS-COV2 infection. In the remaining comorbidities, the symptoms were mild. Our data showed that the prevalence of comorbidities in non controled asthma patients is high but there is no relevant correlation between comorbidities and more severe SARS-COV2 infection.

Conclusion: It is crucial to think about comorbidities when diagnosing asthma, since the success in controlling the disease depends on their treatment. However, in our study, the presence of associated comorbidities, does not necessarily meant clinical severity when infected with SARS-COV-2. More studies are necessary to understand this results with so little impact when we could expect opposite.

Conflicts of interest: The authors did not specify any links of interest.

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000311 | Post COVID-19 autoimmune and antiviral responses in pollen allergy patients of Georgia

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Background: Atopic diseases have been recognized as one of the global health issues and affect about third of the worldwide population. COVID-19 pandemic has raised concerns about the risk of infection and the severity of COVID-19 infection in patients with asthma and allergic rhinitis. However, increasing evidence suggests that atopic disease protects against severe COVID-19 illness owing to the underlying type 2 inflammatory process. COVID-19 may trigger the onset of autoimmune pathology; various autoantibodies have been described in association with COVID-19. In this study, we aimed to investigate the post COVID-19 autoimmune and antiviral responses in pollen allergy patients of Georgia.
Method: 184 atopic patients (74 female and 110 male) with confirmed SARS-COV-2 infection were included in analysis and categorized in two groups – pollen allergy (89 patients) and indoor allergy (95 patients). IgG antibodies to the receptor-binding domain of the S1 subunit of the spike protein and nucleocapsid protein of SARS-CoV-2 were determined in serum using the Abbot SARS-CoV-2 IgG assays. Antinuclear antibodies were measured by IIF on Hep-2 cells with a cut-off dilution of 1:80. All statistics were performed using computer SPSS software.
Results: The mean age of studied population was 20.5 ± 13.9 years. The mean sampling time after COVID-19 infection recovery was 4.6 ± 4.1 months. Vaccination rate was 26.6% and frequency of re-infection was 6.5%. Allergic rhinitis and atopic conjunctivitis were the major diagnoses for both groups, but their percentages were significantly higher in pollen allergy group. The prevalence of ANA positivity in pollen allergy patients was similar to indoor allergy patients group (19.1% and 16.8% correspondently) with common titer not more than 1:160 and more frequent pattern AC-2. Patients developed a positive SARS-CoV-2 S1-specific antibody response (≥ 50 AU/ml) in 95.6 % of studied cases, but antibodies mean value was twice higher in pollen allergy patients (p –0.003), the mean value for pollen allergy group 9156.4 AU/mL vs 4613.4 AU/mL. Anti-nucleocapsid antibodies revealed in 64.4% of studied cases, with equal mean value for both groups.
Conclusion: The twice higher amount of antibodies against the S1RBD in pollen allergy patients after several months of COVID-19 recovery, in the absence of difference between other antiviral and autoimmune antibodies, allows estimating stronger adaptive immune response in these patients.
Conflicts of interest: The authors did not specify any links of interest.

000647 | Deciding whether to administer vaccines against COVID-19 in patients with systemic capillary leak syndrome

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*Presenting author: C. Akhoon

Background: Systemic Capillary Leak syndrome is a rare and potentially life-threatening disease, characterised by diffuse oedema including pulmonary involvement and associated hypoalbuminaemia with profound refractory hypotension. The condition is being increasingly recognised and a growing number of case reports have shown that COVID-19 infection can trigger this disorder. It is also being reported to occur following COVID-19 vaccination. To date, there has been no study comparing the risk of SCLS between COVID-19 infection versus vaccination to guide patients with an existing diagnosis of SCLS towards whether it is safe for them to receive the vaccination.
Method: A comprehensive literature search was conducted with the British Medical Journal and after manual sifting for relevance, 33 papers were selected. These were sourced from Medline, Embase, Cochrane Central Register of Controlled Trials, and duplications were not included. Selected papers focused on Systemic Capillary Leak Syndrome (SCLS) also known as Clarkson disease, and associated cases or flare-ups following either COVID-19 infection or its associated vaccination. Only papers in English were included.
Results: There are over 84 reported cases of Capillary Leak Syndrome occurring after COVID-19 with a slightly increased risk in those receiving a viral vector-based vaccine compared to mRNA vaccines. However, there are cases caused by COVID-19 infection in unvaccinated individuals and similarly patients with confirmed SCLS who did not experience a flare-up on receipt of mRNA-based COVID-19 vaccines.
Conclusion: In conclusion, clinicians need to carefully weigh these statistics through an open and honest discussion with patients with a background of SCLS as the consequences of either infection or immunisation in this group is potentially life-threatening.
Conflicts of interest: The authors did not specify any links of interest.

001193 | Investigation of neutrophil hypersensitivity and skin immediate and delayed skin tests to infectious vaccines including components of anti-COVID vaccines

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Background: Vaccines are important public health tools with a favorable safety profile and preventive efficacy. Although serious allergic reactions to vaccines are rare, their underlying mechanisms and implications for clinical care should be assessed to optimize the safest possible care. This study evaluates skin sensitivity and response of peripheral blood neutrophils to infectious agents and vaccine components in anti-covid vaccines. Assess the response of neutrophils in the modified leukocyte transformation test to whole vaccines and vaccine components.

Method: 17 volunteers with allergic reactions to vaccines were examined including 9 patients with a vector vaccine containing TWEEN 80, and 8 after an inactivated vaccine with aluminum hydroxide as a component. All underwent SPT and patch tests with 3 components (tween 80, aluminum hydroxide, PEG 2000). In parallel, neutrophil damage was tested as a cell-mediated reaction to detect possible impacts of sensitization.

Results: Patients in the 2 groups were evenly distributed by sex and age. The clinical manifestations of allergic reactions to the vaccine included acute urticaria, angioedema, bronchospasm, subcutaneous nodules. When performing SPT, only 2 patients had a positive reaction after 30 minutes to TWEEN 80. Only 1 positive reaction to aluminum hydroxide was obtained on patch testing. The results of skin testing did not confirm the presence of allergies in 17.6%. With the *in vitro* laboratory methods, damage to neutrophils when added and incubated with vaccine components showed positive results in 9 (52.9%) patients.

Conclusion: Patients with a high vaccination status and past illness (COVID 19) have a high degree of reactivity of peripheral blood neutrophils to viral antigens and vaccine components. If hypersensitivity is detected, it may be ideal to continue vaccination with another type of vaccine to possibly reduce the risk of reactions including anaphylaxis.

Conflicts of interest: The authors did not specify any links of interest.

000143 | Booster anti SARS-COV-2 vaccination acts more on elderly

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Background: A reliable quantification of the antibody response to the SARS-CoV-2 virus is very relevant to estimate the vaccine protection time and identify those who are still at risk of infection. Anti-spike antibodies have played an essential role in the management of the SARS-CoV-2 pandemic. A descriptive study was carried out on a sample of about 20,000 health workers with the aim of monitoring the antibody response after the first, second and third doses of Pfizer anti SARS-CoV-2 vaccine 30 days after each administration.

Method: Two methods were used for the detection of anti-Spike antibodies, authorized by the FDA under the EUA for use by authorized laboratories: Anti SARS-CoV-2S, by Roche Diagnostic on Cobas 6000; the SARS Kit Cov2trimericsIgG, by the company Diasorin performed on LiASON instrumentation.

Results: After the 3rd dose the recovery of the antibody response is greater in subjects without previous SARS-CoV-2 infection (Table 1). In addition, while the antibody response after the 1st and the 2nd dose is greater in 18-35 years old, lower in 36-55 years old and even less in 56-70 years old, after the 3rd dose is significantly higher in the 56-70 age group (Fig.1).

Conclusion: Since immunity to infection decreases with time, vaccination booster is important both in subjects with and without previous SARS-CoV-2 infection. The booster acts more on the elderly.

In the comparison between the antibody response trend after 1st, 2nd and 3rd dose, both in the subject with and without previous infection, there is a reduction of the response after the 2nd dose compared to the 1st and an important recovery of the response after the booster (i.e. the 3rd dose).

TABLE 1 Antibody comparison 1st dose, 2nd dose and 3rd dose no covid vs ex covid.

	antibodies I dose	antibodies II dose	antibodies III dose
NO COVID	1403,81	897,88	2944,86
EX COVID	4013,19	2809,35	3264,74

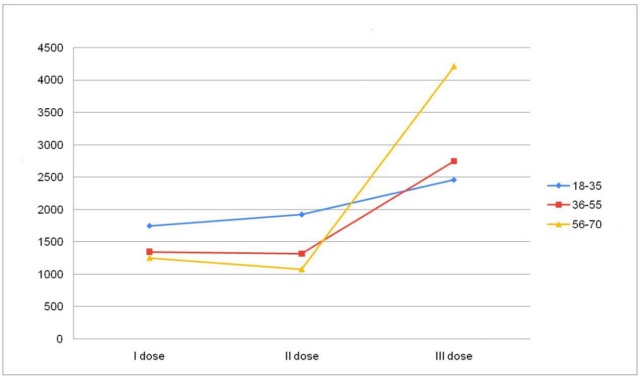

FIGURE 1 Antibody comparison 1st, 2nd, 3rd dose age groups (18-35; 36-55; 56-70).

The results show that there is an increasing trend with the statistically significant increase in doses (as can be seen from the graph), particularly marked in the 56-70 range, good but less in the 36-55 range and even less in the 18-35 range.

Conflicts of interest: The authors did not specify any links of interest.

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001603 | From chronic spontaneous urticaria to hypocomplementemic urticarial vasculitis syndrome: An intriguing clinical case

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Background: Hypocomplementemic Urticarial Vasculitis Syndrome (HUVS) is a rare and severe form of autoimmune small vessel vasculitis with systemic involvement, usually triggered by viral infections. Chronic urticarial lesions and angioedema are the dominant presenting signs, thus being difficult to differentiate HUVS from a typical CSU. Furthermore, HUVS clinical presentation is known to change from CSU to UV or vice versa over time. Therefore, it is still debated whether UV is a disease on its own or an aspect of the CSU spectrum.
Case history: We present the case of a 45-year-old woman, affected with Hashimoto's thyroiditis, who experienced itchy and transient wheals, first construed as CSU that disruptively turned into a HUVS. In January 2022, one month after a paucisymptomatic SARS-CoV-2 infection, the patient experienced diffuse urticaria, characterised by transient and itchy wheals, and an episode of histaminergic labial angioedema. She was initially treated with oral antihistamines (AH-1), up to 4x, without clinical improvement. Urticaria lasted more than 6 weeks, a systemic involvement was excluded through clinical and laboratory investigation, therefore CSU was diagnosed. A biological treatment with Omalizumab 300mg/4weeks was started, with complete benefit until August 2022. Since that time, ollowing a second SARS-CoV-2 infection, the patient started complaining fever, abdominal pain and migratory arthralgias, later diagnosed as arthritis. In addition, the urticarial lesions changed and became long-lasting, indurated, symmetrical, coalescent, bruising and with a residual hyperpigmentation. Blood tests showed leuco-thrombocytopenia, hypocomplementemia (C4 0.02 g/l), elevation of inflammatory markers (ESR 82 mm/h), Anti-C1q Abs positivity. No renal, cardiac, pulmonary, nervous, or hepatic involvement was confirmed. A biopsy was performed and leukocytoclastic vasculitis was detected. Other possible causes were ruled out, so that the diagnosis of hypocomplementemic UV syndrome was made. The patient was treated with Prednisone 1 mg/kg and HCQ 200 mg without clinical improvement, thus Ciclosporin A 4 mg/kg was started as an immunosuppressive agent, with a slow but progressive improvement.
Conclusion: Urticarial lesions are common but their diagnostic approach is still challenging, especially in case of complex clinical syndromes. Regarding this patient, we wondered whether the initial diagnosis of CSU was an isolated clinical condition or an initial phase of a more severe form of UV, which manifested itself several months later. It is therefore important not to underestimate those urticarial lesions that require an early diagnosis and an effective treatment.
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Conflicts of interest: The authors did not specify any links of interest.

000908 | Clinical efficacy of detoxification nutrition in COVID-19 infections

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Background: "Post-COVID-19 syndrome" or "long COVID-19" has uncontrolled inflammation lasting more than 12 weeks. Optimizing nutritional support may modulate the inflammatory process and be detoxifying through use of omega-3 polyunsaturated fatty acids (PUFAs), dietary fiber, vitamin E, vitamin C, β-carotene, magnesium, selenium and phytochemicals, such as polyphenodes and carotenoids, which have anti-inflammatory activity.
Method: This clinical trial studied the efficacy and safety of a specialized dietary food product "Detoxification kissel (Jelly)" or "LEOVIT DETOX" (LEOVIT Nutrio Ltd), composed of mainly plant sourced detoxification, anti-inflammatory, and antioxidant substances including taurine, multivitamins, L-cystine, succinic acid, green tea and lemongrass extracts, turmeric, and microelements. 283 patients both sexes over age 18 previously infected with SARS-COV-19 were assessed by questionnaires for the effectiveness of nutritional support during the period of illness and recovery. 65 patients with mild and moderate severity SARS-COV-19 infection took LEOVIT DETOX daily, immediately after the diagnosis of COVID-19 and for 2 months post-Covid period for rehabilitation.
Results: COVID 19 patients demonstrated a significant change in diet, and eating habits during the disease with appetite disorders, with a change in the number of main meals and habitual snacks. The questionnaires showed that people with mild and moderate severity of Covid-19 infection have a wide range of symptoms such as weakness, temperature fluctuations, headaches, impaired smell, taste, and headaches. LEOVIT DETOX nutritional support, provided patients a significant decrease in symptoms of weakness and fatigue, temperature fluctuations, fears, anxiety, and suspiciousness.
Conclusion: "LEOVIT DETOX" demonstrated high efficacy in symptoms reduction and safety in patients with post-Covid symptoms. Nutritional support may modulate the inflammatory process, detoxifying the organism. Due to long term post-COVID inflammatory symptoms nutritional support with specialized dietary products may be required for 3 to 6 months.
Conflicts of interest: The authors did not specify any links of interest.

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000737 | Hypersensitivity reactions to SARS-COV-2 vaccines: A real-life survey on a large population of patients in an Italian academic hospital

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*Presenting author: G. Costanzo

Background: With the mass vaccination against SARS-CoV-2, concern has emerged about possible hypersensitivity reactions to the vaccines used. The infrequent reports of allergic reactions to SARS-CoV-2 vaccines have reduced the concern. However, the true frequency of reactions likely to be caused by hypersensitivity to these vaccines is still debated.

Method: The objective of the paper is to describe the distribution of adverse events related to BNT162b2 mRNA anti-SARS-CoV-2 vaccine in a large population of an Italian Academic Hospital staff, specifically focusing on suspect hypersensitivity reactions which manifest on the day of vaccine administration. To achieve this aim, a database of patients who reported adverse reactions after vaccine administration (collected through an online survey administred after each dose of vaccine) has been collected. These data were interpreted and analysed based on the Brighton Collaboration case definition of anaphylaxis.

Results: Our study population included 3112 health-care workers and university staff who received the two doses of the Pfizer-BioNTech BNT162b2 vaccine 21 days apart. 31.9% ($n = 993$) had a suspected adverse reaction, of which 71.7% (706) occurred on the day of vaccination. In 2 patients the adverse reaction resulted in emergency room admission. Only 1.8% ($n = 57$) of the patients had a suspected allergic reaction. This corresponds to 8.1% of the patients who reported an adverse reaction on the first day of the first dose. Patients with systemic reactions were classified according to Brighton classification: 4.7% ($n = 33$) were classified as level 2, 0.8% ($n = 6$) as level 3, and 0.1% ($n = 1$) classified as level 1.

39 patients who had an allergic reaction after the first dose responded also to the same survey after the second dose and 23.1% ($n = 9$) reported an adverse reaction on the day of administration of the second dose as well. In 10.3% ($n = 4$) of whom it was a suspected allergic reaction, but there were no cases of suspected anaphylaxis.

Conclusion: In conclusion, anti-SARS-CoV-2 vaccination is rarely associated with severe allergic reactions and anaphylaxis. In addition, these results indicate that the second dose of vaccine is safe for this group of patients, even if there were allergic reactions following the initial dose.

Conflicts of interest: The authors did not specify any links of interest.

001606 | SARS-COV-2 vaccination and allergy: The fear of the unknown

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*Presenting author: R. Finco Gambier

Background: Since the beginning, SARS-CoV-2 vaccination campaign had to deal with a diffuse hesitancy, in part due to the fear of allergic reactions, leading to a sudden increase in referral to our Allergy Clinic. We retrospectively investigated the appropriateness of the referral before and after vaccine administration and the characteristics of the reported reactions.

Method: We enrolled 1082 consecutive patients evaluated from February 1st 2021 to January 31st 2022. During the same period 1.796.815 doses of COVID-19 vaccine were administered in our referral area. Patients were divided in two cohorts: the first included patients evaluated before vaccine administration, while the second patients evaluated after a suspected allergic reaction. In all patients a thorough allergological anamnesis was taken. SPT with vaccine excipients were performed if appropriate.

Results: In the first cohort we enrolled 883 patients. The main referral reason (715; 89%) was a previous adverse reaction to drugs. The a priori risk of an adverse reaction was evaluated according to the SIAAIC-AAITO guidelines: 48 (5,4%) patients were classified as "high risk"; 195 (22%) were classified as "low-medium risk"; while the remaining were classified as "no risk". In only 6 (0,7%) patients vaccination was contraindicated or postponed. The second cohort consisted of 199 patients. Most of the reported reactions (154; 77,4%) occurred after the first dose. 112 patients (56,3%) experienced a non-immediate reaction (>4 hours), 80 (40,2%) an immediate non anaphylactic reaction, while 7 patients experienced anaphylaxis. Moreover, just 42 (21,1%) of the immediate reactions were compatible with an allergic reaction. During the evaluation 176 (88,4%) patients underwent SPT for vaccine excipients, with just one resulting positive for trometamol.

Conclusion: The analysis of the first cohort showed how, in most cases, the allergological evaluation was not even indicated. Among the motivations that led to these unnecessary evaluations, allergic patients' fear of a new "unknown" vaccine played a crucial role. In the second cohort, 74% of the analyzed adverse reactions did not present characteristics compatible with an allergic reaction and only 6 patients received a contra-indication to the following dose. Moreover, SPT results for vaccine excipients did not correlate with vaccine allergic reactions. Finally, the rate of anaphylaxis, considering our referral area, was 3,9 cases per million doses.

Conflicts of interest: The authors did not specify any links of interest.

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001382 | **Mini-review commentary of symmetrical drug-associated intertriginous and flexural exanthema-like reaction after covid-19 mRNA vaccine: Potential immunogens for delayed type hypersensitivity reactions**

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Case report

After over 2 years of COVID-19 pandemic period, now we have witnessed delayed type reactions as much more than the acute phase of disease and vaccines. Most delayed type skin reactions can be ignored due to their self limited benign nature, or can not be diagnosed due to lack of attention or knowledge. However, good definition and good management of dermatological side effects is an important factor that will increase vaccine compliance in such a vital disease. With this case, we aimed to draw attention to SDRIFE, a rare drug side effect, and to direct our colleagues to appropriate allergic immunological tests by reviewing the possible molecules that may cause this reaction in all commercially available COVID-19 vaccines. We hope that this approach will increase patients' adherence to vaccines in the long term. This case also would shed new light on the possible pathogenesis of COVID-19 vaccines relevant skin adverse effects.

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Table 1. Reported cases of Covid-19 vaccine-associated SDRIFE and performed immunological evaluations

	Author (Year)	Vaccine (manufacturer)	Active ingredient	Potentially immunogen ingredients	Age/sex	Onset /injection number	Clinical allergy tests
1	Orenay et al. (2021)[2]	CoronoVac (SinoVac Biotech.)	Inactivated virus	Aluminum hydroxide	87/M	4 days/1st	NA
2	Hong et al. (2022)[6]	ChAdOx1 nCoV-19 (AstraZeneca-Oxford)	Adenoviral vector	Polysorbate 80	53/M	7 days/2nd	NA
3	Lim and Wylie (2021)[5]	ChAdOx1 nCoV-19 (AstraZeneca-Oxford)	Adenoviral vector	Polysorbate 80	61/M	1 day/2nd	NA
4	Hai et al. (2021)[4]	BNT162b2 (Pfizer-BioNTech)	mRNA	PEG 2000	23/M	6 weeks/2nd	NA
5	Hai et al. (2021)[4]	BNT162b2 (Pfizer-BioNTech)	mRNA	PEG 2000	38/F	2 weeks/2nd	Stand. patch test*: +1 nickel
6	Bellinato et al. (2021)[3]	BNT162b2 (Pfizer-BioNTech)	mRNA	PEG 2000	65/M	2weeks/NA	NA
7.	Duman et al. (This case)	BNT162b2 (Pfizer-BioNTech)	mRNA	PEG 2000	55/F	1 day/1st	Stand. patch test**: negative PEG 400 patch test: negative PEG 2000 patch test: negative

*American Contact Dermatitis Society Core 80 patch test
**European Standard Series patch test (Chemotechnique Diagnostics, Sweden)

Table 2. Potentially culprit immunogenic components of common COVID-19 vaccines for delayed-type hypersensitivity reactions and potential diagnostic tests

Vaccine	BNT162b2 (Pfizer-BioNTech)	CoronaVac (Sinovac Biotech.)	ChAdOx1 nCoV-19 (AstraZeneca-Oxford)	Role in vaccine related immunological mechanisms	Available skin test
Unique Active ingredients	Spike glycoprotein mRNA of SARS-CoV-2 virus	Inactivated SARS-CoV-2 virus	Recombinant, replication-deficient chimpanzee adenovirus vector encoding the SARS-CoV-2 Spike glycoprotein	Possible	NA
Shared inactive ingredients	Sodium chloride			No/unknown	NA
	Disodium/monosodium hydrogen phosphate				
		Sucrose			
Non-shared inactive ingredients	Polyethylene glycol-2000 (PEG =Macrogol =E1521)	Aluminum hydroxide	Polysorbate 80 (E433)	Type 1 allergic response and delayed type hypersensitivity reactions	Yes (skin prick testing, intradermal testing or patch testing 11-27)
	Potassium chloride Dibasic sodium phosphate dehydrate Lipids	Monosodium hydrogen phosphate Sodium hydroxide Monosodium hydrogen phosphate Sodium chloride	Histidine L-histidine hydrochloride monohydrat Magnesium chloride hexahydrate Ethanol Disodium edetate dihydrate	No/unknown	NA

Conflicts of interest: The authors did not specify any links of interest.

001498 | **Pulmonary function 3-6 months after Covid-19 with evidenced pulmonary infiltrations in young adults**

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*Presenting author: E. Lekli

Background: The effects of COVID-19 pandemic, nowadays may be considered an immediate past, from which we are continuously improving our knowledge to provide adequate access to care for probably unevidenced effects of SARS-CoV2 infection in pulmonary function.

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Method: A cross-sectional study was performed to access spirometry as pulmonary function test 3-6 months after COVID-19 in young adults 18-45 years old, hospitalized for COVID-19 during 2021, with radiological evidence of pulmonary infiltrations in main COVID-19 hospital in Albania. The strict exclusion criteria were previous known respiratory diseases or any concomitant disease that can compromise pulmonary, including active smokers.

Results: 61 patients, 41(67.2%) females and 20(32.8%) males; mean age 30.6 ±8.63 years. hospitalized for COVID-19 during 2021, have undergone a spirometry test. Spirometry data for pulmonary function resulted: 4 patients (6.56%) with pulmonary disfunction, among them 1 patient (1.64%) FEV1/FVC < 75%, with generalized bronchial obstruction and 3 patients (4.92%) with small airway obstruction (brochiolo-obsctruction), FEF 25 – 75 < 60%.

Conclusion: The results show that there is minimal affection of pulmonary function, evaluated by spirometry as pulmonary function test. These data may also present an increased bronchial hyperreactivity after COVID-19 among young subject which must be further investigated.

Conflicts of interest: The authors did not specify any links of interest.

000531 | A case with recurrent idiopathic anaphylaxis episodes starting soon after COVID-19 mRNA vaccination

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Introduction/Background: Anaphylaxis and chronic urticaria following COVID-19 mRNA vaccination have been reported in rare cases. Here, we present the first case having recurrent idiopathic anaphylaxis episodes and chronic urticaria following COVID-19 mRNA vaccination which were successfully treated with omalizumab.

Case: A 52-year-old male patient with urticarial symptoms and recurrent idiopathic anaphylaxis episodes for the last three months applied to our adult allergy outpatient clinic. There was no prior history of any kind of hypersensitivity reactions. He experienced urticaria, angioedema, hypotension and pre-syncope on the 5th day after the first dose of COVID-19 mRNA vaccination. At the time of first anaphylaxis tryptase was 8,17 ng/ml.He was successfully treated for anaphylaxis at the emergency department. However, urticaria and/or angioedema continued to occur every day and also anaphylaxis episodes repeated two or three times a week. In these episodes, no triggering factors or cofactors like exercise or alcohol were determined. Baseline tryptase was 4,89 ng/ml, routine blood tests and stool examination were normal. Alpha gal specific IgE and c-KIT mutation were negative. 10 mg cetirizine twice a day and 180 mg fexofenadine twice a day were administered. However, anaphylaxis episodes and chronic urticaria continued under high dose antihistamines. Therefore, omalizumab 300 mg per month was initiated. On the second day of the first dose, urticaria/angioedema ceased. No further anaphylaxis episodes developed.

Conclusion: Here, we presented recurrent idiopathic anaphylaxis episodes and chronic urticaria starting soon after COVID-19 mRNA vaccination which were both responsive to omalizumab.

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Conflicts of interest: The authors did not specify any links of interest.

DERMATOLOGY 2

000390 | Evaluating the control of the disease on current treatments available for the Romanian hereditary angioedema patients to assess the need for new innovative drugs

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*Presenting author: N. A. Bara

Background: The availability of on-demand treatment is essential for all patients with a confirmed diagnosis of hereditary angioedema (HAE). When using only this type of medication does not provide adequate control of the disease, long-term prophylaxis (LTP) should be considered. In case of regular and prolonged administration of drugs, the route of administration is critical. The objectives of this study were to evaluate the control of the disease on available treatments for Romanian HAE patients and to test possible correlates of AECT scores.

Method: Adult patients from the Romanian HAE Registry were contacted by phone in March 2022. Those with confirmed diagnosis of HAE and more than 1 attack in the last 3 months were invited to complete the one- and three-month angioedema control test (AECT), online. AECT scores were computed according to the authors' instructions. Relationships between AECT scores, on the one hand, and socio-demographic and disease-related characteristics, on the other hand, were analyzed using the Mann-Whitney U test and Spearman correlation test. The threshold for statistical significance was set at 0.05.

Results: Out of 121 patients, 83 met the eligibility criteria. The questionnaire was completed by 62 patients (response rate 75%), of which 19 (31%) were men and 43 (69%) were women. On-demand treatment (Icatibant or pdC1-INH) was available at home to all respondents during the study period. LTP with pdC1-INH was used by 9 patients (14.5%). On these treatments, the three-month AECT revealed a well-controlled disease in only 13 patients (21%), 2 of whom used LTP. When the questions referred only to the last month, adequate control was achieved in 14 patients (23%), only 1 of them being on LTP. None of the AECT scores were associated with sex, residence, type of HAE, age at the time of the study, and age at the diagnosis. However, age at first symptoms significantly correlated

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with both AECT scores (one-month AECT: rho = 0.272; $p = 0.0445$; three-month AECT: rho = 0.4141; $p = 0.0017$).

Conclusion: The on-demand therapy does not ensure adequate disease control in most Romanian HAE patients. Despite the availability of pdC1-INH as LTP, the IV administration makes it inconvenient for many patients, suggesting the need for new, easy-to-administer drugs for Romanian HAE patients.

Conflicts of interest: The authors did not specify any links of interest.

000535 | Maintenance of patient well-being and perception of treatment effect in dupilumab-treated patients transitioning from every other week to monthly doses

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*Presenting author: S. Beissert

Background: Patients with moderate-to-severe atopic dermatitis (AD) suffer from a high burden of disease and the patient's assessment of response to treatment is an important factor in the long-term management and treatment adherance for this chronic condition. Here, we investigate patient wellbeing and perception of the treatment effect of maintenance dupilumab monotherapy every 4 weeks (q4w) or every 8 weeks (q8w) over 36 weeks in patients previously treated with dupilumab every 2 weeks (q2w).

Method: Adult patients with moderate-to-severe AD who had previously participated in SOLO 1/2 trials (NCT02277743 and NCT02277769) and had achieved a 75% reduction from baseline in Eczema Area and Severity Index (EASI-75) and/or an Investigator's Global Assessment (IGA) score of 0/1 at Week 16 were enrolled in this randomized, long-term, double-blind, placebo-controlled phase 3 study (LIBERTY AD SOLO-CONTINUE, NCT02395133). We present data for patients treated with dupilumab monotherapy 300 mg every 2 weeks for 16 weeks subsequently randomized to dupilumab monotherapy 300 mg q4w ($n = 41$), dupilumab monotherapy 300 mg q8w ($n = 39$), or placebo ($n = 39$) for an additional 36 weeks. Patients were asked *"Considering all the ways in which your eczema affects you, indicate how well you are doing"* to assess their perception of well-being, and *"How would you rate the way your eczema responded to the study medication?"* to assess their perception of treatment effect. Possible responses included: poor, fair, good, very good, and excellent.

Results: After 36 weeks on monotherapy with dupilumab q4w/dupilumab q8w, 56.1%/38.5% of patients responded "very good" or "excellent" in their assessment of well-being, and 58.5%/48.7% considered the treatment effect "very good" or "excellent" compared with 12.8% and 15.4% of patients treated with placebo. The differences between dupilumab q4w/dupilumab q8w and placebo at Week 52 were significant for well-being ($p < 0.0001/p < 0.05$) and treatment effect ($p < 0.0001/p < 0.01$). Overall safety was consistent with the known dupilumab safety profile.

Conclusion: Most patients who achieved optimal response after 16 weeks of q2w dupilumab monotherapy and were subsequently randomized to continue dupilumab 300 mg q4w monotherapy for an additional 36 weeks rated both their well-being and perception of treatment effect as "very good" or "excellent" over 9 months of maintenance treatment.

Conflicts of interest: Simpson EL: AbbVie, Eli Lilly, Galderma, Kyowa Hakko Kirin, LEO Pharma, Merck, Pfizer, Regeneron Pharmaceuticals Inc. – investigator; AbbVie, Boehringer Ingelheim, Dermavant, Eli Lilly, Forté, Incyte, LEO Pharma, Menlo Therapeutics, Pfizer, Pierre Fabre Dermo-Cosmetics, Regeneron Pharmaceuticals Inc., Sanofi, Valeant – consultant. Beissert S: Actelion, Amgen, Biogen, Celgene, Galderma, Janssen-Cilag, Lilly, Menlo Therapeutics, MSD, Novartis, Pfizer, Sanofi, UCB Pharma – advisory board member; AbbVie, Actelion, BMS, Celgene, Galderma, GSK, Hexal, Janssen-Cilag, La Roche-Posay, MSD, Novartis, Pfizer – speaker honoraria; Regeneron Pharmaceuticals Inc. – investigator. Beck LA: AbbVie, AstraZeneca, BenevolentAI, DermTech, Eli Lilly, Incyte, Janssen, LEO Pharma, Novartis, Pfizer, Principia Biopharma, RAPT Therapeutics, Regeneron Pharmaceuticals Inc., Sanofi, Stealth BioTherapeutics – consultant; AbbVie, AstraZeneca, DermTech, Kiniksa Pharmaceuticals, LEO Pharma, Pfizer, Regeneron Pharmaceuticals Inc., Sanofi – investigator; 3M, Gilead, Medtronic, Moderna – stock ownership. Shumel B: Regeneron Pharmaceuticals Inc. – employee and shareholder. Praestgaard A, Rossi AB: Sanofi – employees, may hold stock and/or stock options in the company.

000493 | Long-term follow-up in patients with moderate-to-severe atopic dermatitis treated with dupilumab

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*Presenting author: M. Votto

Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by intense itching and recurrent eczematous lesions. Despite topical treatments, AD often relapses with a significant impact and burden on the quality of life of patients and their caregivers. Dupilumab is the first biological therapy approved for treating children with moderate-to-severe dermatitis, not adequately controlled with topical treatments.

This study aims to assess the long-term efficacy and safety of dupilumab in a cohort of children and adolescents followed at the Pediatric Clinic in Pavia, Italy, for moderate-to-severe AD.

Method: We report a case series of 8 children and adolescents (6-18 years) treated with dupilumab for moderate-to-severe AD. We collected data regarding clinical scores (SCORAD, EASI, POEM, and VAS for itching) and side effects.

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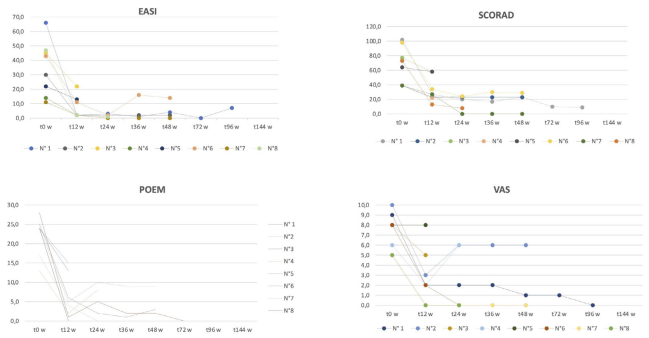
Results: All enrolled patients were treated with dupilumab for at least 12 weeks, four patients for 48 weeks, and only one for more than 96 weeks. During the treatment period, all patients experienced a notable reduction in their clinical scores (Figure 1). Before starting dupilumab, the median EASI value was 37 (min 11 – max 66), the median SCORAD value was 69 (min 39–max 102), the median POEM value was 24 (min 13 – max 28), and the median VAS for itching was 8 (min 5–max 10). At 12 and 48 weeks of therapy, the median EASI value was 2 (min 2 – max 11) and 4 (min 0 – max 14), with an 80% and 86% of decrease, respectively. At 12 and 48 weeks of therapy, the median SCORAD value was 27 (min 13 – max 58) and 23 (min 0 – max 29), with a 50% and 71% of decrease, respectively. At 12 and 48 weeks of therapy, the median POEM value was 4.5 (min 0 – max 15) and 2.5 (min 0 – max 9), with a 74% and 87% of decrease, respectively. Finally, at 12 and 48 weeks of therapy, the median VAS value was 2 (min 0 – max 8) and 0.5 (min 0 – max 6), with a 57% and 71% of decrease, respectively. Four (50%) patients reported side effects: two had HSV skin reactivation, one had an episode of headache a few hours after the injection, and one had conjunctivitis. Three patients had mild COVID-19, and none required hospital admission. All manifestations were mild and transient and did not require discontinuation or interruption of the treatment.

Conclusion: Dupilumab is an effective and safe therapy for AD in children and adolescents with a significant improvement in clinical manifestations and quality of life.



Conflicts of interest: The authors did not specify any links of interest.

000400 | A dress syndrome caused by a new medicine: Niraparib

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Background: Drug reaction with eosinophilia and systemic symptoms (DRESS) is a rare and life-threatening hypersensitivity reaction. Fever, skin lesions and internal organ involvement characterize it. Niraparib is a poly (ADP-ribose) polymerase inhibitor. It was approved by the Food and Drug Administration in 2017. Niraparib blocks the enzymes responsible for DNA repair and induces cytotoxicity in cancer cells. It is used to treat epithelial ovarian, fallopian tube or primary peritoneal cancer.

Some of the most frequent side effects are cytopenias, photosensitizing reactions, conjunctivitis, non-infectious pneumonitis and peripheral edema.

Method: A 73-year-old woman with no personal history of allergy and with peritoneal dissemination of high-grade serous ovarian cancer, presented to the emergency room with generalized rash. Niraparib was initiated twenty days before, 200mg per day, as a maintenance therapy for her serous ovarian cancer. The patient had a coalescing maculopapular rash on the face, trunk and extremities with palms involving. Niraparib was discontinued and treatment with intramuscular and oral methylprednisolone was started. Even with this treatment, after twelve days she developed severe pruritus, facial edema, cervical adenopathies, eosinophilia (3200cells/μL) and worsening of renal and liver function. Therefore, she was admitted for treatment with intravenous corticosteroids, and diagnosed according with the score of the European Registry of Severe Cutaneus Adverse Reactions (RegiSCAR) of 6: definite. Skin lesions, pruritus, liver and renal function normalized so the patient was discharged after twelve days of hospitalization.

She was referred to the Allergy Department. We performed patch test (PT) with reading at day 2 (D2) and D4 with olaparib 1% in dimethylsulfoxide (DMSO), olaparib 1% in aqua, niraparib 1% DMSO and niraparib 1% aqua.

Results: The PT were positive with niraparib 1% DMSO at D2 (++) and D4 (+++).

Given the need to receive treatment, desensitization with niraparib was considered, but this option was discarded due to the severity of the clinical pattern (DRESS) being an absolute contraindication for desensitization.

Conclusion: To the best of our knowledge, this is the first case report of DRESS by hypersensitivity due to niraparib confirmed by positive PT. According to this case report, clinicians should be aware of signs and symptoms suggesting DRESS by niraparib.

Conflicts of interest: The authors did not specify any links of interest.

000615 | Treatment with androgen blockers in a patient with hereditary angioedema and prostatic cancer

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Background: Hereditary angioedema due to C1-inhibitor deficiency (HAE-C1INH) is a hereditary disease characterized by multiple

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episodes of angioedema that can be exacerbated by multiple factors. One of the most described factors is estrogens.

Methods: A 79 year old man was diagnosed with HAE-C1INH at the age of 68 years (C4 11.9 mg/dL C1INH 12 mg/dL, C1INH function 34.1%; mutation C.1196C>G; Pro 377Arg in exon 7 of *C1NH* gene). He had started with angioedema symptoms when he was 9 y.o. No long-term prophylaxis (LTP) was prescribed because of hypercholesterolemia. The patient was treated with exclusive on-demand treatment of angioedema attacks with subcutaneous icatibant acetate and short-term prophylaxis with plasma derived C1INH.

He was diagnosed with prostatic cancer with bone metastasis six years later, and treated with radiotherapy, an antiandrogen (bicalutamide) and a gonadotrophin releasing hormone analogue (decapeptil), which also has an antiandrogenic effect. We describe the frequency of angioedema attacks before, during and after treatment of the prostatic cancer (Table 1).

Results: There was a mild increase in the annual angioedema attack rate during the anti-androgenic period that was higher after suspending this treatment. An increase in the rate of genital episodes was observed during the antiandrogenic treatment period. Average C1INH (mg/dL) slightly diminished during the hormonal treatment and functional C1 activity during and after it.

Estrogens are usually avoided in patients with HAE-C1INH because they exacerbate the disease. We allowed the patient to be treated with antiandrogens for the prostatic cancer, as it is the first choice treatment in hormonal dependent metastatic prostatic cancer and followed-up closely to value if there was a need for long-term prophylaxis. Attenuated androgens were contraindicated and tranexamic acid was disregarded. The annual rate of attacks was not considered high enough to initiate long-term prophylactic treatment with intravenous plasma derived C1 inhibitor.

The patient was recently diagnosed with a relapse of the prostatic cancer and long -term prophylaxis with subcutaneous plasma-derived C1INH or subcutaneous lanadelumab was discussed with the patient. The patient rejected to initiate LTP.

Conclusion: A patient with HAE-C1INH and prostatic cancer was treated with antiandrogenic drugs with a mild increase in angioedema annual attack rate that was well controlled with on demand treatment of the angioedema attacks.

Antiandrogenic treatment could be used in patients with HAE-C1INH with a close follow-up.

JM case reports session: 18243

Conflicts of interest: The authors did not specify any links of interest.

TABLE 1 Frequency and characteristics of angioedema attacks and levels of C4, C1INH and C1INH function before, during and after treatment of the prostatic cancer.

	Pre anti-androgenic medication period	Anti -androgenic medication period	Post anti-androgenic medication period
Duration of medication period (years)	4.00	2.40	2.33
Number of angioedema attacks	32.00	23.00	35.00
Rate of attacks per year	8.00	9.58	15.02
Number of treated attacks	20.00	9.00	20.00
% of attacks that were treated	62.50	39.13	57.14
Number of abdominal episodes	19.00	9.00	19.00
Number of genital episodes	2.00	5.00	4.00
Number of peripheral episodes	11.00	9.00	10.00
% of abdominal episodes	59.38	39.13	54.29
% of genital episodes	6.25	21.74	11.43
% of peripheral episodes	34.38	39.13	28.57
Average C4 (mg/dL)	8.47	8.22	8.33
Average C1INH (mg/dL)	4.45	3.53	5.60
Functional C1 activity %	20.22	16.86	16.84

000511 | Patients delay treating hereditary angioedema (HAE) attacks with currently available, injectable, on-demand therapies

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*Presenting author: A. Valerieva

Background: HAE is characterized by unpredictable, recurrent episodes of angioedema which can affect the abdomen, extremities, genitals, face, and larynx. Although self-administration of on-demand parenteral treatments has enhanced overall HAE attack management, it is known that people living with HAE may delay on-demand treatment administration. This survey evaluated on-demand treatment patterns and patient characteristics associated with longer delays in treatment, as reported by individuals living with HAE.

Method: People living with HAE were recruited by the US Hereditary Angioedema Association (HAEA) to complete a 20-minute online survey between September 6, and October 19, 2022. Participants provided informed consent for their data to be used anonymously or in aggregate.

Results: Respondents included 107 participants; 80% female, 98% adults (≥18 yrs). Attack management included on-demand therapy only (50%) or prophylaxis with on-demand therapy (50%). Overall, 86% of respondents agreed that the initial feelings they experience early in an attack are well-described as, 'signs and symptoms'. Most people with HAE are able to recognize the first signs and symptoms of an attack when it is located in the extremities (61.5%) or the abdomen/stomach (60.9%), and fewer can identify an oncoming attack when it is located in the face (43.2%), airway (38.5%), or genitals (38.2%). Upon experiencing the early signs or symptoms of an attack, 86% reported that they delay injectable on-demand treatment for 2.4 hours (mean). The respondents that reported waiting the longest to administer treatment were younger people (≤24 yrs, 13% of total), who wait a mean of 3.7 hours (SD, 5.9) and those who feel anxious when anticipating the use of current on-demand treatment (43% of total), who also wait a mean of 3.7 hours (SD, 6.2) with >14% of both the younger respondents and also those who reported being more anxious waiting 5 hours or longer.

Conclusion: Results highlight that despite most patients recognizing the first signs and symptoms of an HAE attack, nearly all respondents reported delaying on-demand treatment. Those who are younger or

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have more anxiety about their current on-demand treatment tend to delay treatment the longest, often for several hours. Patient education, as well as further advancements in treatment options may help to overcome barriers to timely on-demand treatment.

Conflicts of interest: • Hilary Longhurst – Honoraria/Travel grants and/or Speaker Bureau and/or Consultant/Clinical Research: BioCryst, CSL Behring, Intellia, Pharming, Shire/Takeda, and KalVista Pharmaceuticals • Ledia Goga – Employee of KalVista Pharmaceuticals, Inc.• Sherry Danese – Consultant fees from KalVista Pharmaceuticals, Inc. • Markus Heckmann –Employee of KalVista Pharmaceuticals, Inc.• Sally van Kooten –Employee of KalVista Pharmaceuticals, Inc• Anna Valerieva – Speaker/Consultant and/or Honoraria/Meeting sponsorship and/or Clinical Research: Ionis Pharmaceuticals, Pharming Group NV, Takeda/Shire, Sobi, CSL Behring, Pharvaris, and KalVista Pharmaceuticals, Inc.

000928 | Topical Janus kinase inhibitors in the treatment of atopic eczema

M. Doyle

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*Presenting author: M. Doyle

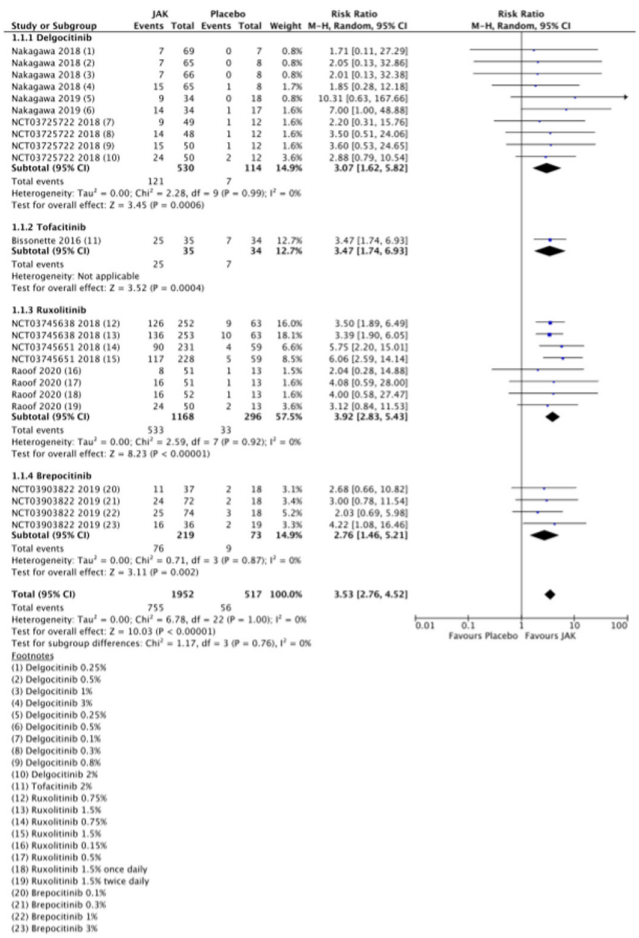
Background: Atopic dermatitis (AD) is an inflammatory condition that presents as itchy and dry skin. In AD pathogenesis, cytokines rely on Janus Kinases (JAK) for signal transduction, which are key proteins that drive inflammation seen in AD and offer a therapeutic target for AD treatment.

Our objectives of this project are to perform a systematic review with meta-analysis of RCTs to determine the efficacy and safety of topical JAK inhibitors.

Method: A search of MEDLINE, Embase, Cochrane Library, Clinicaltrials.gov and The World Health Organization International Clinical Trials Registry was performed. Included studies were RCTs comparing topical JAK inhibitors against placebo or other topical anti-inflammatory treatments. Primary and secondary outcomes included Eczema Area and Severity Index (EASI), Peak Pruritus Numerical Rating Scale (PP-NRS), Investigator Global Assessment (IGA), safety outcomes, and quality of life data. Included studies were assessed using Risk of Bias 2 tool. Binary and continuous data was collected and presented as forest plots using RevMan. Summary of Findings tables presented the core outcomes along with the GRADE assessment.

Results: We included 12 RCTs, 10 of which had published results for 2893 patients. Treatment with JAK inhibitors significantly improved continuous EASI score (MD -4.18, 95% CI -4.42,–3.94, $p < 0.00001$), continuous PP-NRS score (MD -0.94, 95% CI -1.13,–0.75, $p < 0.00001$) and binary IGA response (RR 3.53, 95% CI 2.76–4.52, $p < 0.00001$) compared to placebo. No difference in the frequency of adverse events when using JAK inhibitors was observed.

Conclusion: Short-term data suggests topical JAK inhibitors are efficacious and safe for use in AD. Further trials are needed for long-term adverse events and their use in paediatrics. Several studies in this review were limited due to their high risk of bias. Standard topical AD treatments are preferred first-line options but are often limited by side effects, JAK inhibitors could be used when these options are not suitable.



Effect of JAK inhibitors versus placebo for the proportions of participants who achieved IGA 0/1 (Number clear or almost clear) dueing short-term follow up

Conflicts of interest: The authors did not specify any links of interest.

001457 | Leukocytoclastic vasculitis caused by iodixanol

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*Presenting author: V. Paula

Background: The rapid increase in the use of computed tomography (CT) with intravenous iodinated contrast media (ICM) for diagnostic imaging has led to growing number of adverse drug reactions (ADRs) caused by toxicity or hypersensitivity reactions (HSRs) related to

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ICM. The ADRs may either appear within the first hour (immediate reactions) or up to several days after administration (nonimmediate or delayed reactions). Various risk factors related to ADRs have been reported and must be taken into account in evaluation of those events. We present a case of delayed hypersensitivity reaction of the vasculitis type due to iodixanol.

Method: A 66-year-old woman with a past medical history of intolerance to non-steroidal anti-inflammatory drugs (NSAIDs), ADR to penicillin, and asthma is referred to our department for a study of a non-immediate reaction after CT scan. The patient required 5 CT with ICM in the last 5 years for diagnosis and follow-up purpose due to an interstitial lung pathology.

In the latter Visipaque® (iodixanol) was used as ICM, presenting erythematous-violaceous skin lesions on the trunk and lower extremities that did not blanch on pressure after 3 days, being evaluated by Internal Medicine with blood test and skin biopsy.

An allergology exam to ICM was subsequently carried out with skin tests and delayed reading to ICM performed with iodixanol, ioversol, iomeprol, iopromide, iohexol, amidotrizoate, latex and trometamol. The drug provocation tests (DPT) were performed based on the parameters obtained from the results of the skin test.

Results: Blood tests including serology and autoimmunity showed no abnormalities. Skin biopsy confirmed small vessel leukocytoclastic vasculitis. The skin test was positive for iodixanol after 4 days. The DPT to Omnipaque® (iohexol) and Iomeprol® (iomeprol) at the usual doses used in radiodiagnosis and hemodynamics were negative.

Conclusion: The vasculitis due to type III hypersensitivity reaction by ICM is uncommon and has not been described in the current literature. We present the first case of leukocytoclastic vasculitis due to iodixanol in a woman with various risk factors and a positive delayed reading of intradermal skin test. Additionally, the absence of cross-reactivity with other ICM was confirmed by DPT to iomeprol and iohexol.

Conflicts of interest: The authors did not specify any links of interest.

000522 | Understanding the complex decision-making associated with on-demand treatment of hereditary angioedema (HAE) attacks

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*Presenting author: A. Grumach

Background: HAE is characterized by recurrent, unpredictable episodes of subcutaneous or submucosal swelling which can affect the abdomen, extremities, genitals, face, and larynx. Although self-administration of on-demand parenteral treatments has enhanced overall HAE attack management, the decision about when and if to administer treatment can be complex. This survey evaluated the key factors that drive on-demand treatment decision-making, as reported by those living with HAE.

Method: People living with HAE were recruited by the US Hereditary Angioedema Association (HAEA) to complete a 20-minute online survey between September 6, and October 19, 2022. Participants provided informed consent for their data to be used anonymously or in aggregate.

Results: Respondents included 107 participants; 80% female, 98% adults (≥18 yrs). Attack management included on-demand therapy only (50%, $n = 53$) or prophylaxis with on-demand therapy (50%, $n = 54$). Overall, the majority of respondents (86%) reported delaying on-demand treatment, despite recognizing the initial signs or symptoms of an attack. Reasons for delaying treatment include, 'fear of needles,' (11%), 'lack of a suitable/private area to administer treatment,' (23%), and 'treatment is too painful,' (24%). One of the most common reasons why patients did not take on-demand treatment with them when they were away from home was that they would prefer to treat their attacks at home (72%). The majority of patients (75%) reported that when their on-demand treatment was delayed, their HAE attacks progressed in severity, and 80% reported the recovery from the attack took longer; findings were consistent among those on prophylaxis (74% 'more severe', 80% 'longer recovery') and those using on-demand treatment only (76% 'more severe', 81% 'longer recovery'). Ninety-seven percent of respondents agreed that it is important to recover quickly from an HAE attack, and 95% experienced a decreased level of anxiety once they realized they are recovering from the attack.

Conclusion: Although self-administration of current therapies has improved HAE attack management, survey results highlight the complexity of treatment decision-making for people living with HAE. Treatment-related limitations are often the cause of on-demand treatment delay, despite acknowledgment that delays result in progressive severity of the HAE attacks and longer recovery.

Conflicts of interest: • Tomaz Garcez – Speaker/Advisor and or Meeting support: BioCryst, CSL Berhing, KalVista Pharmaceuticals, Inc., Octapharma, Pharming, Takeda/Shire• Ledia Goga – Employee of KalVista Pharmaceuticals, Inc.• Sherry Danese – Consultant fees from KalVista Pharmaceuticals, Inc.• Markus Heckmann –Employee of KalVista Pharmaceuticals, Inc.• Sally van Kooten –Employee of KalVista Pharmaceuticals, Inc.• Anete S. Grumach – Speaker/Consultant and/or Research Support: CSL Behring, Shire/Takeda, and KalVista Pharmaceuticals, Inc.

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000916 | A baby immunity formula (SIM03) improved disease severity and quality of life in young Chinese children with eczema

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Background: Eczema is the commonest chronic skin disease in children, which affects up to two-fifths of Chinese infants and toddlers. Many affected children had stool dysbiosis. A new probiotics named Microbiome Infant Immune Formula (SIM03) was designed to treat childhood eczema by restoring stool symbiosis. This study evaluated the effects of SIM03 on eczema severity and gastrointestinal symptoms in young children with eczema.

Method: SIM03, produced by GenieBiome Limited under Good Manufacturing Practice, contains a blend of natural food-grade Bifidobacterium strains. This open-label, single-arm clinical trial (registered as NCT05607511 in ClinicalTrials.gov) recruited eczematous children aged 1-5 years to receive one sachet (10^9 CFU) of SIM03 twice daily for three months. They were followed monthly for eczema severity by SCORing Atopic Dermatitis (SCORAD), quality of life by Children Dermatology Life Quality Index (CDLQI; ≥4 years old) or Infant Dermatology Quality of Life index (IDQOL; <4 years old), and skin biophysical parameters (skin hydration [SH] and transepidermal water loss [TEWL]). Parents completed a diary to record changes in stool frequency and consistency. Generalized estimating equation was used to analyze longitudinal changes in clinical outcomes by the intention-to-treat principle.

Results: Twenty children aged 3.0±1.6 were recruited, with eight (40%) being males. Ten children had severe eczema (total SCORAD > 50), while six and four children had mild and moderate eczema respectively. Participants showed excellent adherence with SIM03 (>98%). Total SCORAD significantly reduced from baseline (31.9±23.1) to two months (24.4±19.8; $p = 0.008$) and three months (21.7±17.5; $p < 0.001$). Similar changes were seen in objective and subjective components of SCORAD at two months ($p = 0.033$ and $p = 0.002$) and three months ($p = 0.003$ and $p < 0.001$). IDQOL and CDLQI decreased at one month ($P = 0.014$ and $p = 0.011$), two months ($p = 0.002$ and $p = 0.011$) and three months ($p = 0.013$ and $p = 0.008$). SH decreased ($p = 0.008$) while TEWL remained static during the study period. Most participants (>70%) opened bowel once daily, and no serious adverse event was observed.

Conclusion: The Bifidobacterium-containing SIM03 is well tolerated by young Chinese children. This new probiotic formulation significantly improves eczema severity and disease-specific quality of life, which is not mediated by improvement in skin biophysical status. SIM03 may be an effective treatment for childhood eczema.

Conflicts of interest: The authors did not specify any links of interest.

000960 | Urticarial vasculitis differs from chronic spontaneous urticaria in time to diagnosis, clinical presentation and need for anti-inflammatory treatment: An international prospective UCARE study

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Background: Chronic spontaneous urticaria (CSU) and urticarial vasculitis (UV) share several clinical features including the occurrence of wheals. As of yet, the criteria for differentiating the two disorders are not clearly defined. Here, we aimed to identify differences and similarities in CSU and UV and the likelihood for specific clinical features in UV versus CSU patients.

Method: Across 10 Urticaria Centers of Reference and Excellence (UCAREs), 106 patients with skin biopsy-confirmed UV and 126 CSU patients were prospectively recruited to complete a questionnaire on the clinical features, course, and response to treatment of their disease.

Results: As compared to CSU, UV patients more often experienced post-inflammatory skin hyperpigmentation, wheals of ≥24h duration, eye inflammation, and fever (6.9, 4.0, 3.6, and 2.4 times, respectively). Clinical features that increased the risk for UV diagnosis when present at the onset of disease included wheals of ≥24h

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duration (7.3-fold), pain of the skin (7.0-fold), post-inflammatory hyperpigmentation (4.1-fold), and fatigue (3.1-fold). The diagnostic delay was markedly longer for normocomplementemic UV as compared to hypocomplementemic UV and CSU (21 vs 5 vs 6 months, respectively). Oral corticosteroids and omalizumab were the most effective treatments in UV and CSU patients, respectively. UV patients showed a higher need for immunosuppressive and anti-inflammatory therapies than CSU patients.

Conclusion: Long wheal duration, skin pain and hyperpigmentation, and systemic symptoms point to UV rather than CSU as the underlying disease and should prompt further diagnostic work-up including a skin biopsy.

Conflicts of interest: HB received honoraria (advisor, speaker) from AbbVie, Intercept Pharma, Novartis, Sanofi-Aventis and Valenza Bio Inc. outside of the submitted work. JJT has no conflict of interest to declare. AA is a speaker for Novartis outside of submitted work ORCID 0000-0003-0751-0073 YC has no conflict of interest to declare. ICO recently was a speaker and/or advisor from Sanofi/Regeneron, GSK IDa received honoraria (speaker) from Novartis outside of the submitted work. IDo has no conflict of interest to declare. RJC received honoraria (advisor, speaker) outside of submitted work from: AbbVie, Pfizer, Novartis, Sanofi-Aventis, Lilly and Takeda. PRC Received honoraria (advisor, speaker) from AbbVie, Pfizer, Novartis, Sanofi-Aventis, Lilly, Galderma and Takeda. outside of the submitted work. AG has no conflict of interest to declare. TH is or recently was a speaker and/or advisor for and/or has received research funding from LeoPharma, Novartis, Roche, Sanofi, ORCID: 0000-0001-9990-1332 EK is/was a speaker and advisor for Novartis, Menarini, LaRoche Posey, Sanofi, Bayer MK was a speaker for GSK and Danone also have received research funding from Abidipharma and CinnaGen, outside the submitted work. MMe outside of the submitted work: MMe received honoraria as a speaker and/or consultant for AbbVie, Amgen, ArgenX, AstraZeneca, Bayer, Celldex, Celgene, Escient, Galderma, Grünenthal, GSK, Menlo, Novartis, Pfizer, Pharvaris, Regeneron, Roche, Sanofi-Aventis, Teva, Third Harmonic Bio, Viforpharma IN received honoraria (speaker) from Novartis and Sanofi outside of the submitted work. MS has no conflict of interest to declare. ZZ was the speaker/advisor for and/or has received research funding from Novartis, Pfizer, Astellas, Galderma, Janssen, GSK, BAYER, LEO, MEDA Pharma and ALK Pharma, outside the submitted work FA has no conflict of interest to declare. PS No conflict of interest to declare. SA has conducted studies for/received research funds/was advisor for Allakos, ALK, AstraZeneca, Biocryst, CSL Behring, LeoPharma, Moxie, Novartis, Sanofi, Takeda, ThermoFisher. MG received honoraria (advisor, speaker) from AbbVie, Astra-Zeneca, Leo, Lilly, Novartis, Sanofi and Takeda, outside of the submitted work. AGA is or recently was a speaker and/or advisor for and/or has received research funding from Almirall, Amgen, AstraZeneca, Avene, Celldex, Escient Pharmaceutials, Genentech, GSK, Instituto Carlos III- FEDER, Leo Pharma, Menarini, Novartis, Sanofi–Regeneron, Thermo Fisher Scientific, Uriach Pharma/Neucor. MM is or recently was a speaker and/or advisor for and/or has received research funding from Allakos, Amgen, Aralez, ArgenX, AstraZeneca, Celldex, Centogene, CSL Behring, FAES, Genentech, GIInnovation, GSK, Innate Pharma, Kyowa Kirin, Leo Pharma, Lilly, Menarini, Moxie, Novartis, Pfizer, Roche, Sanofi/Regeneron, Third Harmonic Bio, UCB, and Uriach. KK is or recently was a speaker and/or advisor for and/or has received research funding from Berlin Chemie, Moxie, Novartis, Roche/CHUGAI, Takeda outside of the submitted work. PK was a speaker/consultant for Novartis, ValenzaBio and Roche outside of submitted work.

000937 | Efficacy, safety, and tolerability of remibrutinib (LOU064) in CSU patients: Study design of phase 3B extension trial

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Background: Remibrutinib (LOU064) is a novel, highly selective, potent, covalent, oral Bruton's tyrosine kinase (BTK) inhibitor that has shown efficacy, fast onset of action and a favourable safety profile in chronic spontaneous urticaria (CSU) patients in a Phase 2b study. Here, we report the study design of the remibrutinib Phase 3b extension trial for CSU patients inadequately controlled by second-generation H_1-antihistamines and who completed the preceding remibrutinib Phase 3 studies.

Method: This Phase 3b (NCT05513001) multicentre, double-blind, placebo-controlled, randomised withdrawal and open-label extension study is evaluating the long-term efficacy, safety and tolerability of remibrutinib in CSU patients who have completed treatment phase of remibrutinib in preceding Phase 3 studies. Approximately 1021 patients are expected to be included in the extension study. The study consists of 2 Epochs with a total study duration of ~160 weeks. Epoch-1 is the initial study period for patients who completed the Phase 3 studies and consists of a 24-week randomised withdrawal period with remibrutinib or placebo for patients with a weekly Urticaria Activity Score (UAS7) < 16 at the end of the preceding studies or a 24-week open-label treatment period with

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remibrutinib for patients with an UAS7≥16 at the end of the preceding studies. Epoch-2 is the second subsequent study period consisting of 24-week treatment and observation cycles with remibrutinib, with or without background H_1- antihistamines. The study will include adult CSU patients who have completed one of the preceding core Phase 3 studies as per protocol. The primary efficacy endpoint is the time to the first composite event of relapse (UAS7 ≥ 16); or study treatment discontinuation due to lack of efficacy; or first intake of strongly confounding prohibited medication (biologics, cyclosporine or corticosteroids) during the randomised withdrawal period (up to Week 24).

Results: The enrolment was initiated on 09 December 2022.The completion of study is expected by March 2027. Details of the study design will be presented at the congress.

Conclusion: The results of this Phase 3b study will provide evidence of the long-term efficacy, safety and tolerability of remibrutinib in CSU.

Conflicts of interest: MM is or recently was a speaker and/or advisor for and/or has received research funding from Amgen, Allakos, Aralez, AstraZeneca, Celldex, FAES, Genentech, GI Innovation, Kyowa Kirin, Leo Pharma, Menarini, Novartis, Moxie, MSD, Roche, Sanofi, Third Harmonic, UCB, and Uriach. AGM reports roles as a medical advisor for Uriach Pharma, Sanofi and Genentech, Novartis, FAES, GSK, AMGEN, Thermo Fisher and has research grants supported by Uriach Pharma, Novartis and Instituto Carlos III- FEDER; she also participates in educational activities for Uriach Pharma, Novartis, Genentech, Menarini, LEO- PHARMA, GSK, MSD, Almirall, AVENE and Sanofi. SS has received grant/research/clinical trial support from the National Institutes of Health, ITN, Novartis, and Regeneron, and is a consultant/advisory board member for Genentech, Novartis, Medimmune, AstraZeneca, Pfizer, Allakos, Eli Lily, and Gossamer Bio. ML is an employee of Mount Sinai and receives research funds from: Abbvie, Amgen, Arcutis, Avotres, Boehringer Ingelheim, Cara therapeutics, Dermavant Sciences, Eli Lilly, Incyte, Janssen Research & Development, LLC, Ortho Dermatologics, Regeneron, and UCB, Inc., and is a consultant for Aditum Bio, Almirall, AltruBio Inc., AnaptysBio, Arcutis, Inc., Aristea Therapeutics, Avotres Therapeutics, Brickell Biotech, Boehringer-Ingelheim, Bristol-Myers Squibb, Cara Therapeutics, Castle Biosciences, Celltrion, Corevitas, Dermavant Sciences, Dr. Reddy, EPI, Evommune, Inc., Facilitatation of International Dermatology Education, Forte Biosciences, Foundation for Research and Education in Dermatology, Helsinn, Hexima Ltd., Incyte, LEO Pharma, Meiji Seika Pharma, Mindera, Pfizer, Seanergy, Strata, Trevi, and Verrica. GS has received research support from Aimmune, Amgen, Astra Zeneca, DBV technologies, Genentech, Kedrion S.p.A, Leo Pharma Inc., Novartis, Nuvo Pharmaceuticals Inc., Sanofi, Stallergenes, Merck, Schering Plough, Regeneron and ALK; is a medical advisor and/or has received payment for lectures from Merck, Novartis, CSL Behring, Pfizer, Anaphylaxis Canada, the Allergy Asthma and Immunology Society of Ontario and the Canadian Hereditary Angioedema Network. MH has received lecture and/or consultation fees from Kaken Pharmaceutical, Kyowa Kirin, Mitsubishi Tanabe Pharma, MSD, Novartis, Sanofi, TAIHO Pharmaceutical, Teikoku Seiyaku and Uriach. KL, AZ, KC, EM and SH are employees of Novartis Pharma AG, Basel, Switzerland. SB is an employee of Novartis Healthcare Pvt. Ltd. Hyderabad, India. LW is an employee of China Novartis Institutes for Biomedical Research Co. Ltd.

000505 | Assessment by self-questionnaire of health status, quality of life and expectations of French patients with hereditary angioedema

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Background: Hereditary angioedema (HAE) is a rare and life-threatening condition. Emergency and prophylactic treatments have changed the prognosis and especially the quality of life of patients in recent years. A review of the health status, quality of life and expectations of HAE patients seems interesting to assess future needs.

Method: A prospective observational study was conducted in France between May 2021 and January 2022 by filling out an online self-questionnaire distributed to HAE patients by the French national reference center for HAE (CREAK) and the national patient association. The questionnaire concerned the status of their disease activity, their treatments and their quality of life.

Results: One hundred and fifty-eight patients, including 95 women (60.1%) and with a median age of 46.5 years (IQR: 35-61), completed the questionnaire. The type of HAE was for 63.3% HAE type 1, 13.9% HAE type 2 and 12.7% normal c1-inhibitor HAE.

Regarding attacks, 136 (86.1%) patients had ever used icatibant, 24 (15.2%) c1-inhibitor concentrate and 46 (29.1%) tranexamic acid. Regarding their ability to self-administer the subcutaneous treatment, 83.5% of patients were confident.

Ninety-seven patients (61.4%) had long-term prophylactic treatment, including 52.6% lanadelumab, 29.9% danatrol, 19.6% tranexamic acid and 2.1% berotralstat. Regarding their treatments, 85.3% of patients were satisfied with their treatments and 79 patients (50%) would prefer a long-term oral prophylaxis.

Sixty-four patients (40.5%) received education sessions with a satisfaction rate of 92.2%.

Conclusion: New treatments, especially prophylactic treatments, seems to be adopted by HAE patients with a good level of satisfaction. Repeating the assessment at regular intervals would make it possible to evaluate the impact of the new therapeutic modalities over time.

Conflicts of interest: Grants, personnal fees and non-financial support from CSL Behring, Takeda, Biocryst, Pharvaris.

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000591 | Spongiotic dermatitis with plasma cells in a patient treated with dupilumab

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Background: Among the current treatments for moderate-severe atopic dermatitis (AD) is dupilumab (D). D is a monoclonal antibody directed against IL-4 receptor α subunit, that blocks both IL-4 and IL-13 signaling. Like all medicines, D can cause side effects. According to the data sheet of D, frequent adverse effects (1/10 people) are local reactions at the injection site, redness and itching of the eyes, infectious conjunctivitis, lip or skin herpes, eosinophilia and arthralgia. Uncommon side effects (1/100 people) are angioedema, itching, redness and swelling of the eyelids, keratitis with/without blurred vision, facial rash or redness, and dry eyes. And rare side effects (1/1000 people) are severe allergic hypersensitivity reactions and ulcerative keratitis. Sometimes adverse effects appear in real life and not in clinical trials.
Method: A 40-year-old woman with a history of severe AD, rhinoconjunctivitis and asthma due to sensitization to dog and cat epithelium, pollens and due to food allergies (nuts, legumes, tomato, barley, rye, corn, kiwi, peach, banana, apple and melon). After ineffective treatment with cyclosporine for AD, it was decided to start treatment with D from December 2020, with a dose of 300mg every two weeks. In subsequent reviews, she presented a great improvement in the AD follow-up scales (EASI, IGA, SCORAD, and BSA) and stopped using daily bronchodilators. After eleven months of treatment with D, she presented an itchy, painful and indurated reddish plaque on the right cheek. Topical treatment with corticosteroids was prescribed with a slight improvement, therefore was decided on an extended interval between doses, every three weeks and four weeks following the response. Skin biopsy, epicutaneous tests with standard battery (true test), cosmetic battery and own products were performed.
Results: The histopathology of the skin informed as a "spongiotic dermatitis with the presence of abundant plasma cells in the inflammatory infiltrate. No fungi, no spirochetes, no deposition of immunocomplexes with IgA, IgG, IgM, complement or fibrinogen have been seen". Patch tests were positive against gold sodium thiosulfate (++), amerchol L101 (+), sodium lauryl sulfate (+) and polysorbate 80 (+); the rest of the epicutaneous tests were negative. The patient checked her regular cosmetics and failed to find any positive relation with the positive patch tests performed. After four weeks of intervale of doses, the patient presented a progressive improvement of the red plaque until its disappearance in two months. The AD follow-up scales remained at the same level as before the D dose was delayed.
Conclusion: A severe AD patient treated with D, after some months of treatment, presented a reddish plaque on her right cheek. The positivities in the epicutaneous tests carried out had no clinical relevance. The skin biopsy showed spongiotic dermatitis with abundant plasma cells. The patient presented a complete improvement with an extended interval dose every four weeks without a worsening on AD follow-up scales (EASI, IGA, SCORAD and BSA).
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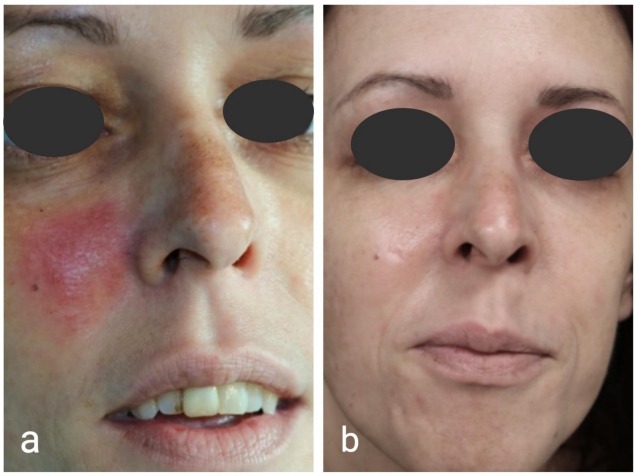
Conflicts of interest: The authors did not specify any links of interest.



001019 | Assessment of atopic dermatitis (AD) through its scores: Does exist correlation between them?

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Background: Atopic dermatitis (AD) is a disease that has several instruments for evaluation, ranging from severity to quality of life, but them are complex and difficult to interpret.
We sought to perform a correspondence between the instruments and verify the equivalence between them.
Method: Was performed a transversal study including pediatric patients with AD followed at a Tertiary Pediatric Hospital in 2022.
All patients were submitted to SCORAD, Objective SCORAD (without pruritus), EASI e NRS 11 24h collected through a mobile app and self-administered questionnaires in order to evaluate quality of life (CDLQI or IDQLI) and control of the disease (ADCT). The score of pruritus were evaluated by NRS 11 and itch visual analogue scale (VAS). All questionnaires were validated to Portuguese and performed by a single investigator. The correlation between scores was evaluated using Pearson correlation coefficients.
Results: Twenty patients (15 male) were included, age at enrollment was median of 12 (variation: 1 to 18). According to SCORAD, the media

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score was 34,2 and there were 1 severe, 13 moderate and 6 mild. About the EASI, the media score was 16,7 (6 severe, 8 moderate and 6 mild). We found a Pearson correlation coefficient between SCORAD and EASI of 0.69 and between Objective SCORAD and EASI of 0.64. Fifty percent of the patients showed poor control of AD and we found a strong correlation coefficient between the SCORAD x ADCT (r = 0,79), and EASI x ADCT (r = 0,74).

Pruritus was relevant in most of the patients: NRS-11 24h outcome was high and there was a strong correlation with itch visual analogue scale (VAS) of SCORAD (r = 0,8).CDLQI revealed a heterogeneous distribution independently of severity and Pearson correlation between SCORAD/EASI and CDLQI was weak (r = 0,28).

Conclusion: The analysis of AD by development of scores is useful and necessary but the results need to be carefully evaluated. Despite severity scores could be equivalent they presented a poor correlation with quality-of-life questionnaires, revealing that AD is a disease beyond the skin and its symptoms.

Correlation between the severity of disease (SCORAD) and quality of life (CDLQ) of pediatric patients with Atopic Dermatitis (AD) assisted in a Tertiary Pediatric Hospital in 2022.

	SCORAD			
CDLQI	MILD	MODERATE	SEVERE	GENERAL
NO EFFECT	2	0	0	2
WEAK EFFECT	1	1	0	2
MODERATE EFFECT	0	4	2	6
STRONG EFFECT	0	2	3	5
VERY STRONG EFFECT	1	3	1	5
TOTAL	4	10	6	20

TABLE 1: Correlation between the severity of disease (SCORAD) and quality of life (CDLQI) of pediatric patients with Atopic Dermatitis (AD) assisted in a Tertiary Pediatric Hospital in 2022.

Conflicts of interest: The authors did not specify any links of interest.

DRUG ALLERGY 1

000500 | Significantly impaired quality of life due to penicillin "allergy" among females with chronic spontaneous urticaria: A neglected role of delabelling

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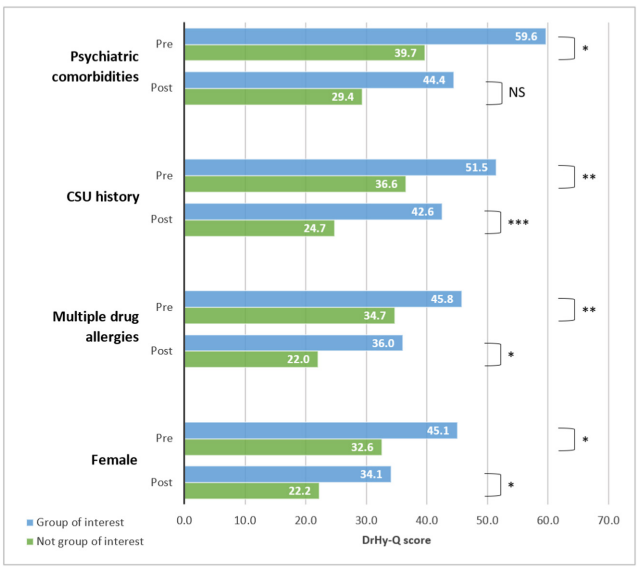
Background: Up to 10% of the population is labelled allergic to penicillin but the vast majority is not true if tested. Penicillin allergy delabelling is effective in improving clinical outcomes but its effect on patient-reported outcomes (PROs) such as Health-Related Quality of Life (HRQoL) remains unknown. This study therefore aims to evaluate the impact of penicillin allergy delabelling on PROs including HRQoL.

Method: A cohort of patients referred for penicillin allergy investigation was recruited. Their HRQoL was assessed by a validated Chinese version of the Drug Hypersensitivity Quality of Life Questionnaire (DrHy-Q; the lower the better). Patients were contacted by nurses via phone calls to assess other post-delabelling PROs such as willingness to reuse penicillin and ability to recall current drug allergy (DA) labels.

Results: A total of 94 patients were included and analysed. Significant improvement in HRQoL was demonstrated post-delabelling (DrHy-Q scores: 41.6 vs 30.8; $p < 0.001$). Female sex ($p = 0.017$ and $p = 0.034$), history of chronic spontaneous urticaria (CSU; $p = 0.002$ and $p < 0.001$) multiple drug allergies ($p = 0.023$ and $p = 0.006$) predicted worse HRQoL both before and after delabelling but they made no difference in HRQoL improvement. Patients who attained higher education demonstrated better HRQoL (17.6 vs 33.2; $p = 0.044$) and greater improvement (-22.5 vs -11.1; $p = 0.029$) after evaluation than those receiving only primary or pre-primary schooling. Upon phone follow-up, 78.6% of the contacted patients claimed to be willing to take penicillins and 72.9% were able to name their DA labels correctly. A willingness to reuse penicillins and ability to accurately describe DA labels were significantly associated with better post-delabelling HRQoL ($p < 0.001$ and $p = 0.037$ respectively). CSU history was associated with below-average HRQoL after workup ($p = 0.030$), incorrect recall of DA labels ($p = 0.011$) and unwillingness to consume penicillins ($p = 0.018$). Multiple drug allergies are also correlated to below-average HRQoL ($p = 0.006$) and erroneous label recollection ($p < 0.001$) but have no significant effect on willingness.

Conclusion: Delabelling is useful in enhancing patients' HRQoL and other PROs which are interrelated. The impact of CSU on DA-related PROs warrants further studies.



*: p <0.05; **: p<0.01; ***: p<0.001; NS, not significant

FIGURE 1 Predictors of pre- and post-delabelling DrHy-Q scores.

Conflicts of interest: The authors did not specify any links of interest.

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000619 | **Different cephalosporin components exert immunogenicity in patients with non-immediate hypersensitivity reactions to cephalosporins**

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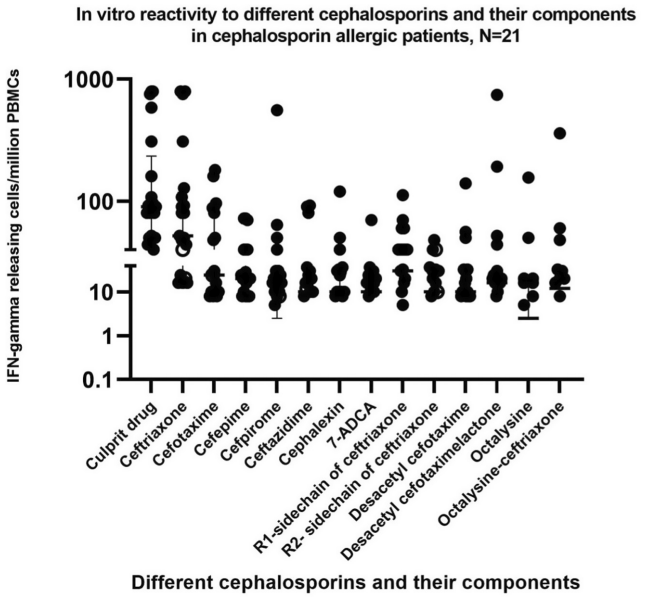
*Presenting author: J. Klaewsongkram

Background: It is believed that the cross-reactivity patterns of cephalosporins are related to the similar R1 side chain. However, this knowledge is mainly based on theory and clinical data from patients with IgE-mediated reactions, not on the results of in vitro assays. This study aimed to investigate cephalosporin components' immunogenicity by using ceftriaxone as a paradigm and examining in vitro cross-reactivities among common 3rd and 4th generation cephalosporins.

Method: Twenty-one patients with a recent history of non-IgE-mediated reactions to ceftriaxone or other cephalosporins with a similar R1 side chain to ceftriaxone were recruited into this study. The number of interferon-gamma (IFN-ϒ) releasing cells in peripheral blood mononuclear cells was measured using an enzyme-linked immunospot assay (ELISpot) after stimulation with the culprit drugs, various components of ceftriaxone (side chain moieties and degradation products), and a few selected cephalosporins.

Results: According to the IFN-ϒ ELISpot assay results among these cephalosporins, the most immunogenic ceftriaxone components were R1 side chain (42.9%, 9/21), desacetylcefotaxime lactone (19.0%, 4/21), desacetylcefotaxime and R2 side chain (14.3%, 3/21 each), and 7-aminodesacetoxycephalosporanic acid (7-ADCA, a cephalosporin core structure) (4.8%, 1/21) in that order. R1 side chain and 7-ADCA were the most and least immunogenic parts of ceftriaxone, respectively. Overall, in vitro cross-reactivities among cephalosporins with similar R1 side chains were 38.1% (8/21). Cross-reactive rates in drug reaction with eosinophilia and systemic symptoms were higher than other phenotypes (p value = 0.014).

Conclusion: Even though many parts of ceftriaxone may be immunogenic, our research shows that 7-ADCA is not very immunogenic and that the R1 side chain is, after the whole cephalosporin molecules, the most immunogenic part. Cross-reactivities between 3rd- and 4th-generation cephalosporins with similar R1 side chains are not very common in vitro, except for DRESS.



Conflicts of interest: The authors did not specify any links of interest.

001669 | **The penicillin allergic pregnant population: Comparing history to testing to challenge to intrapartum penicillin use: An analysis of risk**

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Background: Penicillin allergy (PA) is overdiagnosed, including in the pregnant population. As a result, many Group B Streptococcus (GBS) positive pregnant patients with PA labels do not receive penicillin at delivery. Comparing remote history of penicillin allergies in this population may facilitate penicillin delivery even in the absence of formal allergy testing.

Method: A retrospective chart review was conducted at a community allergy clinic of its PA evaluation of pregnant women. History, standardized penicillin (intradermal) skin testing (IDST) along with results of in-office oral challenge (OC) to amoxicillin (2 dose, in-office challenge 25 and 475 mg over 1 hour) were collected to determine the rate of true versus negative penicillin allergy in a pregnant population labeled penicillin allergic. Data on follow-up GBS-positivity at delivery was reported.

Results: A sample of 68 pregnant patients (ages 19 to 43, mean age = 30.7 yrs) were analyzed for their history and result of PST and OC over a 6 year period. Fifty-four (79.4%) were in their third trimester, 11 (16.2%) in their second and 2 (2.9%) in their first trimester

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of pregnancy. Forty-nine of 59 (83.1%) reported childhood penicillin skin reactions while 10 (17.0%) reported adult onset rash; nine histories were undetermined or absent. Of the 68 patients who underwent PST, 64 (94%) tested negative while 4 (6%) tested positive to penicillin components. Of the 64 PST negative, 58 proceeded to OC, in which 57 (98.3%) passed and 1 (1.7%) had delayed rash at 24-48 hrs post-OC. No anaphylactic reactions occurred in the SPT-negative pregnant population. The 4/64 who tested positive were not challenged. Forty-six of 49 with remote histories tested negative and tolerated penicillin OC. All adult histories tested negative on SPT and OC. GBS status was tracked along with antibiotic use at delivery.

Conclusion: PA was safely tested via IDST and OC throughout stages in pregnancy, with the majority tested in the 3rd trimester and having remote childhood histories of PA. IDST and OC displayed similar test validity. Results of PA testing were appropriately communicated to OB/GYN with uncomplicated penicillin use at delivery. Both pediatric and adult histories of rashes were low risk of true penicillin allergy.

Conflicts of interest: The authors did not specify any links of interest.

001009 | Immediate hypersensitivity reactions to gadolinium-based contrast agents: A retrospective study of 12 cases

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*Presenting author: M. G-Viciana

Background: The use of Gadolinium-based contrast agents (GBCA) has increased in the last 20 years due to their paramagnetic properties in magnetic resonance imaging (MRI) studies. Immediate hypersensitivity reactions (IHR) induced by GBCA are uncommon, anaphylaxis occurs in 0.01% of cases. In patients suffering such anaphylactic reactions, involvement of specific IgE has been suggested based on positive skin test results and positive drug provocation test (DPT). We aimed to evaluate the allergy test´s usefulness to select a safe alternative to GBCA in IHR patients.

Method: We performed a retrospective descriptive analysis of those patients over 16 years-old with suggestive clinical history of IHR to GBCA and positive skin tests (STs) or positive intravenous drug provocation tests (DPTs), registered in our electronic record during seven years (2015-2022). After obtaining written informed consents from patients, skin prick tests (SPTs) were performed undiluted and intradermal tests (IDTs) were performed with 1:10 dilutions, both with gadopentetic acid (Magnevist®) gadoterate meglumine (Clariscan®/Dotarem®) and/or gadobutrol (Gadovist®). Patients with negative results in skin testing underwent DPTs with gadoterate and/or gadobutrol. The DPT protocol consisted in administering increasing infusion rates of gadoterate (at 0,2ml/kg) or gadobutrol (at 0,1ml/kg) until reaching up to the target dose.

Results: A total of 12 patients (11 females, median age: 40 years) were included in the study. Urticaria was presented in 8 patients, anaphylaxis was suffered by 4. GBCA involved in IHR was gadoterate in 5 patients, gadobutrol in 3 and an unknown GBCA in 4. On SPTs, they were only positive to gadobutrol in 1 patient. On IDTs, they were positive to gadoterate in 3 patients, to gadopentetic in 2 and to gadobutrol in 1. On DPTs, they were positive to gadobutrol in 5 patients and to gadoterate in 3. Gadobutrol was tolerated by 4 patients and gadoterate was tolerated by 3 patients.

Conclusion: Our study has shown that diagnostic allergological procedure is useful to select a safe and effective alternative to gadolinium-based contrast agents in immediate hypersensitivity reactions patients.

Conflicts of interest: The authors did not specify any links of interest.

001266 | Risk of piperacillin – Tazobactam sensitization in patients allergic to amoxicillin

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*Presenting author: T. Adam

Background: Betalactam class is the class the most frequently involved in allergic drug reactions. The risk of cross-reactivity between penicillins and other betalactam groups appears to be low, but the risk of cross-reactivity within the penicillin group remains unclear. Few data are available regarding the risk of cross-reactivity between amoxicillin and piperacillin – tazobactam. The aim is to assess the prevalence of cross-reactivity to piperacillin – tazobactam in patients with a history of confirmed immediate hypersensitivity (IHS) to amoxicillin.

Method: Between January 2019 and June 2022, we included all patients with a history of IHS to amoxicillin, confirmed by a positive skin test to amoxicillin. We systematically looked for a cross-reactivity to piperacillin – tazobactam by prick-test then intradermal-reactions (IDR) and, in the case of negative skin tests, by a substitution test with piperacillin – tazobactam.

Results: We included 65 patients (mean age 55.6 years, 32 women) who had a confirmed ISH to amoxicillin. According to Ring and Messmer classification, 33.8% had grade I reactions, 38.5% grade II, 26.2% grade III and 1.5% grade IV. Cross-reactivity to piperacillin – tazobactam was found in 29 patients (44.6%): by a positive prick-test in 15 cases (1 positive at 0.2 mg/ml concentration; 1 at 2 mg/ml; 2 at 20 mg/ml and 11 at 200 mg/ml), by a positive IDR in 12 cases (3 positives to 2 mg/ml and 9 to 20 mg/ml), and by symptoms occurring during a substitution test in 2 cases (grade II reactions). Concentration used to perform IDR were non-irritating.

Conclusion: Patients allergic to amoxicillin have a high risk of cross-reactivity to piperacillin – tazobactam. Cross-reactivity to

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piperacillin – tazobactam should be systematically investigated to prevent the allergic risk in case a treatment with this molecule is urgently needed.

Conflicts of interest: The authors did not specify any links of interest.

001372 | Neuromuscular blocking agents in a tertiary hospital in review: Culprits and cross-reactivity

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Background: Neuromuscular blocking agents (NMBAs) are among the most common culprits of perioperative hypersensitivity (POH). Cross-sensitivity between NMBAs is widely reported especially from countries with high prevalence of NMBA reactions. It is generally accepted that skin testing is the method of choice to identify the culprit, cross-reactivities with other NMBAs and potential safe alternatives. Our aim is to describe data from our center regarding NMBAs hypersensitivity, more specifically culprit drugs and cross-reactivity between them.

Method: Retrospective study, between 2010 and 2022, of patients with diagnosed NMBA hypersensitivity, through skin test, in the setting of suspected POH. Cross-reactivity to other NMBAs was determined according to skin test results. Other clinical and demographic data were collected and analyzed.

Results: NMBA hypersensitivity was diagnosed in 15 patients (11.2%), from a total of 134 patients with suspected POH, 11 female (73.3%), with a median age of 49 years old [IQR 36-62]. Immediate reactions occurred in 13 patients (86.7%), 12 with anaphylaxis and 1 bronchospasm. In these patients, surgery was postponed in 4 cases (30.8%). The two patients with delayed reaction had cutaneous symptoms. Suspected NMBAs were rocuronium ($n = 54/134$), cisatracurium ($n = 10/134$), vecuronium ($n = 4/134$), Succinylcholine ($n = 3/134$) and atracurium ($n = 1/134$).

After diagnosis workup, the most common NMBAs implicated were rocuronium ($n = 9$; 60.0%), cisatracurium ($n = 5$; 33.3%) and atracurium was identified in the remaining patient. Alternative NMBAs were tested in 13 patients (86.7%), as showed in table 1. Potential cross-reactivity was identified between rocuronium and cisatracurium ($n = 4$), succinylcholine ($n = 1$) and vecuronium ($n = 1$), as well as between cisatracurium and vecuronium ($n = 2$) and atracurium ($n = 1$).

Conclusion: NMBAs are a relevant cause of POH. Rocuronium (60.0%) and cisatracurium (33.33%) were the most implicated NMBAs, probably reflecting drug patterns consumption. Potential cross-reactivity was identified in 8 patients (53.3%).

Negative predictive value of skin tests with NMBAs is still an unmet need in this area. Drug provocation tests are needed in cases with negative skin tests as NMBA can directly activate mast cells through interaction with MRGPRX2.

Conflicts of interest: The authors did not specify any links of interest.

*Table 1 - Intradermal tests results to evaluate potential cross-reactivity between different NMBAs. NA: not available; *sIgE to atracurium was 11,2 kUA/L, so eviction was recommended.*

	NMBA	Rocuronium	Cisatracurium	Atracurium	Vecuronium	Pancuronium	Succinylcholine
1	Rocuronium	**Positive**	**Positive**	Negative	*NA*	*NA*	Negative
2	Rocuronium	**Positive**	*NA*	*NA*	*NA*	*NA*	**Positive**
3	Rocuronium	**Positive**	*NA*	*NA*	*NA*	*NA*	*NA*
4	Rocuronium	**Positive**	Negative	*NA*	Negative	*NA*	Negative
5	Rocuronium	**Positive**	Negative	*NA*	**Positive**	*NA*	*NA*
6	Rocuronium	**Positive**	**Positive**	Negative	*NA*	*NA*	Negative
7	Rocuronium	**Positive**	**Positive**	*NA*	*NA*	*NA*	Negative
8	Rocuronium	**Positive**	*NA*	*NA*	*NA*	*NA*	*NA*
9	Rocuronium	**Positive**	Negative	*NA*	*NA*	*NA*	*NA*
10	Cisatracurium	Negative	**Positive**	*NA*	Negative	*NA*	Negative
11	Cisatracurium	Negative	**Positive**	Negative	**Positive**	*NA*	Negative
12	Cisatracurium	Negative	**Positive**	Negative	Negative	Negative	Negative
13	Cisatracurium	Negative	**Positive**	***NA****	Negative	Negative	Negative
14	Cisatracurium	**Positive**	**Positive**	Negative	**Positive**	*NA*	*NA*
15	Atracurium	Negative	**Positive**	**Positive**	Negative	*NA*	*NA*

001612 | Penicillin allergy delabeling in Croatia – A pilot study

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*Presenting author: I. Marković

Background: Up to 10% of the population carries the label of penicillin allergy, which has been linked with overuse of second-line antibiotics and worse clinical outcomes. However, less than 10% of these labels can be confirmed by evaluation. Penicillin allergy delabeling initiative was started in 2022 at our center.

Method: Patients referred for penicillin allergy evaluation from May 6 until Feb 6, 2022 were included. Skin tests were performed with major (benzylpenicilloyl poly-L-lysine) and minor (benzylpenicilloate, penicillin G) determinants and amoxicillin+clavulanate, followed by oral provocation challenge. Specific IgE to penicilloyl G and penicilloyl V were also determined.

Results: Out of 47 patients with a history of penicillin allergy, two patients were delabeled directly and 45 patients underwent diagnostic evaluation. The median (IQR) age was 48 (38-64) years. Most patients (73.3%) reported a history of a remote reaction to penicillin (>10 years), and 17.8% experienced a recent reaction (<1 year).

Two patients had positive skin test: first patient with a recent immediate reaction had a positive intradermal test to amoxicillin+clavulanate (20 mg/mL); second patient with recent delayed-onset urticaria to amoxicillin+clavulanate had a positive intradermal test to benzylpenicilloyl poly-L-lysine (0.04 mg/mL), and positive sIgE to penicilloyl G and V. The label of penicillin allergy was maintained in another two patients due to the convincing history of immediate reaction, despite negative skin tests. One of those patients had positive sIgE to penicilloyl V.

Oral challenge with amoxicillin+clavulanate was performed in 33/45 (73.3%) patients, and none developed an immediate reaction. A single patient with a history of delayed reaction to amoxicillin+clavulanate and negative skin tests (immediate and delayed reading) developed a mild maculopapular rash seven days after 3-day oral challenge.

A total of 3 patients who underwent oral challenge were subsequently prescribed a course of amoxicillin, and all tolerated the drug.

Conclusion: Most patients with a history of penicillin allergy may safely be delabeled by oral challenge. In our cohort, skin tests were

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helpful in evaluating patients with recent immediate reactions, but clinical judgment remains essential for appropriately selecting patients for drug challenge and minimizing future risks.

Conflicts of interest: The authors did not specify any links of interest.

001459 | Skin rash or drug hypersensitivity reaction? The clinical de-labelling parameters

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*Presenting author: E. Anastasiou

Background: In the pediatric population, the highest proportion of skin rash that appears while taking antibiotics, especially beta-lactams, are due to viral/unknown etiology with characteristics mimicking and labelled as "drug allergy". The main objective was to identify clinical characteristics of low-risk children presented for drug hypersensitivity reactions (DHR) to antibiotics.

Method: We retrospectively analyzed data of children examined in a tertiary Allergy Center in Greece due to probable DHR with skin rash, within 2017-2022. Recorded parameters were: demographics, underline etiology and duration of antibiotic consumption, duration and characteristics of rash (maculopapular/urticaria), skin tests(ST), and drug challenge(DC). ST [Prick(SPT)/intradermal(ID)] were performed with non-irritated concentrations of antibiotics. Immediate reaction was within 2 hours and late after 6 hours from the antibiotic consumption. In case of a late reaction, instructions for a 5-days course administration of the culprit antibiotic were provided.

Results: 90 children were included, 53 males(57%), mean-aged 4.8 ±1.03 years. 95.5% of antibiotics were beta-lactams. Etiology for antibiotic consumption were: acute otitis media(38.9%), tonsilitis (28.9%), lower respiratory tract infection (10%), and staphylococcal infection (8.9%). Among ten children(11.1%) presented with a history of immediate reaction, 7 have positive ST to culprit antibiotic. STs and DCs were negative for all children presented with late reactions. DCs were not performed in children with positive ST/positive tryptase(>14ng/ml)-(n:3). (Table 1). Immediate vs late reactions presented differences in respect to mean time of administration 1 vs 5.7 ±1days, and mean time of skin rash duration 1 vs 5.3 ±1days.

Conclusion: Children with skin rash and prolonged antibiotic administration (3-8 days), duration of rash >24 hours, and without other organ involvement, suggest low-risk patients for DHR. In this group of patients, DC can be perform without ST.

Conflicts of interest: The authors did not specify any links of interest.

	Immediate reaction (n=10)		Late reaction (n=80)	
	Urticaria (n=2)	Anaphylactic reaction (n=8)	Maculopapular exanthem (n=46)	Urticaria (n=34)
Positive ST (SPT/ID)	2	5	0	0
Positive DC	Not performed	Not performed	0	0
Mean time of drug administration (days)	1	2	6.5, 95% CI [5.06, 7.94]	4.5, 95% CI [2.82, 6.18]
Mean time of rash (days)	1	1	5.6, 95% CI [4.16, 7.04]	4.9, 95% CI [3.19, 6.61]
Confirmation of DHR	2	8	0	0

001467 | Allergy to iodinated contrast media: Single-center retrospective study of 84 patients undergoing diagnostic cutireactions

S. Nicolosi; M. Liuzzi; M. Piantanida; L. Borgonovo; G. Scibilia; L. G. Balossi; S. V. Bernal Ortiz; V. Fabbri; G. Lasagni; Y. A. Arguello; C. Cordini; M. Cavara; E. Giacobbe; A. Botta; J. W. V. Schroeder

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*Presenting author: S. Nicolosi

Background: We investigated a population of 84 outpatients that had a previous reaction to Iodinated Contrast Media (ICM), to analyze relevant risk factors.

Method: Subjects underwent diagnostic skin reactions with ICM: SPT, ID and patch test. Descriptive analyses were reported as absolute and relative frequencies (for categorical variables) and as mean and median for continuous variables. Univariate and multivariate logistic regression models were implemented to test the association between categorical outcomes and the covariates of interest.

Results: 69% were women; mean age 54.7 years (median 57 years). 67.9% had a history of immediate reaction, 35.7% delayed reaction; of the latter, 80% developed symptoms within 48h of ICM administration. In immediate reactions group as age increased, the risk of allergic reaction decreased (about 4% per year of age). In the delayed reactions group, as age increased, the risk of allergic reaction increased (about 5% per year). 52% had positive history of cardiovascular disease, which was confirmed as the only significant risk factor for both immediate and delayed reactions ($p = 0.01$). Neoplastic patients showed a trend of increased allergy risk, although not statistically significant ($p = 0.06$), for both immediate and delayed reactions. No correlation emerged with atopic comorbidities and previous drug reactions. Only 9.5% of patients had had at least one other previous reaction to ICM; none of these patients had skin reactions. 75% manifested reaction despite antiH1 and steroid premedication.Among patients with positive skin reactions (19%), 50% were positive for culprit ICM only, 31% showed multiple positivities toward ICM belonging to the same class.Ioversol was found to be significantly correlated with lower risk of immediate reaction ($p = 0.03$). Cutipositivity significantly increased the risk of anaphylaxis ($p = 0.03$). Dyspnea was the more frequent symptom in immediate reactions ($p = 0.02$), while maculo-papular rash in the delayed reactions ($p = 0.01$). There was also one case of DRESS.

Conclusion: Our study is one of the largest single-center study in Italy. Data shows that skin reactions represent a fundamental step

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in the correct framing of patients with a history of previous hypersensitivity reaction to ICM, given the importance of the use of these molecules for both diagnostic and therapeutic purposes, and the possibility, albeit rare, of extremely severe, even fatal, anaphylactic reactions.

Conflicts of interest: The authors did not specify any links of interest.

001554 | Linguistic and psychometric validation of the Chinese version of the drug hypersensitivity quality of life questionnaire

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*Presenting author: H. W. F. Mak

Background: Health-Related Quality of Life (HRQoL) is an important and popular research topic in the field of allergy. Compared to asthma and food allergy, HRQoL research related to drug allergy remains sparse, partly due to a lack of validated instruments. In 2011, the Drug Hypersensitivity Quality of Life Questionnaire (DrHy-Q) was developed and validated in Italy. However, it is not currently available in Chinese. We aim to translate and validate a Chinese version of DrHy-Q to facilitate future research.

Method: A Chinese version of DrHy-Q was formulated after cross-cultural adaptation and linguistic validation. It was then completed by adult patients with drug allergy labels for psychometric validation. Its reliability was assessed using internal consistency (in Cronbach's α) and test-retest reliability (in intra-class correlation coefficient [ICC]). In terms of validity, construct validity was examined by factor analysis. To determine divergent validity, the validated Chinese (Hong Kong) version of the 36-Item Short Form Survey (SF-36) was co-administered with DrHy-Q and their correlation was tested by Spearman's correlation. Discriminant validity was evaluated based on clinical characteristics.

Results: Sixty-three patients (79.4% female; mean age = 57 ± 15 years) participated in the study and completed the Chinese DrHy-Q (mean score = 38.9 ± 23.5). The Chinese DrHy-Q demonstrated very good internal consistency (Cronbach's α = 0.956) and test-retest reliability (ICC = 0.993 [95% CI = 0.969-0.998]), indicating satisfactory reliability. Construct validity was confirmed by its one-dimensional structure revealed in factor analysis. Divergent validity was also established since only two (out of nine) SF-36 scales showed a weak negative correlation to DrHy-Q. Both (emotional well-being [Spearman's ρ = -0.390; $p = 0.002$] and social functioning [Spearman's ρ = -0.349; $p = 0.005$]) are related to mental health impairment. Patients with multiple implicated drugs presented significantly higher DrHy-Q scores, i.e. poorer HRQoL, than those with only a single drug (42.0 ± 22.5 vs 28.7 ± 24.4; $p = 0.038$), showing discriminant validity.

Conclusion: The Chinese version of DrHy-Q is a reliable and valid instrument for assessing the HRQoL of patients with drug allergy. Future larger-scale studies regarding allergy and HRQoL in Asia should be conducted.

Table 1 Spearman's correlation between DrHy-Q score and SF-36 scales

SF-36 scale	Spearman's ρ	p-value
Physical functioning	-0.205	0.107
Role limitations due to physical health	-0.180	0.157
Role limitations due to emotional problems	-0.216	0.089
Energy/fatigue	-0.245	0.053
Emotional well-being	**-0.390**	***0.002**
Social functioning	**-0.349**	***0.005**
Pain	-0.192	0.133
General health	-0.164	0.198
Health change	-0.208	0.102

DrHy-Q, Drug Hypersensitivity Quality of Life Questionnaire; SF-36, 36-Item Short Form Survey.

Conflicts of interest: The authors did not specify any links of interest.

001219 | Hypersensitivity reactions to gadolinium-based contrast agents (GBCAS): The experience from a Portuguese tertiary hospital

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Background: Contrast media (CM) are within the most used pharmacological agents since they increase specificity in diagnosis. Due to this incremental use, the description of hypersensitivity reactions to gadolinium-based contrast agents (GBCAs) has been increasing. The most frequent reactions described are immediate, mild and mostly with skin involvement. The frequent misrecognition of symptoms leads to a challenging and often delayed diagnosis, and to a still unknown real prevalence of these reactions. We aim to evaluate hypersensitivity reactions to GBCAs in a population referred to a tertiary hospital.

Method: Retrospective study including 36 patients followed in our outpatient clinic between 2014-2022, for suspected hypersensitivity reactions to GBCA. Data collected included demographics, culprit contrast media, clinical manifestations and severity, and treatment. Previous exposure to contrast agents was also analyzed.

Results: We included 36 patients (88.9% female ($n = 32$); mean age of 54.1 ± 16.0 years old [27-89]). Previous exposure to CM was reported in 12 patients (33.3%), 4 reporting preceding adverse reactions (11.1%). Atopy was present in 38.9% ($n = 14$) of patients. The most common GBCA agent identified was Gadobutrol ($n = 10$). In 23 events (63.9%) the culprit GBCA was not determined. Among the 30 patients with immediate hypersensitivity reactions, grade I reaction was the most reported (38.9%, $n = 14$). Delayed reactions were described in 6 cases and the majority occurred on the same day ($n = 3$) with maculopapular rash ($n = 3$) as the most common manifestation.

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Most patients were treated with corticosteroid and antihistamines ($n = 14$, 38.9%). Only 3 required intramuscular adrenaline (8.3%). Skin prick test (SPT) were positive in 5 patients (13.9%): Gadobutrol ($n = 3$) and Gadoxetate disodium ($n = 2$). One of these patients had also an intradermal test (IDT) positive to Gadoteric Acid. Patch tests were performed in seven patients, without positive results. Drug provocation tests and re-exposure analysis were not performed. These results are shown in table 1.

Conclusion: We found that most reactions were immediate, mild and mainly with cutaneous involvement. The most frequent GBCA involved was Gadobutrol, as described in previous studies. Even though anaphylaxis and mortality related to hypersensitivity reactions for GBCAs are rare, early recognition and management of these reactions are cornerstones to provide adequate medical care.

Clinical characterization of patients with hypersensitivity to gadolinium-based contrast agents.	
Patients – n	36
Gender – n (M/F)	4/32
Age (x±SD [min-max] years old)	54.1±16.0 [27-89]
Time between index reaction and consultation (x±SD [min-max] years old)	4.7±7.0 [0.1-24]
Presence concomitant diseases – n (%)	
Non-CM drug allergy	13 (36.1%)
Rhinitis	16 (44.4%)
Asthma	6 (16.7%)
Cardiopathy	6 (16.7%)
Diabetes mellitus type 2	3 (8.3%)
Pheochromocytoma	2 (5.6%)
Inflammatory bowel disease	2 (5.6%)
Previous exposure to CM - n (%)	
Exposure without reaction	8 (22.2%)
Exposure with reaction	4 (11.1%)
No exposure	24 (66.7%)
Culprit GBCA - n (%)	
Gadobutrol	10 (27.8%)
Gadoxetate disodium	2 (5.6%)
Gadoteric Acid	1 (2.8%)
Unknown	23 (63.9%)
Time of onset of reaction - n (%)	
<60min	28 (77.8%)
1 – 6h	3 (8.3%)
6-12h	1 (2.8%)
12-24h	0 (0.0%)
>24h	3 (8.3%)
Unknown	1 (2.8%)
Grade of reaction - n (%)	
I*	14 (38.9%)
II*	11 (30.6%)
III*	3 (8.3%)
IV*	2 (5.6%)
Delayed Reaction	6 (16.7%)
Positive GBCA skin tests - n (%)	
SPT	
- Gadobutrol	3 (8.3%)
- Gadoxetate disodium	2 (5.6%)
IDT	
- Gadoteric Acid	1 (2.8%)
Total of patients with positive skin tests	5 (13.9%)

Table 1: Clinical characterization of patients with hypersensitivity to gadolinium-based contrast agents. Abbreviations: M – masculine; F – feminine; N: total number of patients; x – mean value; SD – standard deviation; min – minimum; max – maximum; y- years old; GBCA: gadolinium-based contrast agent; CM: contrast media; * - according to Ring and Messmer Grading Scale.

Conflicts of interest: The authors did not specify any links of interest.

001088 | Drug-induced enterocolitis syndrome (DIES) due to amoxicillin-clavulanic acid in a pediatric patient

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Background: DIES is a rare, severe non-IgE mediated drug allergy, causing gastrointestinal symptoms, which was first described in 2014. Less than 10 cases are reported in children, mostly due to amoxicillin.

Methods: We present a 4 year-old male patient, affected by gastroesophageal reflux treated with lansoprazole and recurrent acute laryngitis and bronchial asthma treated with fluticasone propionate/salmeterol and montelukast, who referred 3 episodes of multiple vomiting per hour (more than 10), weakness, sometimes with diarrhea, with no cutaneous or respiratory affection, 60 minutes after the first dose of amoxicillin or amoxicillin-clavulanic acid prescribed to treat acute *otitis media* or respiratory infections during the previous 2 years.

Results: Skin prick test and intradermal test to PPL, MDM, amoxicillin-clavulanic acid were performed, with negative results.

Oral challenge with amoxicillin-clavulanic was performed in two doses of 50 mg and 500 mg. 90 minutes after the last dose, the patient presented with abdominal pain, nausea, vomiting and weakness, with no change on vital signs (BP: 87/51, HR:95%, Sat. O2: 99%, Temperature: 36,3°C).

Tryptase curve was determined 30 minutes after the onset of symptoms: 4.52 mg/L, 2 hours after: 4.01mg/L, and 6 hours after: 4.10 mg/L.

Paracetamol, ondansetron, and fluid replacement therapy were administered to the patient, as the treatment of DIES, with a complete symptomatic recovery within the 2 following hours.

Conclusion: We present a DIES due to amoxicillin-clavulanic acid in a pediatric patient.

Even though it is a non-IgE mediated allergy, the symptoms in DIES are immediate.

Although diarrhea might be a frequent gastrointestinal non allergic side effect to some drugs as clavulanic acid, DIES should be considered when the patient presents with other gastrointestinal symptoms, specially repeated vomiting within the first 90 minutes after the drug intake.

As DIES is considered a severe allergic reaction, an early identification is crucial to start an early correct treatment with fluid replacement and antiemetics in order to avoid further complications.

JM case reports session: 18244

Conflicts of interest: The authors did not specify any links of interest.

001215 | Flecainide induced maculopapular exanthema

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Background: Flecainide is an anti-arrhythmic agent widely used in cardiology for the treatment of rhythm disorders. The most commonly described adverse skin effects are urticaria, pruritus, flush and psoriasis. Here we describe the first case of maculopapular exanthema induced by this treatment.

Case: A 62-year-old male patient with a medical history of high blood pressure, arrhythmia, gastro-esophageal reflux disease and chronic pruritus presented a generalized maculopapular eruption, without

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signs of organic damage, 15 days after initiation of a cardiac treatment combining flecainide, candesartan and nebivolol, which disappeared slowly with desquamation over 15 days and was treated with a course of topical corticosteroids. Histological analysis of affected skin was consistent with eczema-like lesions as well as some foci of keratinocytic necrosis, in favor of maculopapular exanthema–type drug hypersensitivity.

Results: Epidermal tests were performed with the suspected drugs and read at 72 hours. A delayed drug hypersensitivity to flecainide was confirmed by a strongly positive patch test at 10 mg/ml. Patch tests with candesartan and nebivolol, each performed at 30 % dilution in water as well as 30 % dilution in petrolatum, remained negative, as well as the skin irritation control test lauryl sulfate. Reintroduction of nebivolol was well tolerated thereafter.

Discussion: Only one case of delayed hypersensitivity to flecainide has been described so far in a 69-year old man presenting with a fixed drug eruption several weeks after initiation of oral flecainide. In this case, flecainide therapy could be maintained along with topical corticosteroid treatment of the skin lesions.

Conclusion: Our case illustrates that flecainide induced delayed hypersensitivity in form of maculopapular exanthema is an extremely rare but possible side effect of this drug. It should be investigated by epidermal testing, our experience suggesting a sensitivity of patch tests at concentrations of 10 mg/ml.

JM case reports session: 18244

Conflicts of interest: The authors did not specify any links of interest.

001379 | Direct oral anticoagulants hypersensitivity; when new trends bring new problems, we find solutions

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Background: Direct oral anticoagulants (DOACs) have become alternatives to the long-standing standard of care in anticoagulation, vitamin K antagonist. DOACs are indicated for prevention and treatment of thrombosis in several cardiovascular conditions. They are categorized into two main classes: oral direct factor Xa inhibitors (ie, rivaroxaban, apixaban, edoxaban, and betrixaban) and direct thrombin inhibitors (ie, dabigatran). While they have fewer associated adverse events compared to warfarin, DOAC-induced hypersensitivity is rare.

Method: We report a case of apixaban-induced immediate urticaria in a 57-year-old man with pulmonary embolism. During hospitalization his anticoagulant with low molecular weight heparin (LMWH) was converted to apixaban after going home. He experienced an urticarial rash around his chest, back and belly extending into his arms one hour after the intake of apixaban´s second dose. Symptoms subsided 48 hours after oral antihistamines administration. After being referred to the Allergy Department, we performed controlled oral challenges with rivaroxaban (2.5 mg) and dabigatran (150 mg) under surveillance in the intensive care unit.

Results: Rivaroxaban controlled oral challenge reproduced the same symptoms after 70 minutes. Nonetheless, our patient showed good tolerance to dabigatran and has taken it for one month without incidences. During the meantime from the reaction until the oral challenge he received LMWH.

Conclusion: Hypersensitivity reactions to DOACs may become more frequent given the increasing use of them in the clinical practice. Delayed hypersensitivity reactions to DOACs have been reported so far, being immediate reactions less frequent. Cross-reactivity between factor Xa inhibitors and direct thrombin inhibitors has not been described so far, which opens the possibility of therapeutic alternatives.

Conflicts of interest: The authors did not specify any links of interest.

001160 | Hypersensitivity drug reactions in older adults – a single center experience

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Background: Due to the increased frequency of chronic pain (myalgia, arthralgia, headache, etc.), chronic diseases, surgery, and malignancy with age, drug use in the elderly are quite common. This study aims to observe drugs likely to be associated with allergic reactions in the elderly.

Method: We retrospectively evaluated patients over sixty-five who applied to Meram Medical Faculty, Department of Clinical Immunology and Allergy between June and December 2022 and who were considered to have drug allergies and plan for testing or treatment. Data about drug intake, comorbidities, clinical presentation, and treatment plans were collected.

Results: A total of 113 patients were included in the present study. The median age was 68 years (IQR, 65-81 years), and 79 (69.9%) were female. Most of the patients were admitted with cutaneous symptoms, urticaria ($n = 69$, 61.9%), angioedema ($n = 34$, 30%), and respiratory symptoms 20 ($n = 20$, 17.6%). The most frequently observed culprit drug group was nonsteroidal anti-inflammatory drugs ($n = 45$, 39.8%), but beta-lactam antibiotics were also at a substantial level (31. 27%). At the same time, 17 (15%) patients could not remember which drug caused their reaction or when, 27 patients (23.8%) described reactions to more than one drug. Multiple metabolic diseases were an independent risk factor for multiple drug allergy (OR = 4.475, 95% CI = 1.752-11.427; $p = 0.002$) and anaphylaxis (OR = 6.301, 95% CI = 1.495-26.563; $p = 0.012$). Female patients were likelier to have psychiatric diseases such as depression, anxiety, and

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panic disorder. However, there was no significant association between these diseases and multi-drug allergy or anaphylaxis.

Conclusion: Possible drug interactions related to taking multiple drugs in the elderly with multiple metabolic diseases may facilitate allergy development. Epidemiological observational studies in drug allergies can guide appropriate prescribing in this age group.

Culprit Drugs	Frequency	Approach
Nonsteroidal anti-inflammatory drugs	45	Alternative drug provacation (AD)
Beta-lactams	31	Prick test/intradermal test (Spt/IDT) or AD
Local anesthetics	11	Spt/IDT
Radiocontrasts	4	Spt/IDT
General anesthetics	5	Spt/IDT
Chemotherapeutic	2	Desensitization
Topical anesthetics	2	Patch Test
Spinal anesthetics	1	Spt/IDT
Macrolides	1	Spt/IDT and/or Provacation
Quinolone	6	Spt/IDT and/or Provacation or AD
Doesn't remember	17	AD
Proton pump inhibitors	2	Spt/IDT and/or Provacation
Ornicid	1	AD
İnsulin	2	Spt/IDT and/or Provacation
Anti-tuberculosis drugs	1	Desensitization
Methotrexate	1	AD
Thalidomide	1	Validation
Daratumumab	1	Desensitization
Cyclophosphamide	1	Desensitization
Tocilizumab	1	Validation
Opioid	1	AD
Antihistamines	1	AD
Muscle relaxant	4	AD

Conflicts of interest: The authors did not specify any links of interest.

001190 | Immediate hypersensitivity to gadolinium contrast agents: Case-reports

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*Presenting author: M. Gomes

Background: Gadolinium contrast (GC) agents have been widely used improving MRI accuracy and are extremely safe. Physiological reactions are the most common adverse events, however immediate hypersensitivity reactions have been described (rate 0,079%) with urticaria and/or angioedema in up to 0,7%, but only less than 0,01% are severe.

Case-reports: We present 4 patients followed in our clinic (2018-2022) to investigate GC allergy. 87 years old female with lung neoplasia performed in november 2015 a chest MRI with intravenous gadobutrol and during its administration developed a 4-grade anaphylaxis with cardiorespiratory arrest. 56 years old male with cervical spine neoplasia, 15 seconds after gadobutrol administration during a follow-up brain MRI had an anaphylactic reaction (urticaria and hypotension), recovering after intramuscular adrenaline. 62 years old, female with breast cancer developed urticaria and palpebral angioedema 5 minutes after performing an ear MRI with gadobutrol. This episode resolved with intravenous antihistamine and corticosteroid. 58 years old male, with brain metastasis secondary to renal neoplasm, performed in september 2022 a brain MRI with gadobutrol and 5 minutes after administration had an anaphylaxis with syncope, hypotension and desaturation resolved after intramuscular adrenaline. At the consultation skin tests were performed with 3 GC: gadobutrol 1mmol/m, gadoteric acid 279.32mg/mL and disodium gadoxetate 0.25mmol/mL. The first two cases had positive skin prick tests (SPT) for gadobutrol and negative SPT and intradermal tests (IDT), 1/10 dilution, for the other 2. The third case had positive SPT for gadobutrol and negative for the other 2 GC. IDT were positive for gadoteric acid and negative for disodium gadoxetate. The fourth case had positive SPT for gadobutrol and gadoteric acid. SPT and IDT were negative for disodium gadoxetate.

Discussion: Gadobutrol is a non-ionic macrocyclic CM with low rate of immediate reactions. Regarding the investigation, the clinical history and skin tests help performing diagnosis and to identify safe alternatives as cross-reactivity can occur. First two patients need to avoid gadobutrol but can perform MRI with 2 other GC alternatives. The last two patients should avoid gadobutrol and gadoteric acid but can use disodium gadoxetate.

JM case reports session: 18243

Conflicts of interest: The authors did not specify any links of interest.

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001471 | Angioedema caused by selective allergy to articaine

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Background: Local anesthetics (LA) are widely used for the treatment and prevention of localized pain. Although adverse reactions are common, those caused by LA hypersensitivity are the least frequent. Among the amide derivatives, only Articaine has a thiophene ring in its structure, and there are not many publications on specific sensitization to this LA in the literature.

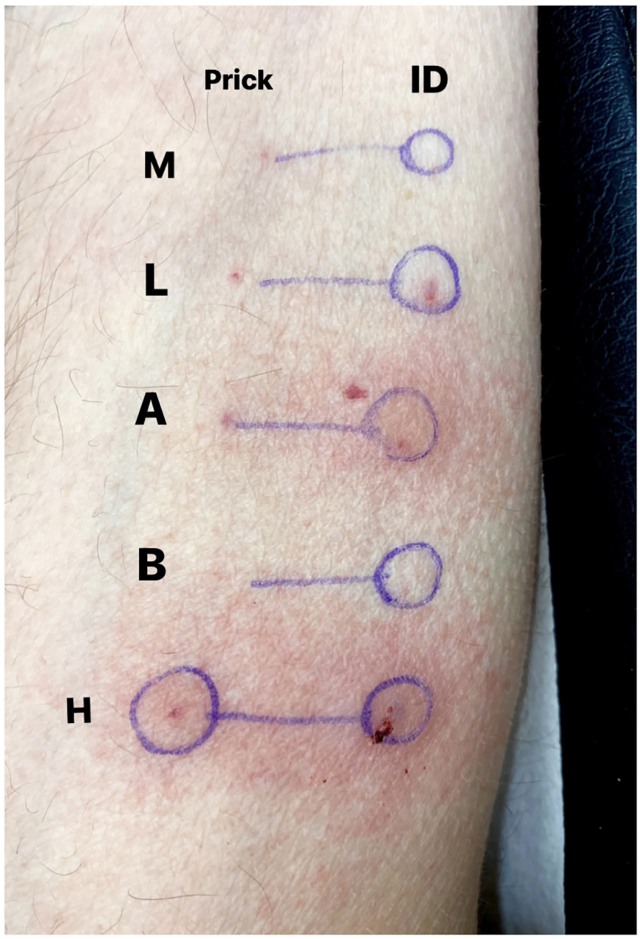
Method: 52 year old woman with a history of breast cancer in remission. She attended for 2 episodes of facial angioedema and local pruritus without associated urticarial lesions after the administration of LA at the dentist (first episode with 24h latency and second episode with 3h). No other symptoms. Both reactions subsided spontaneously in less than 24h. The patient did not know which LA were administered. She denied any problems with latex or cosmetic products. No other allergic problems.

Results:

- Skin test (ST) with environmental allergens and latex: Negative.
- ST (prick and intradermal) with mepivacaine (M), lidocaine (L), articaine (A) and bupivacaine (B), with immediate measurement and after 24h: Positive for articaine after 15 minutes in the intradermal test (Figure 1).
- Provocative tests are performed with increasing administrations (0.1, 0.5, 1 and 2 ml) of lidocaine, mepivacaine and bupivacaine: good tolerance.

Conclusion:

- Selective sensitization to articaine was evidenced, demonstrating tolerance to the rest of amides derivatives tested.
- Although cross-reactivity between amides derivatives is infrequent, whenever ST are negative, a provocative test with at least another alternative LA should be considered to confirm tolerance.



Conflicts of interest: The authors did not specify any links of interest.

001483 | Long-lasting reactivity to amoxicillin in infectious mononucleosis

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Introduction: Amoxicillin-induced exanthemas in young adults with an Epstein-Barr virus (EBV) infection is a well-known clinical phenomenon, nevertheless an aminopenicillin-specific immune reaction may develop during an infectious mononucleosis.

Methods: In 2012 we presented a case of multiple drug hypersensitivity (aminopenicillins, metamizole and proton pump inhibitors) in a teenager who suffered an infectious mononucleosis. Ten years after de first episode he was referred again for a mild and transient rash coinciding with taking ibuprofen.

Results: In 2012 we obtained at 24 hours very positive intradermal tests with amoxicillin and ampicillin that overlapped with the other penicillins. We assumed benzylpenicillin intradermal test was

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negative. A challenge test with cefuroxime was negative, we did not perform a challenge test with penicillin.

In 2022 skin tests (intraepidermal, intradermal and epicutaneous) and oral challenge test with ibuprofen were negative.

Skin tests with penicillins were done again in 2022, and we obtained a more intense localized bullous reaction at 24-48 hours for amoxicillin and ampicillin and negative for benzylpenicillin. A challenge test with phenoxymethylpenicillin was negative.

Conclusion: We present a case of persistence of delayed aminopenicillins reactivity in a patient with multiple drug hypersensitivity co-stimulated by VEB. The chronicity of SMHF is based on the permanent presence of activated T cells.

JM case reports session: 18244

Conflicts of interest: The authors did not specify any links of interest.

ENT 2

000631 | Could ANTI IL-5 therapy have a role in regulation of gut epithelial barrier integrity? A case report

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Background: The role played by loss of intestinal barrier integrity and dysbiosis in the pathogenesis of autoimmune and inflammatory pathologies is well known.

Inflammatory bowel diseases are among the main causes of leaky intestinal barrier and dysbiosis, therefore the association of these with other inflammatory or autoimmune diseases is not rare.

Case report: A case of a 34-year-old man is here described. He was diagnosed with ulcerative colitis (UC) in 2004, treated with mesalazine 1200 mg 3 times a day and steroid therapy as needed with good control of the clinical symptoms.

On February 2019 the patient presented pulmonary microembolism in the absence of known thrombophilic factors, so he had been on anticoagulant therapy until May 2019. Since that no further episodes of thromboembolism occurred.

For worsening of abdominal pain, in 2019 the patient underwent abdominal TC scan, which showed the presence of chronic stenosis of sigmoid colon and rectum. The colonoscopy showed macroscopic remission of the UC (Mayo 0), although the histological examination detected eosinophilic infiltrate in all the colonic biopsies. Faecal calprotectin (FC) was 1240 mg/Kg. In 2021, a new colonscopy confirmed the histological findings.

Since adolescence, the patient was affected from chronic rhinosinusitis (CRS) with nasal polyposis, so in 2015 he underwent functional endoscopic nasal surgery but in 2021 a recurrence of nasal polyposis occurred.

Considering the blood eosinophil count (0.45x10^9 cells/L), the serum ECP level (49.6 µg/L) and the presence of anosmia, that impaired patient quality of life, therapy with anti-IL-5 monoclonal antibody (mepolizumab 100 mg every 4 weeks) was started on April 2022.

As expected, after 6 months of therapy, rhino-sinusal symptoms improved, with almost complete recovery of smell and reduction of the polypoid mass.

Interestingly, a new colonoscopy showed reduction of colon inflammatory infiltrate, FC reduced to 30 mg/Kg and no gastrointestinal (GI) symptoms were reported, so therapy with mesalazine was discontinued.

Patient informed consent to publish the case was obtained.

Conclusion: Mepolizumab treatment improved GI symptoms in a young patient affected from UC and CRS with relapsing nasal polyps. This case confirms the link between epithelium barrier disruption and inflammatory disorders. In this context anti IL-5 drug may contribute to restore barrier integrity through cellular and cytokines rebalance.

JM case reports session: 18244

Conflicts of interest: The authors did not specify any links of interest.

001013 | Dual monoclonal antibody therapy in a patient with uncontrolled severe chronic rhinosinusitis with nasal polyps and eosinophilic asthma

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*Presenting author: M. Blauwblomme

Introduction: Chronic rhinosinusitis with nasal polyps (CRSwNP) is predominantly characterized by a type 2 inflammation including interleukin (IL)-4, IL-5 and IL-13 and infiltrations of the nasal polyps by eosinophils, basophils and mast cells. In a subgroup of patients with severe type 2 CRSwNP, typically associated with comorbid late-onset asthma and disease recurrence after surgery, disease control cannot be achieved by existing standard of care. Novel therapies, namely monoclonal antibodies, directly target this type 2 inflammation and are effective in improving disease control. However, a subset of patients shows a suboptimal response with continued need for rescue medication. Little is known about combining biologicals beyond a few case reports and case series for asthma patients. We

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investigated the efficacy of dual antibody therapy in a patient with uncontrollable, severe CRSwNP.

Case study: A corticosteroid-dependent patient with uncontrolled severe CRSwNP and late onset eosinophilic asthma, with a blood eosinophilia of 1.52×10^9/L, was treated with anti-IL-5 since January 2018. However, after 4 years of treatment, there was no effect on upper airway symptoms and a continuous need for systemic corticosteroids, multiple antibiotic courses and sinus surgeries were observed. The treating specialists decided to initiate anti-IL-4/IL-13 as add-on treatment in May 2022.

Results: After 6 months of dual antibody therapy, a distinct improvement in both subjective and objective outcomes was observed. The patient experienced a significant reduction in the upper airway symptoms for the first time in 8 years with the complete tapering of chronic systemic corticosteroids. We describe the clinical data, analysis on serum, nasal secretions and the observations of the mRNA expression analysis of nasal polyps by single nuclear RNA sequencing (snRNA-seq), which showed the gene expression changes after treatment.

Conclusion: We describe a difficult-to-treat patient with severe CRSwNP and late onset eosinophilic asthma who was treated with dual antibody therapy of anti-IL-5 and anti-IL-4/IL-13. Add-on therapy with anti-IL-4/IL-13 may provide a beneficial effect in some patients with severe CRSwNP already being treated with an anti-IL5 monoclonal antibody. The combination of these biologics provides coverage of multiple pathways of the type 2 underlying inflammation.

JM case reports session: 18243

Conflicts of interest: C. Bachert has received consulting fees, honoraria for lectures and/or research funding from ALK, AstraZeneca, Genentech, GSK, Novartis, Regeneron, Roche, Sanofi-Genzyme.P. Gevaert has received consulting fees, honoraria for lectures and/or research funding from 3NT, ALK, Argenx, AstraZeneca, Genentech, Hall Allergy, Medtronic, Novartis, Regeneron, Roche, Sanofi-Genzyme, Stallergenes Greer.

001581 | Influence of oral doxycycline on wound healing after functional endoscopic sinus surgery for chronic rhinosinusitis with and without nasal polyps: A double-blind randomized placebo-controlled trial

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*Presenting author: E. Vandewalle

Background: Chronic rhinosinusitis with (CRSwNP) and without (CRSsNP) nasal polyps is an inflammatory disease of the sinus mucosa with structural remodeling. Functional endoscopic sinus surgery is necessary when standard medical treatment proves to be insufficient. Tetracyclines have been demonstrated to be beneficial in tissue remodeling. The aim of this study was to examine the effect of postoperative doxycycline on wound healing and inflammation in the tissue, reflecting tissue remodeling.

Method: A total of 33 patients with ($n = 21$) and without ($n = 12$) nasal polyps undergoing sinus surgery were randomly assigned in a 1/1 ratio to receive either doxycycline 200 mg on day one followed by 100 mg once a day until 56 days postoperatively or placebo. Subjects were evaluated at baseline (day of surgery) and on weeks 2, 4, 8, 12, 16, 24 and 48 after surgery. The wound healing was measured using an endoscopic postoperative wound healing score evaluating swelling, width, fibrin, infection, crusting and scarring of the sinuses, with higher values indicating worse healing quality. Subjective clinical outcomes were measured using questionnaires (SNOT-22, VAS, RSOM-31, SF-36). Inflammatory markers were analyzed in serum (ECP, total IgE) and nasal secretions (ECP, total IgE, MPO, MMP-9) on all visits. In addition, a possible predictive value of inflammatory markers on postoperative wound healing was analyzed using a correlation matrix.

Results: Treatment failure, defined as the need for rescue medical treatment and/or surgery because of healing problems, was significantly higher in the placebo group during the interventional period. This remained significant until 24 weeks postoperative, but not over the entire follow-up period of 48 weeks ($p = 0.065$). The median number of weeks until treatment failure for the placebo group was 8 weeks compared to 24 weeks for the doxycycline group. As evaluated by endoscopy, median postoperative score for crusting was higher for the placebo treated group until 24 weeks, for swelling until 12 weeks, for obstruction until 8 weeks and for fibrin until 2 weeks. Scarring occurred sooner (8 vs. 12 w) and resolved quicker (12 vs. 24 w) in doxycycline. However, none of these results proved to be significant. The median total wound healing score (TWHS) is higher in the placebo group until 12 weeks postoperatively, although non-significant. However, in CRSwNP, the TWHS is significantly lower in doxycycline at 2 and 4 weeks postoperatively compared to placebo. Symptom scores using SNOT-22, VAS and RSOM-31 showed a significant decrease compared to baseline for both placebo and doxycycline, SF-36 did not. After an initial increase at 2 weeks postoperatively, nasal inflammatory markers decreased again. No significant difference in the change from baseline of inflammatory markers between the placebo and doxycycline group could be found in nasal secretion or serum. CRSwNP receiving doxycycline showed a positive correlation between preoperative nasal inflammatory markers MPO, MMP-9 and total IgE and postoperative TWHS at 4 weeks ($n = 9$).

Conclusion: Doxycycline could not significantly reduce the TWHS in CRS patients. Post-hoc analysis on nasal polyp patients indicates a beneficial role for doxycycline on wound healing in this subset of patients.

Conflicts of interest: The authors did not specify any links of interest.

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000528 | Co-morbidities of rhinitis and rhinosinusitis patients in children and adults

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Background: There is still limited knowledge of comorbidities associated with pediatric chronic rhinosinusitis (CRS) and how they differ from the adult form of CRS. The aim was to evaluate pediatric and adult CRS: relative proportion of different phenotypes, comorbidities, and baseline endoscopic sinus surgery. We hypothesised that different comorbidities are associated with pediatric and adult-type CRS.

Method: This study consisted of hospital registry data of a random sample of rhinitis and rhinosinusitis patients (age range 0-89 years) with the diagnosis of J32, J33 or J01 registered during outpatient visits from 2005 to 2019 ($n = 1616$). The covariates of interest were collected from electronic health records based on ICD-10 codes and keyword searches.

Results: Children: Among pediatric patients ($n = 126$), the relative proportion of CRS without nasal polyps (sNP), CRS with nasal polyps (wNP), and recurrent acute rhinosinusitis (RARS) were 69%, 12%, and 17%, respectively. The most common comorbidities were allergy (53%), asthma (41%), mental health disorders (37%), other chronic pulmonary diseases (30%), musculoskeletal diseases (27%), and cardiovascular diseases (25%). Chronic otitis media existed in 20% and tonsils disease in 19% of cases.

Adults: Among adult patients ($n = 1490$), the relative proportion of patients with CRSsNP, CRSwNP and RARS were 54%, 36%, and 8.9%, respectively. The most common comorbidities in adults were musculoskeletal diseases (45%), cardiovascular diseases (40%), asthma (37%), allergy (32%), and other chronic pulmonary diseases (31%).

Middle meatal antrostomy (DMB20) was the most common baseline surgery performed in both children and adults.

Conclusion: The most common comorbidities amongst pediatric and adult patients with CRS were partly dissimilar. Chronic otitis media and tonsils disease was detected in one in five children. In contrast, these diseases affected less than 5% of adults. Allergy and asthma were prevalent comorbidities in both children and adults.

Conflicts of interest: S. Toppila-Salmi reports consultancies for ALK-Abelló, AstraZeneca, ERT, GSK, Novartis, Sanofi, and Roche Products outside the submitted work, as well as grant of GSK outside the submitted work. All other authors declare no conflicts of interest.

001387 | The 24-H cardiac autonomic activity in patients with allergic rhinitis

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Background: The definitive knowledge for 24-h cardiac autonomic activities in patients with allergic rhinitis (AR) is lacking. This study was aimed to evaluate the heart rate variability (HRV) which is used to measure the cardiac autonomic modulation by 24-h Holter monitoring in patients with AR.

Method: We enrolled 26 patients who visited our clinic and diagnosed as AR. The control group ($n = 104$) was selected by matching (Age, Sex, Hypertension, and diabetes) the AR group 4-fold in a health checkup of department of cardiology. The results of HRV which was measured by 24-h Holter monitoring were compared between AR and control group.

Results: All the time domain parameters of HRV showed no differences between groups. However, among the frequency domain parameters of HRV, low frequency (LF) to high frequency (HF) ratio and low frequency power in normalized units (LFnu) were significantly lower in AR group. Inversely, high frequency power in normalized units (HFnu) were significantly higher in AR group. In the multiple regression analysis, AR was independently associated with sympathetic withdrawal (adjusted odds ratio = 3.393, $p = 0.020$) after adjusted for age, sex, hypertension, diabetes mellitus, and hyperlipidemia.

Conclusion: The results of this study presented sympathetic withdrawal and parasympathetic predominance in patients with AR compared to the normal population during 24-h.

Conflicts of interest: The authors did not specify any links of interest.

001616 | COVID-19 and antihistaminic drugs – the ENT perspective

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Background: COVID-19 pandemic represented a turning point in the approach towards infectious diseases. The collective effort of healthcare professionals produced various guidelines for the management of COVID-19 both in acute and post-acute phase. However, there are still debates regarding the management of long COVID-19 symptoms.

We initiated treatment with antihistamine drugs in a series of 28 cases with persistent smell loss after COVID-19, to improve the

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efficacy of the treatment regimen with nasal spray corticoids and neurotropic vitamins.

Method: We recorded the patient's demographic data, associated symptoms, personal auto evaluated level of hyposmia. We did not enlist cases with previous history of allergy or self-administering antihistamine drugs. Olfactory function was assessed on a 100 mm Visual Analogue Scale (VAS), with 0 mm as "the worst possible sense of smell" and 100 mm as "the best possible sense of smell" at the beginning and at the end of the treatment.

Results: At the end of the 1-month treatment regimen associating antihistamines and nasal corticosteroids and neurotropic vitamins, 13 cases recovered the smell function almost at the level considered before the COVID-19 episode, 6 cases reported improved in diminishing hyposmia, but 9 cases recorded no improvement.

Conclusion: Our small study group benefited from the use of antihistamines in treating persistent hyposmia after COVID-19. Extending our study on a broader group of patients is necessary. Antihistaminic drugs could be included in the guidelines according to our study on a small group of patients with long COVID-19 associated hyposmia. Persistent hyposmia after COVID-19 seems to have underlying allergic mechanism

Conflicts of interest: The authors did not specify any links of interest.

ENVIRONMENTAL ALLERGY AND CLIMATE CHANGE + OCCUPATIONAL ALLERGY 2

001308 | Changes of early allergenic pollen season pattern over 3 decades in Luxembourg

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Background: Analyse the trends in the atmospheric Corylus and *Alnus* pollen concentrations in Luxembourg in the context of climate change (regular increase in mean yearly temperature)

Method: Since 1991, the team of the aerobiological station in Luxembourg has regularly monitored atmospheric pollen concentrations between January and end September by means of a Hirst-type 7-day volumetric pollen sampler, situated 20 m above ground, an altitude 322 m above sea-level, at latitude 49°37'6.2436 longitude 6°6'2.34 E. Pollen was analysed according to the guidelines of the European Aerobiology Society. Weather data were obtained from Copernicus ERA5 dataset. The total taxon-specific airborne pollen counted during a year is expressed as the total annual pollen integral (API). Season start and end were defined using 4 different percentile and 3 different threshold methods. Trend analysis was carried out using the Theil-Sen method.

Results: Trend analysis of the APIn of Corylus pollen suggests that the hazel pollen produced in a season increased by 185% over the study period of 3 decades ($p = 0.017$), while the Alnus APIn increased by 74% ($p = 0.088$). Corylus shows a trend towards earlier season start dates over the time frame of the study, 2-4 weeks earlier according to all the definitions. However, the corresponding season end is stable. For Alnus, the pollen season also displays a trend to start at an earlier day of the year, the end being stable according to most definitions. Trend analysis of seasonal temperature data show increased temperatures over the study period during the months of September, October, November, December, in line with our observation of earlier pollination start of Corylus and Alnus. The absence of a similar temperature increase for February and March might contribute to the absence of earlier pollen season ends for these trees.

Conclusion: For the early flowering trees *Corylus* and *Alnus* which pollinate in winter there is a significant trend towards higher annual pollen integrals and an earlier season start, a longer duration which is in line with a clear trend for an increased temperature during the months of September, October, November, December preceding the *Corylus* and *Alnus* pollen seasons.

Conflicts of interest: The authors did not specify any links of interest.

001118 | Assessing latex allergy among healthcare workers

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Background: Health care workers are one of the main groups at risk of developing latex allergy. Data on the Algerian population are limited. The objective of this study was to evaluate the prevalence of hypersensitivity and allergy to latex among health care workers at the University Hospital of Beni Messous, Algiers, Algeria, in order to establish preventive measures.

Method: We collected 182 persons among the medical staff whose professional activity requires the regular wearing of latex gloves. All participants completed a questionnaire detailing data related to latex exposure. Specific IgE to latex was measured for all participants. In case of a positive result, the assay was completed by specific IgE antibodies to CCD, pneumallergens and trophallergens. These assays were performed by chemiluminescence on the IMMULITE 2000 XPI®.

Results: 62.6% of the participants reported clinical manifestations related to the wearing of gloves. Cutaneous symptoms were predominantly reported in all participants. In addition, 2 patients had respiratory symptoms (rhinitis and asthma). The onset of latex hypersensitivity reactions was not related to the years of professional experience, frequency of glove use or time of exposure ($p = 0.743$, $p = 0.746$ and $p = 0.901$ respectively). However, latex hypersensitivity reactions were more common in individuals with a family or personal history of hypersensitivity. Latex-specific IgE tests were positive in five participants. Three of them had symptoms when wearing the latex gloves and were therefore defined as allergic. The other two were asymptomatic. Among the latex-allergic patients, only one case of latex-fruit syndrome was found.

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Conclusion: In our study, the prevalence of latex hypersensitivity was 62.6% but the prevalence of type I allergy was lower (1.6%).
Conflicts of interest: The authors did not specify any links of interest.

FOOD ALLERGY 2

000539 | Clinical pattern of patients with LTP syndrome and absence of mugwort and plane tree sensitization

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Background: Non-specific Lipid Transfer Proteins (nsLTPs) in plant foods and pollens cross-react with each other, causing sensitization and ultimately clinical symptoms to multiple plant derived foods. In particular, pollens from Artemisia vulgaris and Platanus acerifolia show cross-reactivity via nsLTPs with especially the Rosaceae family.
Method: 61 patients with LTP sensitization were included. Skin prick tests (SPTs) with aeroallergens, SPTs and prick-to-prick with foods (including peach) then performed. Diagnosis was based on clinical history, skin tests and detection of sIgE and/or CRDs. The aim of this retrospective study was to describe clinical patterns/characteristics of patients with LTP, but without sensitization to Mugwort and Platanus.
Results: 16/52 were negative to both Artemisia and Platanus. They mainly had sensitizations to Grasses (14/16), Olea (9/16), Parietaria (8/16), Cupressus (7/16), Dandelion/Plantain (3/16). Within this group, a subgroup of 4 patients having Pru p 3(-) was observed. The latter group show systemic reactions to more than one foods such as peach, apple, strawberry and fig. All mention co-factors (exercise, NSAIDs, fasting). In addition, all of them have peach sIgEs detected by SPTs/Prick-to-Prick/RAST, yet they are Pru p 3 negative. Two of these patients, despite showing co-sensitization to PR-10, experienced anaphylaxis, instead of the mild reactions that would be expected based on current literature. In these cases, sensitization to Pru p 7, a protein of the Gibberellin-regulated proteins (GRP) family, was thought to be involved in the severity of the reactions. Pru p 7 sensitization is more common in areas where high exposure to cypress pollen occur. Molecular testing can distinguish sensitization between Pru p 3/Pru p 7, as they have similar molecular weight and are both contained in peach extracts.
Conclusion: Although sensitization to Mugwort and Platanus is common in individuals with LTP syndrome, nsLTPs contained in other pollens, may play a key role in some patients, especially in areas with increased exposure. In patients with SPT (+)/RAST (+) to cypress, peach and in vitro sIgE(-) to Pru p3,a diagnosis of Pru p7 allergy is likely.
Conflicts of interest: The authors did not specify any links of interest.

000574 | Food-induced anaphylaxis among adults and children: A Taiwan tertiary hospital experience from 2001 to 2020

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Background: Little is known regarding food-induced-anaphylaxis in Asia. We aimed to investigate the clinical characteristics of food-induced-anaphylaxis in adults as compared to children in terms of triggers, clinical features, and treatments.
Method: We conducted an observational and descriptive study of all anaphylaxis patients in Chang Gung Memorial Hospital, the largest tertiary hospital in Taiwan, from 2001 to 2020. Cases were considered anaphylaxis based on National Institute of Allergy and Infectious Diseases/Food Allergy and Anaphylaxis Network criteria. Data on triggers, clinical features, and treatments of food-induced-anaphylaxis was recorded and compared between adults and children (<18 years).
Results: We identified 287 food-induced anaphylaxis episodes over a 20-year period, with 182 (63.4%) occurred in adults. The top 3 common triggers of food-induced anaphylaxis in adults were seafood (52.8%), fruit (9.3%), and wheat (3.9%), while the top 3 common triggers in children were seafood (37.1%), egg (18.1%), and cow's milk (7.6%). The most frequent clinical manifestations were mucocutaneous symptoms (98.4% in adults vs. 98.1% in children, $p = 0.87$), followed by respiratory symptoms (79.1% in adults vs. 83.8% in children, $p = 0.33$). Cardiovascular (79.7% in adults vs. 48.6% in children, $p < 0.01$) and neurological symptoms (44.0% vs. 27.6%, $p = 0.01$) are more common in adults than in children. Epinephrine was administered in 61.3% of adults and 57.7% of children ($p = 0.55$). Regarding other treatments, adults were more likely than children to receive antihistamines (95.0% vs. 82.7%, $p < 0.01$), corticosteroids (86.2% vs. 70.2%, $p < 0.01$), and inotropes (3.9% vs. 0%, $p = 0.04$).
Conclusion: This study in Asia demonstrates that seafood, fruit, and wheat were the most common triggers of food-induced-anaphylaxis in adults, while the most common triggers in children were seafood, egg, and cow's milk. When compared to children, adults with food-induced anaphylaxis were more likely to present with cardiovascular and neurological symptoms. A significant proportion of both adults and children with food-induced anaphylaxis did not receive epinephrine in real-world practice.
Conflicts of interest: The authors did not specify any links of interest.

000602 | Limpet molecular profile: Tropomyosin or not tropomyosin, that is the question

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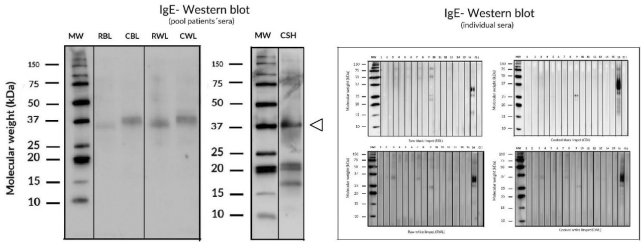
Background: Seafood is one's of the most important causes of food allergy and anaphylaxis worldwide. Its prevalence depends on the geographical area due to the seafood consumption. In Spain, shellfish is the third cause of food allergy in adults. However, the gastropod allergy is less studied and nowadays, the allergen involved in monosensitized patients is only suggested in short series of patients.
Method: A cohort of patients with confirmed diagnosis of limpet allergy was selected in our Allergy outpatient clinic: a positive clinical history and specific IgE detection, by a positive skin prick by prick with natural limpet and/or specific IgE to terrestrial gastropod (snail). We analyzed the molecular sensitization profile through ALEX^2 platform (MacroArray Diagnostics, Vienna, Austria) and Western blot with raw black limpet (RBL), cooked black limped (CBL), raw white limpet (RWL) and cooked white limped (CWL).
Results: Over a period of 12 months, we recruited a total of 16 patients with confirmed diagnosis of limpet allergy, with good tolerance to the other shellfish. The clinical symptoms, opposed to other shellfish allergies described, appear later (up to 121 minutes on average) and it usually was severe: anaphylaxis (62.5%) or only asthma (31.25%). All patients presented medical history of rhinoconjunctivitis and/or asthma due to dust mite allergy, also.
Only 4 patients had a positive detection of several tested shellfish allergens by ALEX: Cra c 6 (Troponin C) and one of then for Pen m 1, Pen m 3 and Pen m 4. Western Blot revealed that the pool patients´sera recognized a couple of bands between 36 and 40 kDa (raw and cooked limpet extracts respectively) and one of 37 kDa (cooked shrimp extract) compatible with tropomyosin. Individually, a few patients recognized bands between 25–40 kDa and 50–200 kDa, being more evident in the raw extracts, in contrast with described in shrimp extracts, which are more evident in the cooked extract.
Conclusion:
- In a few patients, we detected the possible recognition of tropomyosin as allergenic protein responsible for this clinical food allergy.
- However, most of patients also recognize other protein bands between 25–40 kDa and 50–200 kDa that, as our knowledge, are not described in other series of limpet allergy.
- In this work it has been shown how limpets can act as an allergenic source to mite allergic patients. Whether tropomyosin is related or not with limpet clinical symptoms needs to be elucidated.
- More studies are needed to determine the specific allergens recognized by our patients and their role.



Western blot with a pool and individual serum from patients sensitized to limpets. RBL, CBL, RWL, CWL (raw and cooked black and white limpet) and CSH (cooked shrimp)

Conflicts of interest: The authors did not specify any links of interest.

000862 | Health state utilities in children with peanut allergy and their parents: A UK vignette study

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Background: In the UK, peanut allergy affects 2% of children. The impact of peanut allergy is not exclusive to the child and can extend to other members of the family, especially parents. When evaluating the cost-effectiveness of a new treatment, reimbursement decision-making bodies typically require health state utilities (HSUs) to indicate any changes in health-related quality of life (HRQL). If preferred measures of HRQL are insufficient, vignettes can be used to derive utility data. This study aimed to estimate utility values of children with a peanut allergy and their parents, for four distinct health states defined by eliciting dose (ED): <0.5 peanut; 0.5 – 1 peanut; >1 peanut, mono-nut allergy; and >1 peanut, poly-nut allergy.
Method: An online survey investigating the impact of peanut allergy on children and their parents/guardians was conducted in collaboration with Anaphylaxis UK, Allergy UK, and the University of Sheffield. 604 participants completed the survey across two waves between 2019 and 2020. Health state vignettes were generated based on the qualitative and quantitative survey outcomes, representing the four ED categories for both child and parent perspectives. The vignettes were validated via six semi-structured interviews with parents of children with a peanut allergy, members of patient organizations, and two clinical experts. Additional information was acquired from parents to develop vignettes for the >1 peanut ED category (split by mono- versus poly-nut allergy), as insufficient survey data were available for this category. The resulting eight vignettes were valued by 100 members of the UK general public using the time trade-off (TTO) method to derive HSUs for all health states.
Results: The estimated HSUs generated using TTO are presented in Table 1. The HSUs mirrored the findings from the online survey and semi-structured interviews, with children who are more sensitive to

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experiencing an allergic reaction to peanut (i.e. those with a lower ED) having lower utility values than those who are less sensitive.

Conclusion: This study successfully generated HSUs for children with peanut allergy and their parents for different ED categories, which may be used to inform future economic modelling and reimbursement decisions. It also provided supportive evidence of a potential association between sensitivity (ED) and utility, highlighting the importance of treatments focused on desensitizing patients.

Table 1: Utility* value derived from TTO study

Health state**	Mean (Standard deviation)
Patient vignettes	
<0.5 peanut	0.82 (0.27)
0.5 – 1 peanut	0.89 (0.18)
> 1 peanut, mono	0.93 (0.16)
> 1 peanut, poly	0.91 (0.17)
Child vignettes	
<0.5 peanut	0.80 (0.24)
0.5 – 1 peanut	0.86 (0.21)
> 1 peanut, mono	0.92 (0.18)
> 1 peanut, poly	0.88 (0.19)

Notes : * utility value is a numerical value that presents the preference of a person, or a group of people, associated with a certain health state [0 = death; 1 = full health] **1 peanut kernel equates to an estimated 300mg peanut protein

Conflicts of interest: This study was sponsored by DBV Technologies.

000880 | Allergenicity assessment of black soldier fly larvae as sustainable novel food

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*Presenting author: A. I. Sancho

Background: Insects represent a promising novel and sustainable source of dietary proteins to support the increasing population and to meet the consumers' demand for healthy, safe and sustainable foods. However, consumption of novel proteins might pose a health risk by inducing de novo sensitisation or allergic reactions due to cross-reactivity to known allergenic foods. Therefore, before novel food proteins can be placed in the EU market, a safety assessment regarding their potential allergenicity must be performed. The aim of this project was to evaluate the de novo sensitising capacity of black soldier fly larva (BSFL) proteins as well as their cross-reactivity to shrimp proteins in an animal model of food allergy.

Method: The immunogenicity and sensitising capacity of the BSFL protein extracts as well as the cross-reactivity to shrimp proteins were investigated in Brown Norway rats. Rats ($n = 8$/group) were immunised i.p. 5 times with either PBS, as control, or four different doses of BSFL, peanut (control high allergenic), or spinach (control low allergenic) protein extracts. The development of specific IgG1 and IgE were analysed by ELISAs, and the clinical reactivity assessed by ear swelling tests. The BSFL protein profile and immunoreactivity were determined by SDS-PAGE and immunoblotting, respectively. Further, BSFL, peanut and spinach protein digestibility *in vitro* studies were performed. Cross-reactivity between BSFL and shrimp proteins was evaluated by *in silico* analyses, ELISA and immunoblotting with the use of shrimp antisera.

Results: BSFL contained immunogenicity and sensitising capacity, being able to raise specific IgG1 and to induce functional IgE of clinical relevance. The sensitising capacity was shown to be significantly higher than spinach but significantly lower than peanut. IgG1 and IgE cross-reactivity was observed between BSFL and shrimp proteins as determined by ELISA and immunoblotting, in line with *in silico* studies which indicated high homology between tropomyosin, arginine kinase and aldolase proteins from the two species. The potential cross-reactivity of these proteins was inferred from immunoblots. The antibody binding capacity of BSFL proteins seemed reduced upon *in vitro* gastroduodenal digestion.

Conclusion: These results indicate a potential risk of developing allergic reactions for shrimp allergic individuals upon consumption of BSFL.

Conflicts of interest: The authors did not specify any links of interest.

000673 | Evaluation and comparison of quality of life in allergic children (IgE-mediated food allergy and food protein-induced Enterocolitis syndrome) from 0 to 12 years old: A prospective French study

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*Presenting author: A. Lemoine

Background: IgE-mediated food allergies are sometimes associated with a reduced quality of life (QoL). To date, no study of QoL has been performed in a French-speaking pediatric population with food protein-induced enterocolitis syndrome (FPIES).

The objectives of the study were to compare the QoL of allergic children (IgE-mediated food allergy [IgE+FA] and FPIES) with that of the control children (C) and to look for risk factors associated with an altered QoL.

Method: Children aged from 0 to 12 years old were recruited prospectively between January 2021 and July 2022 in four University Hospitals in France. Controls included children with neither food allergy nor family history of food avoidance at home. QoL was assessed by a generic health-related QoL questionnaire (PedsQL™: Pediatric Quality of Life Inventory) and by a specific questionnaire for food allergies (FAQLQ: Food Allergy Quality of Life Questionnaire), completed by the parents (PedsQL™ parents, FAQLQ-PF) and/or by the child according to age (PedsQL™ children over 4 years old,

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FAQLQ-CF over 8 years old). The study was approved by a national ethics committee.

Results: 316 children (144 IgE+FA, 66 FPIES, 106 C) were included in the study. The overall QoL assessed by the mean total PedsQL™ score was 83.7±13.4 SD in FA-IgE+ group, 80.3±12.0 SD in FPIES group, without difference with the control group (81.6±11.1 SD). Nevertheless, the overall QoL was significantly lower in the FPIES group compared to the IgE+FA group ($p = 0.03$), with in particular, a significant difference concerning the physical health associated sub-score (FPIES: 84.0; IgE+FA: 89.2; $p = 0.01$). The FAQLQ was similar between the two groups of allergic children, but the food-related anxiety sub-score was worse in the IgE+FA group than in the FPIES group (IgE+FA: 2.8±1.6 SD versus FPIES: 2.3±1.4 SD, $p = 0.04$). History of anaphylaxis was associated with a significantly impaired QoL according to the FAQLQ-PF and FAQLQ-CF ($r = 0.2$, $p = 0.02$), but there was no correlation with history of severe reaction in FPIES.

Conclusion: Overall QoL was not altered in allergic children (IgE+FA and FPIES) compared to controls in our cohort. However, physical health was rated worse by parents for the FPIES group, and anxiety associated with food allergy was greater in IgE+FA children.

Conflicts of interest: The authors did not specify any links of interest.

001018 | Evaluation of Ara h 2-specific human monoclonal IgE antibodies for use in a humanized RBL cell test system

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Background: Food allergy is a serious health problem and avoidance is often the only approach to prevent allergic reactions for patients. Among western nations approximately 2% of the population is affected by peanut allergy. Since manufacturers often cannot avoid cross-contamination in processed foods, many food products show precautionary allergen labeling (PAL; "may contain"), although the real risk might be low. Ideally, only foods that actually pose a potential risk to the allergic consumer would be labeled. A test system, which allows for evaluation of the allergenic potential of processed foods might be a helpful tool in that respect.

Method: Humanized rat basophilic leukemia (huRBL) cells are used to mimic the effector phase of IgE-mediated reactions to food allergens. The cell type expresses its endogenous high-affinity IgE receptor (FcεRI)-, as well as a hybrid huFcεRI (human alpha, rat beta and gamma chain). Upon sensitization of huRBLs with specific human IgE and subsequent stimulation via specific allergens, cells release mediators including the enzyme β-hexosaminidase, which can be detected in a substrate dependent colorimetric reaction. Overall the project aims to set up a cell-based test system which allows for the determination of the allergenic potential of peanut allergen traces in processed foods.

Results: The current part of the project focuses on investigating the usability of Ara h 2-specific human IgE monoclonal antibodies (mAbs) in the huRBL cell assay as a substitute for human sera, which often are limited and subject to variability. In this proof-of-concept study the performance of four different mAbs was assessed in comparison to sera from peanut allergic patients using peanut extract, rAra h 2 and chocolate spiked with a defined amount of peanut flour as antigen (serving as model food). Initial data show that minute amounts of extracted peanut allergens from chocolate induce mediator release within the huRBL test.

Conclusion: Additionally, upon sensitization of huRBLs with different antibody combinations (combination of two) and stimulation with peanut extract as well as rAra h 2 a low, moderate and high responding antibody combination was set up that is comparable to the reactivity pattern of human serum pools within the cell test. Therefore, it can be concluded that the huRBL assay in combination with allergen-specific human IgE mAbs might represent a suitable test system for the detection of the allergenic potential of peanut allergen traces in processed foods.

Conflicts of interest: The authors did not specify any links of interest.

000802 | Construction and validation of questionnaires on food allergy knowledge and confidence in management skills

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Background: The impact of food allergy on adults and children worldwide is increasing. With an appropriate and validated questionnaire, we can assess the ability of patients and their parents to recognize food allergies and their confidence in performing emergency management to prevent fatal reactions and unnecessary hospitalization. This study aimed to develop assessment tools for patients' food allergy knowledge and confidence in carrying out management skills.

Method: Items were generated after literature reviews with acceptable content validity index and semantic equivalence. A 20-item questionnaire on food allergy knowledge (FAKQ), consisting of 12 true/false and 8 multiple-choice questions as well as a 10-item questionnaire on assessing confidence in food allergy management skills (CIFAMS) were developed. After translation into traditional Chinese by standard forward and backward translation methods, a cross-sectional study was conducted on 155 Chinese participants in Hong Kong. Construct validity was assessed by correlation of food allergy quality

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of life and sensitivity of questionnaires when compared with known groups.

Results: 104 patients with food allergy over 12 years of age and 51 parents of children under 12 years of age were recruited. Fifty of them repeated the questionnaires two weeks later for test-retest reliability testing. Both FAKQ and CIFAMS showed acceptable internal consistency (Cronbach's alpha 0.7–0.9) in both baseline and retest groups. FAKQ and CIFAMS correlated across all subjects ($P = 0.002$). The FAKQ total score was sensitive to within-group differences in patients hospitalized for food allergy ($P < 0.001$). There were no significant differences between the questionnaires and patients' quality of life. Through exploratory factor analysis, FAKQ and CIFAMS items were categorized into four and two domains, respectively. The results revealed that subjects were weak in recognizing signs of anaphylaxis and not confident using an epinephrine auto-injector.

Conclusion: Both FAKQ and CIFAMS developed by our group were valid and reliable in assessing knowledge and management confidence for food allergy of patients and parents. These tools identify areas where patients are having trouble or are unable to perform. The findings help to develop food allergy education programs and awareness campaigns. (funded by Research Grants Council Research Impact Fund [R4035-19] and Health and Medical Research Fund [04180047] of Hong Kong SAR Government).

Conflicts of interest: The authors did not specify any links of interest.

000911 | Oral home immunotherapy protocol with boiled milk (BM) HUVM

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Background: Food allergy to cow's milk is one of the most frequent food allergies in children and, although it tends to evolve into tolerance, up to 10% maintain their allergy at 10 years. In many cases, tolerance to milk begins with baked or boiled milk, however, there are no data on prevalence or IgE levels that allow predicting which patients tolerate Boiled Milk, so Oral Food Challenge (OFC) is the election procedure. We present the home OIT protocol with Boiled Milk (BM) implemented by our Food Unit.

Method: From 2020 to June 2022, OFC BM was performed on 26 patients with low IgE casein levels (<5 IU/mL), demographic data, atopy (AD, RC, AB, food allergies), and outcome of OFC BM, as well as home implementation of the protocol in those with negative results, were analyzed.

It consists of introducing 200 mL of boiled milk for 20 minutes daily for 2 weeks, then reducing weekly cooking by 1 minute until reaching unboiled milk intake in 21 weeks. Patients were instructed in the management of reactions and a contact telephone number was offered in case of doubts or home reactions

Results: Results in attached Table 1.

18 patients tolerated BM, of which 14 successfully completed the protocol and reached intake of 200 mL unheated milk (77.77%). Remaining 4 failed to complete due to rejection or non-compliance with the diet (2), hasn't been reviewed yet(1), or didn't attended review (1). Average revision time after OFC was 8 months (5–12 m). No relevant adverse reactions were reported.

Two patients with positive OFC (cumulative dose >120 mL) were indicated to starting with 60 mL of BM, with weekly increases of 10 mL until reaching 200 mL and then join the protocol, and successfully tolerated 200 mL unheated milk.

Conclusion: Home OIT protocol with BM reducing degree of cooking has shown to be safe and effective in those patients who tolerate 200 mL BM, acquiring tolerance to unheated milk. It allows spontaneous tolerance to be advanced without the need to perform a conventional OIT, which is recommended from 5 years of age and requires weekly visits to the hospital, cost savings for patients and healthcare.

TABLE 1

Boiled milk OFC					
OFC	**n**	**Age (median)**	**Atopy**	**Casein SPT**	**Casein spIgE**
Positive	8	4,5 years (1-7)	4 (50%)	**3,12mm (0 – 6)**	**2,19IU/mL (0,37 – 4,26)**
Negative	**18**	5 years (1-13)	9 (50%)	2,41mm (0 – 14)	0,85IU/mL (0,04 - 1,76)
Total	26	5 years (1-13)	13 (50%)		

Conflicts of interest: The authors did not specify any links of interest.

000976 | Investigation of allergy to pea using different diagnostic methods

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Background: Allergy to pea and related legumes includes around 3% of allergic reactions to food in the Czech Republic. We initiated a study to improve the diagnosis of this allergy.

Method: Patients without age restriction and with a positive history of allergy to pea and/or positivity of specific IgE against pea extract are included in our study. All subjects are examined by skin prick test (SPT) with boiled pea, tested for specific IgE against whole pea extract by multiplex system ALEX (MADx) and specific IgE against relevant pea protein fractions by means of a home-made ELISA. Double-blind placebo-controlled food challenge (DBPCFC) with pea is performed as well. Finally, the sensitivity and specificity of individual diagnostic tests will be calculated in relation to DBPCFC as a gold standard.

Results: So far, 8 patients with pea allergy and 3 healthy controls have been included in our study. All patients had positive SPT with

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boiled pea (median MWD = 10 mm) and positive specific IgE against pea extract in the ALEX multiplex method (median specific IgE = 6.09 kIU/l). Since protein extraction from boiled pea has proven to be unsatisfactory and we are currently separating particular protein fractions from the native food, the assessment of specific IgE against the relevant allergenic components of pea has not yet been done. DBPCFC with boiled pea has been performed so far in 4 patients: in 3 of them with positive result and in one with negative result. In 2 patients, DBPCFC was initially performed with the originally prepared recipe of pea masked in the dough of baked sticks and the result was negative in both cases; however, subsequent oral food challenge with boiled pea was positive in both subjects. In all controls, the results of SPT, specific IgE in ALEX and DBPCFC were negative.

Conclusion: The first results of our study showed that for the development of ELISA to assess specific IgE against relevant pea allergenic components, the separation of pea protein fractions from native rather than boiled food is more suitable. Furthermore, it has been shown that for performing DBPCFC with pea, it is not possible to use previously developed baked sticks, though they are more attractive in taste and more convenient from the practical point of view because baking greatly reduces the allergenicity of pea altering the outcome of DBPCFC. These preliminary results suggest the further steps in our research.

Conflicts of interest: The authors did not specify any links of interest.

000543 | Desensitization to crustaceans by sublingual immunotherapy

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Background: Desensitization to crustaceans by means of sublingual immunotherapy was assessed for efficacy and safety with a view of validating it as a disease-modifying modality.

Method: Charts of a Midwest Allergy-Immunology practice from the period January 2014 – December 2022 were reviewed to identify patients with allergy to crustaceans treated with sublingual immunotherapy and to retrospectively evaluate their responses to oral challenge.

Results: Sixty-six patients were identified who had been treated by sublingual immunotherapy for either systemic or localized reactions to crustaceans. Demographics and relevant comorbidities were consistent with those of the atopic predisposition. Sublingual immunotherapy with serially diluted mixtures was initiated at 6.4–160 ng/dose and was gradually escalated over a period of 5 – 48 months to 500 micrograms/dose three times a day. After completion of a sublingual immunotherapy course which ranged from 5 to 72 months (average: 53 months), sixteen patients underwent shrimp oral challenge.

No systemic reactions occurred; no patient required epinephrine. Tolerance of target dose of 42–85 grams (4–7 shrimps) was achieved in 10 patients (62%), seven of whom had originally presented with systemic reactions to crustaceans.

Six patients (37%) developed one or more of the following localized reactions: oral itching, nasal symptoms, localized perioral hives, localized hives at pressure points, nausea, vomiting, abdominal pain upon exposure to a cumulative dose of 37–145 grams of shrimp during the 4 hours of the challenge. Four of these patients had originally presented with systemic reactions to crustaceans.

Four of the patients who developed localized symptoms during the challenge were subsequently placed on routine exposure to one shrimp (12–20 grams) every other day. On repeat challenge, two patients tolerated the procedure to the target of 85 grams without symptoms; two are still due for a challenge.

Conclusion: Desensitization to crustaceans by sublingual immunotherapy appears safe and effective. Whether the immune modification induced by sublingual immunotherapy is permanent resulting in sustained tolerance, or the achieved degree of desensitization depends on regular exposure is not known; therefore, following challenge, regular consumption three-four times per week was recommended.

Baseline characteristics of study subjects

		passed challenge	localized symptoms		passed challenge	localized symptoms
Gender:				Age:		
Male:	7 (43%):	4	3	6-18:	6 (37%): 4	2
Female:	9 (56%):	6	3	19-79:	10 (62%): 7	3
Presenting reaction:				Other Food Allergies:		
Systemic:	11 (68%):	7	4	Mollusk:	9: 6	3
Localized:	5 (31%):	4	1	Fish:	4: 4	0
				Peanut:	2: 1	1
				Tree nut:	1: 1	0
Other Atopic Diagnoses:				No other:	4: 3	1
Asthma:	9 (56%):	5	4			
Rhinitis:	16 (100%):	10	6			
Atopic Dermatitis:				Comorbidities:		
- Present:	3 (18%):	2	1	GERD:	5: 4	1
- History of:	13 (81%):	9	4	Thyroiditis:	2: 2	0

Table. Challenges for Shrimp

1st attempt	Passed* Challenge	Localized** Reactions	Systemic*** Reaction
	10 (62%)	6 (37%)	0
2nd attempt	**Passed Challenge**	**Localized Reactions**	**Systemic Reaction**
	2 (100%)	0	0

(*) Passed: Tolerated 42-85 grams of shrimp without any symptoms.
(**) Localized Reaction: One only of any of the following: oral/peri-oral itching/numbness, peri-oral hives, hives limited to pressure points, nasal symptoms (congestion/runny nose/repetitive sneezing); or, two symptoms if any one of the above was present and the second symptom was: abdominal cramps, nausea/vomiting, anxiety. Isolated abdominal cramps, nausea/vomiting, anxiety were treated as localized reactions.
(***) Systemic Reaction: Sudden drop in systolic blood pressure as a single symptom; or: generalized hives/flushing, angioedema, throat, lower respiratory, cardiovascular, gastrointestinal symptoms consistent with mast cell degranulation and involving at least two different systems, as commonly defined.

Conflicts of interest: The authors did not specify any links of interest.

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000940 | Quality of life of patients with persistent allergy to milk and egg and their parents while undergoing oral immunotherapy

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Background: Milk and egg allergy are most common in childhood, although the majority are outgrown those persisting over time affect their Quality of Life (QoL). We have found that overall children report worse QoL than parents, and we aimed to further explore this finding pairing the children with their respective parent.

Method: Patients with persistent allergy to milk and egg that underwent OIT were included. We selected Food Allergy Quality of Life Questionnaire (FAQLQ) completed by both children (8–12 years) and their parents in the same visit, either in baseline or follow up visits. Descriptive statistics included frequency and percent for qualitative variables, and median, first and third quartiles [Q1, Q3] for numerical variables. FAQLQ from children and their parents were compared paired using Wilcoxon signed-rank test, only the "Emotional Impact" and "Dietary restrictions" domains were present in both questionnaires and individually analysed. Significant level was set at $p < 0.05$. Statistical analysis was done using Python v. 3.8.5.

Results: We have included 33 and 29 patients with persistent milk and egg allergy respectively, and 62 corresponding QoL questionnaires for milk and 69 for egg. Baseline characteristics of both groups are described in Table 1. FAQLQ parent forms had significant lower scores ($p < 0.01$) for both milk and egg than their children forms in total and in the two comparable domains. No significant differences were found between egg and milk allergic patients.

Conclusion: QoL is worse in children with persistent egg or milk allergy compared to that reported by their parents. This is also true when comparing the "Emotional Impact" and "Dietary restrictions" domains individually. There were no differences between the impact in QoL of milk and egg allergies.

TABLE 1 Baseline characteristics of children and QoL of both children and parents.

		Milk	Egg
N patients		33	29
Age at baseline (years)		5.93 [5.16, 7.1]	7.75 [6.86, 8.75]
Sex (female)		16 (48.5%)	12 (41.4%)
Atopic Dermatitis		22 (66.6%)	25 (86.2%)
Asthma before OIT		23 (69.7%)	15 (51.7%)
Rhinoconjuntivitis before OIT		9 (27.3%)	13 (44.8%)
Skin Prick Test Milk/Eggwhite		8 [7, 12]	8 [6.5, 10]
IgE Milk/Eggwhite		23.1 [8.5, 66.4]	4.96 [4.58, 8.28]
IgE total		199.5 [84.7, 626.98]	392 [171.5, 698.5]
FAQLQ (Milk N_M= 62, Egg N_E=69)			
Children Form 8-12	**Total**	**2.52 [1.77,3.98]**	**2.83 [1.88-4.67]**
	Emotional Impact	**3.33 [2.17, 4.5]**	**3.33 [2.17, 5.08]**
	Dietary Restriction	**2.42 [1.5, 3.5]**	**2.67 [1.33-4.67]**
	Risk of Accidental Exposure	2.4 [1.6, 3.8]	2.8 [1.4-4.2]
	Allergen Avoidance	1.86 [1.43, 3.43]	2.29 [1.43-4.86]
Parents Form 0-12	**Total**	**2.25 [1.56, 3]**	**2.13 [1.53-3.3]**
	Emotional Impact	**2.38 [1.77, 2.87]**	**2.23 [1.69-3.15]**
	Social & Dietary Restriction	**2 [1.44, 3]**	**2 [1.28-3.44]**
	Food- related Anxiety	2.13 [1.38, 2.88]	2.25 [1.38-3.25]

Conflicts of interest: The authors did not specify any links of interest.

000516 | Sesame-induced anaphylaxis: A retrospective single-center analysis

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Background: Sesame has emerged as a clinically relevant food allergen worldwide and is the most common seed to cause severe hypersensitivity reactions, likely due to its widespread use in the food, pharmaceutical, and cosmetics. The diagnosis of sesame allergy is challenging, as neither skin prick tests (SPT) nor specific IgE (sIgE) have been identified as accurate cut-offs capable of predicting clinical severity.

This study primarily aims to define the clinical features and the diagnostic work-up of this emerging food allergy. The study also aims to identify a correlation between the results of *in vivo* and *in vitro* tests and the severity of allergic reactions.

Method: We retrospectively enrolled children with sesame-induced anaphylaxis followed at the Pediatric Clinic in Pavia, Italy. Diagnosis of sesame allergy was based on a suggestive clinical history, positive SPT, prick-by-prick (PbP), and elevated sesame-specific IgEs. The OFC was performed in doubtful cases. Demographic, clinical (type and severity of the reaction), diagnostic (SPT, sIgE, and OFC), and therapeutic data were collected. The severity of anaphylaxis was classified according to Sampson's severity score.

Results: Twelve patients (75% male) were enrolled. The median age at symptom onset was 9 years (min 3.5 – max 18 years). All patients

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reacted immediately after sesame seed consumption. A grade 5 reaction was observed in 8%, grade 4 in 33%, grade 3 in 25%, and grade 2 in 33% of patients (Fig 1). The median of the wheal size was 8 mm (min 3 – max 15 mm). The median of sesame seed IgE was 46 kUA/L (min 0.02 – max 100 kUA/L). Patients enrolled also had other allergic conditions, including eczema ($n = 8$; 67%) and allergic asthma ($n = 5$; 42%). Notably, 50% of patients also had a nut and peanut allergy. Allergy tests did not demonstrate a direct correlation between the diameter of the wheal (RR 0.18; $p = 0.17$), specific IgE value (RR 0.02; P = 0.7), and the degree of anaphylaxis.

Conclusion: Sesame-induced anaphylaxis is an emerging condition and appears with moderate-severe symptoms. The hypothesis that a higher positivity of allergy tests corresponds to a higher intensity of the allergic reaction was not confirmed, suggesting that the severity of hypersensitivity reactions is not related to levels of sIgE or wheal diameter. We also confirm a high rate of co-sensitization to sesame and nuts, an aspect that contributes to an increase in the emotional and social impact of this condition.

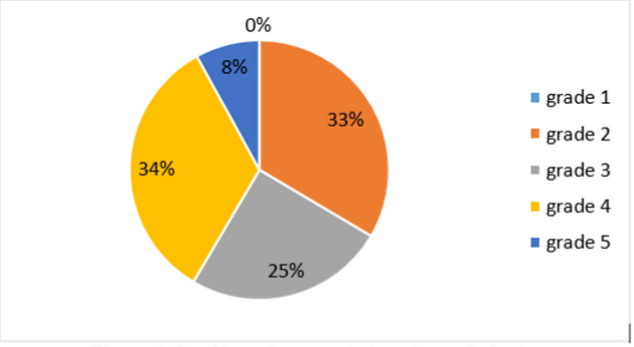

Figure 1 Grading of sesame-induced anaphylaxis.

Conflicts of interest: The authors did not specify any links of interest.

000670 | Parsley as a hidden cause of anaphylaxis

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Background: Even though there are some foods which are more likely to provoke an allergic reaction, there are some of them, such as species, that can be contained in many meals and also generate an anaphylaxis. Parsley *(Petroselium crispum)* is a species in the family Apiaceae widely cultivated as an herb and a vegetable.

Method: A total of eight patients who presented a medical history of allergic reaction to food were enrolled in this study. Complementary tests were requested after anamnesis completed.

A food screening prick test and blood test with specific IgE were performed. The food screening prick test included wheat, nuts, peanuts, hazelnut, chickpea, peach LTP, profilin, apple Mal d1, cow milk, egg, chicken, fish, prawn Pen a1, mussel, squid, latex and anisakis. The specific IgE of the food eaten before the allergic reaction including species (among which parsley) was analysed.

Results: Seven out of eight patients were women. The average age at the moment of the medical appointment was 24 years old.

When the allergic symptomatology was reviewed, it was detected that four patients presented generalized urticaria as a unique symptom, while the other ones associated angioedema. Of these last patients, two of them associated dyspnoea and one associated a loss of consciousness episode.

It was detected that three patients had eaten kebab before the allergic reaction, two ate a burger, other two ate pizza and one ate chips. When the screening prick test was analysed, any of them had a positive test related to the food eaten.

When reviewed, all the patients had eaten meals that contained parsley. A positive IgE to parsley was detected in all of them (specific IgE mean: 1.59 UI/mL). The other specific IgE to another common species were negative.

Patients were recommended to avoid parsley due to its detected sensibilization. Then, any of them presented a new episode of anaphylaxis.

Conclusion: Species are commonly used when cooking but they are difficult to detect. Because of this, species should be taken into account. They should be included in the clinical protocols when we are facing a food allergy without identifying the cause.

Conflicts of interest: The authors did not specify any links of interest.

000667 | Beer allergy: Report on two cases

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Background: Beer allergy is not common and just a few cases had been reported in literature. Its most frequent allergenic sources involved are cereals, particularly barley and wheat.

The objective is to describe two cases of barley reaction and report how the diagnose is achieved through skin test and serum specific IgE (ImmunoCAP).

Method: Two patients referred to allergology service for immediate reaction after beer intake are presented. None of them related the reaction with another food, drug or trigger factor.

- Patient 1: a 72-year-old man without medical history who had several episodes of urticaria and diarrhea after beer intake. No medication was needed to solve these episodes. He tolerated wheat and other cereals.

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- Patient 2: a 25-year-old man without medical history who had several episodes of oral and ears itching and cervicofacial erythema. The episodes were solved with oral antihistaminic. He also tolerated wheat and other cereals.

Prick test with pneumo-allergens, food screening and flours along with serum specific IgE with ImmunoCAP were practiced.

Results: After an accurate clinical history was done, the prick test with pneumo-allergens and food screening including flours (oats, barley, rice, rye, corn and wheat) results and serum specific IgE (sIgE) results were the following ones.

On the one hand, results for patient 1 were negative to prick test and the sIgE was 0.8 UIa/mL to barley and 0.2 UIa/mL to wheat. On the other hand, results for patient 2 were prick test to barley positive and sIgE to barley 0.75 UIa/mL and to wheat 0.2 UIa/mL.

Conclusion: Both patients were diagnosed with beer allergy for hypersensitivity to barley and they were recommended to avoid it. After this recommendation, they did not present new reactions. They could intake the other cereals as general population.

When beer allergy is suspected, an accurate clinical history is essencial, as well as it is important to take into account the different allergenic sources in order to diagnose etiologically and to stablish appropriate recommendations.

Conflicts of interest: The authors did not specify any links of interest.

001497 | Characteristics of non-peanut legume food allergy in Tel Aviv

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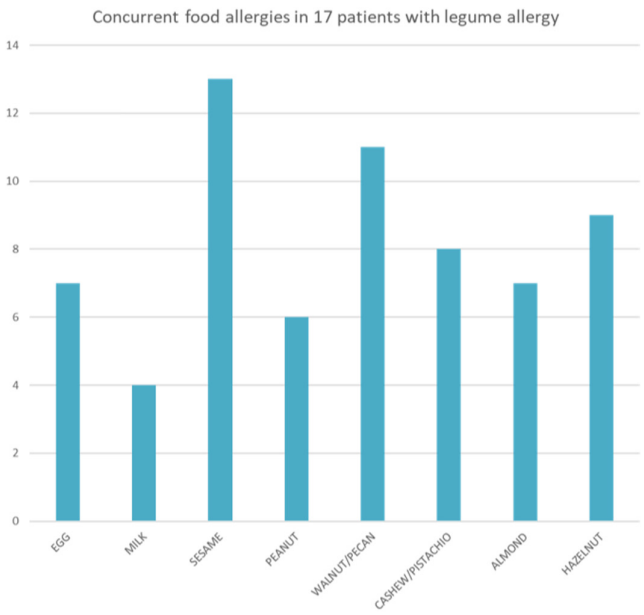
*Presenting author: S. Benor

Background: Food allergy is increasing in prevalence and variety. Milk, egg, peanut, tree nut and sesame are the main food triggers prevalent in Israel. Recently various non-peanut legumes such as lentils, peas, chickpeas, beans and lupine have emerged as additional allergens in patients with a previously diagnosed food allergy, posing an additional dietary challenge to the food allergic patients. Cross reactivity between tree nut and peanut allergy has been documented in several studies, but the cross between tree nut and non-peanut legumes has thus far not been explored.

Method: The medical records were searched for cases of non-peanut legume allergy presenting between 2021 and 2022. Diagnosis was confirmed by skin prick testing. We recorded patient demographics, allergic and other comorbidities, known and new food allergens and the clinical features of non-peanut legume allergic reactions.

Results: Seventeen cases were reviewed. The mean age at presentation of non-peanut legume allergy was 26.5 months. Thirteen patients had atopic dermatitis, asthma and/or allergic rhinitis. Symptoms of allergic reactions to non-peanut legumes were mostly limited to the skin. Lentil was the most prevalent culprit, accounting for 13 cases, followed by pea and chickpea. Six cases had concurrent peanut allergy. Surprisingly sixteen cases had cross reactivity to non-legume foods such as sesame ($n = 13$), tree nuts ($n = 13$), eggs ($n = 7$) and milk ($n = 4$).

Conclusion: As the food allergy epidemic continues to grow, many patients with allergy to classical allergenic foods demonstrate cross reactivity to additional surprising plant food culprits. Allergy to nuts or seeds and atopic comorbidity are common risk factors for legume allergy. Further research is necessary to determine if early treatment of existing atopic disease or oral immunotherapy may prevent polysensitization to multiple foods.



Conflicts of interest: The authors did not specify any links of interest.

001493 | Food allergens that trigger anaphylaxis in children in Chile, Chilean National Survey 2020

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*Presenting author: M. V. Landaeta Millar

Background: IgE mediated food allergy (FA) can manifest as severely as anaphylaxis. Worldwide the main foods involved in children are: peanut and tree nuts, egg whites, sesame, soy, wheat, cow milk protein, fish and seafood (1). In Chile, one study observed a prevalence of 6% of IgE mediated FA in children based on parents' self-report, with tree nuts and peanuts as the main involved foods, followed by avocado, bananas and eggs (2). Most frequent triggers of food induced anaphylaxis in children are: eggs, cow milk protein, wheat

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and peanut (3). The objective of this study is to describe the main responsible foods that trigger anaphylaxis in patients under 15 years old in Chile.

Method: In 2020 the Chilean Foundation "Growing Up with Food Allergies" conducted a national survey on patients who have suffered or are diagnosed at high risk of anaphylaxis. The survey was released among users of epinephrine autoinjectors (EAI) through the foundation's EAI purchase database and social media.

Results: 126 patients between 1 and 15 years old completed the survey and self-reported food as the trigger of their anaphylaxis. The average of age was 7.8 years old [1–15 years old], 42% women and 58% men with a total of 312 foods reported as possible triggers. In patients under 5 years old, the main foods identified were eggs, peanuts, and cow milk. 65% of this group are male patients. In the group of 6 to 15 years old, the main self-reported foods were: peanuts, walnuts and other tree nuts, eggs, cow milk and sea food in descending order. 53% of this group are male patients.

Conclusion: Main triggers of anaphylaxis in patients under 15 years old are eggs, peanuts, cow milk and walnuts, similar results to those described in international literature. A limitation of the study is the lack of confirmation of the suspicious food by an allergological study.

Conflicts of interest: The authors did not specify any links of interest.

MASTOCYTOSIS AND MAST CELLS

000783 | The role of NLRX1 in atopic dermatitis

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*Presenting author: J. S. Leem

Background: Atopic dermatitis (AD) is one of the most common long-term allergic diseases accompanied by inflammation, dryness, and irritation of the skin. Recently, an exceeding formation of the oxidants such as reactive oxygen species (ROS) causing oxidative stress has been suggested as a marked trigger to aggravate AD. A member of the nucleotide-binding oligomerization domain-like receptor family, leucine-rich-repeat-containing X1 (NLRX1) is a central homeostatic regulator of both mitochondrial biology and innate immunological responses. Although NLRX1 is proven to be associated with allergic sensitization, its function in AD is yet obscure. The aim of this study was to investigate the role of NLRX1 in the pathogenesis of AD.

Method: Ovalbumin (OVA) was used to induce AD on the dorsal skins of wild-type (WT) and NLRX1 null mutant ($NLRX1^{-/-}$) C57BL/6 mice and the levels of NLRX1 were determined in the murine models of AD. We next examined the skin barrier gene expression levels and Th2-mediated immune responses including the release of the mast cell mediators. Furthermore, we focused on mitochondria dynamics and NF-κB signaling pathway in the murine AD models.

Results: In this study, both mRNA and protein levels of NLRX1 were elevated in WT murine models of AD. OVA-treated $NLRX1^{-/-}$ mice demonstrated ameliorated skin lesions and restoration of the skin barrier functions compared to WT AD models. Moreover, AD models of $NLRX1^{-/-}$ mice showed lower serum levels of total IgE and OVA-specific IgE, Th2 cytokine production, and $CD4^{+}$ effector T cell populations. Interestingly, NLRX1 appeared to be dominantly expressed in dermal mast cells and the release of the mast cell mediators was reduced in OVA-sensitized $NLRX1^{-/-}$ mice. Meanwhile, the deficiency of NLRX1 enhanced the coordination of the mitochondria biogenesis and antioxidant responses in murine AD models. Oxidative glycolysis was also restrained in OVA-treated $NLRX1^{-/-}$ mice via inhibition of NF-κB phosphorylation.

Conclusion: A novel finding of NLRX1 expressed in dermal mast cells indicates that NLRX1 may promote the degranulation of the mast cells by regulating mitochondria metabolism, resulting in the exacerbation of the Th2 responses in the pathogenesis of AD.

Conflicts of interest: The authors did not specify any links of interest.

000181 | Harbor: A phase 2/3 study of elenestinib (BLU-263) in patients with indolent systemic mastocytosis (ISM) and monoclonal mast cell activation syndrome (MMCAS)

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*Presenting author: V. Sabato

Background: D816V-mutant *KIT* is the primary driver of systemic mastocytosis (SM), a rare, clonal mast cell (MC) disease. ISM, the most common subtype of SM, and mMCAS are characterized by the

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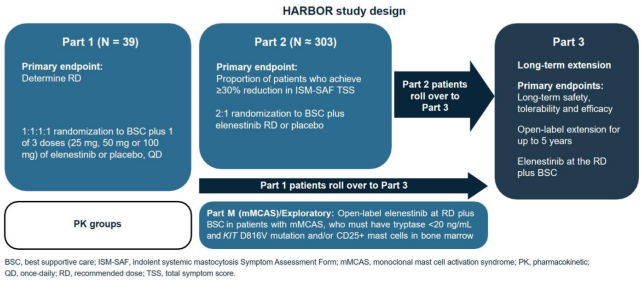
accumulation and activation of MCs in bone marrow (BM) and other organs, which may cause debilitating gastrointestinal, skin, neurocognitive and constitutional symptoms, and life-threatening anaphylaxis despite best supportive care (BSC). There remains an unmet need for therapies that target the underlying molecular driver of ISM and mMCAS. Elenestinib (BLU-263) is a novel, investigational, oral, next-generation tyrosine kinase inhibitor exhibiting potent inhibition of KIT D816V. In healthy volunteers in our phase 1 study, elenestinib was generally well-tolerated, with linear pharmacokinetics (PK) across all tested doses and a half-life allowing once-daily (QD) dosing, thus supporting continued development for patients with SM. HARBOR (NCT04910685) is a randomized, double-blind, placebo-controlled, phase 2/3 study assessing efficacy and safety of elenestinib in patients with ISM and mMCAS whose symptoms are not adequately controlled by BSC.

Method: In Part 1 (Pt1) of the study, 39 patients with ISM receiving BSC treatment were randomized 3:1 to elenestinib (25 mg, 50 mg, and 100 mg) or placebo, QD, to determine the recommended dose (RD) of elenestinib (Figure). Part 2 (Pt2) will enroll approximately 303 patients undergoing BSC therapies, randomized 2:1 to elenestinib at the determined RD or placebo. The primary endpoint of Pt2 is symptom improvement, as assessed by the ISM Symptom Assessment Form total symptom score (TSS), a validated patient-reported outcome (PRO) tool developed to assess ISM symptom burden. Patients completing Pt1 or Pt2 will roll over to Part 3 for open-label long-term evaluation of elenestinib at the RD. Other endpoints include additional PRO measures, change in *KIT* D816V allele burden, reduction in tryptase levels, and change in BM MC involvement. Two open-label PK groups will enroll up to approximately 80 patients with ISM with a broad range of symptom scores to better characterize PK and safety of elenestinib in specific patient populations. An exploratory, open-label arm will explore elenestinib at the RD with BSC in patients with mMCAS (Part M).

Results: Enrollment for Pt1 of HARBOR is complete, PK group enrollment is ongoing, and Pt2 will open following RD determination from Pt1.

Conclusion:



BSC, best supportive care; ISM-SAF, indolent systemic mastocytosis Symptom Assessment Form; mMCAS, monoclonal mast cell activation syndrome; PK, pharmacokinetic; QD, once-daily; RD, recommended dose; TSS, total symptom score.

Conflicts of interest: M-P. Gourin: Dr Gourin has received fees for advisory boards from Blueprint Medicines Corporation and AbbVie.C. Akin: Dr Akin has received consulting fees and research support from Blueprint Medicines Corporation, and Cogent and consulting fees from Novartis.A. Doyle: Employee and equity holder of Blueprint Medicines Corporation.R. Scherber: Employee and equity holder of Blueprint Medicines Corporation.C. Labe: Employee of Blueprint Medicines Corporation.K. He: Employee and equity holder of Blueprint Medicines Corporation.M. Castells: Dr Castells has served as a consultant for Blueprint Medicines Corporation and is a PI on several clinical trials for Blueprint Medicines Corporation. She has received author fees from UpToDate and the Editorial Board for Annals of Allergy, Asthma & Immunology. C. B. Livideanu: Dr Livideanu has received consultancy fees from Lilly, Novartis, UCB, and research support from Novartis. She is a member of the steering committee for an AB Science study. M. Guilarte: Dr. Guilarte has received consultancy fees from Blueprint Medicines Corporation. V. Sabato: Dr Sabato's institution has received funding from Blueprint Medicines Corporation for clinical trials.W. Shomali: Dr Shomali has received advisory board fees and research support to conduct clinical trials from Blueprint Medicines Corporation and Incyte. T. Tashi: Dr Tashi has served on advisory boards for Blueprint Medicines Corporation, Cogent Biosciences, and PharmaEssentia; and is a PI on several clinical trials for Blueprint Medicines Corporation. O. Hermine: Professor Hermine has received research funding from AB Science, BMS/Celgene, Alexion, Novartis, and Inatherys; acted as a consultant for AB Science; and is a shareholder of AB Science. E. A. Griffiths: Dr Griffiths has received honoraria and/or research funding from Alexion, Astex, Blueprint Medicines Corporation, Celldex Therapeutics, Genentech, Celgene/BMS, Physician Educational Resource, MediCom Worldwide, American Society of Hematology, Picnic Health, AAMDSIF; and has consulting or advisory roles for AbbVie, Alexion, AstraZeneca Rare Disease, Genentech, Novartis, CTI BioPharma, Apellis, Celgene/BMS, Takeda Oncology, and Taiho Oncology. M. Triggiani: Dr Triggiani has received fees for advisory boards from Blueprint Medicines Corporation, Deciphera, and Novartis. S. Barete: Dr Barete has received fees for symposium and scientific board from Blueprint Medicines Corporation. Financial support for clinical trials from Blueprint Medicines Corporation. Consultancy agreement with Blueprint Medicines Corporation. Fees from AbbVie and Leo pharma laboratories. G. L. Damaj: Dr Damaj has had consulting or advisory roles for Takeda, Blueprint Medicines Corporation, and Thermo Fisher; and received travel and accommodation expenses from Takeda, AbbVie and Pfizer. P. Ribeiro: Nothing to disclose. D. González-De-Olano: Nothing to disclose. Dr Cabral has received consultancy fees from Janssen, Takeda, Kyowa Kirin, and AbbVie. L. Bouillet: Pr L. Bouillet has had consulting, advisory roles for Takeda, Biocryst, Behring, Blueprint Medicines Corporation, Novartis, travel and accommodation expenses from Takeda, Behring, Biocryst, Blueprint Medicines Corporation, and Novartis.

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000984 | Anti-tpo IgE versus anti-thyroid IgG in CSU: Predictive markers of the therapeutic response to H1-antihistamine

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*Presenting author: Y. M. Ye

Background: Chronic spontaneous urticaria (CSU) is a mast cell-mediated skin disease characterized by recurrent wheals and/or angioedema for more than 6 weeks without any specific and definite triggers. IgG and IgE autoantibodies against various self-antigens are held to drive the activation of mast cells in CSU. We aimed to investigate levels of anti-thyroid peroxidase (TPO) IgE and anti-thyroid IgG and their link to disease activity and therapeutic response to antihistamines in patients with CSU.

Method: In total, 144 patients with CSU (91 females, mean age 42.9 years) and 30 healthy controls were enrolled. Anti-TPO IgE was measured by ELISA using recombinant TPO (OriGene Technologies, Inc.) and chimeric human IgE-anti-TPO (Charité) as a standard, and a positive cutoff was determined as the mean plus 2 SD of healthy controls. Anti-TPO and TG IgG was measured by ELISA (IgG test system, Zeus Scientific Inc.). Anti-nuclear antibody (ANA) screening test was done using immunofluorescence assay. IgG autoimmunity was defined as any positive results on ANA or anti-TPO IgG or anti-TG IgG. Urticaria activity score over 7 days (UAS7) was used to assess disease activity in CSU patients. CSU patients whose urticarial symptoms were not controlled within 3 months of H1-antihistamine treatment were classified as antihistamine non-responders.

Results: The positivity rates of IgE to TPO (20.8% vs 3.3%, $p = 0.023$) and IgG to TPO or TG (31.6% vs 3.3%, $p = 0.001$) were significantly higher in CSU patients than in controls. Among 137 CSU patients, 51.1% tested negative for both anti-TPO IgE and anti-thyroid IgG, 27% had anti-thyroid IgG (+) and anti-TPO IgE (–), 16.8% had anti-TPO IgE (+) and anti-thyroid IgG (–), and only 5.1% showed positive response to both IgE and IgG to thyroid autoantigens. There was no significant correlation between serum levels of anti-TPO IgE and IgG antibodies in CSU patients, whereas anti-TPO IgG levels were significantly related with anti-TG IgG (Spearman's rho 0.462, $p < 0.001$). UAS7 scores were lower in patients with anti-TPO IgE than in those with negative IgE to TPO (15.2±10.1 vs 20.4±10.8, $p = 0.024$), while no significant difference was noted in accordance with the presence of anti-thyroid IgG and ANA, or ASST results. The positivity of anti-TPO IgE was dependent on concomitant atopy (OR 9.342, $p = 0.002$) and UAS7 values (0.939, $p = 0.026$), whereas anti-thyroid IgG was significantly associated with the positivity in ASST (2.942, $p = 0.021$). With a severe disease activity (UAS7 ≥ 28; OR 3.196, $p = 0.032$), the absence of anti-TPO IgE (3.897, $p = 0.041$), the presence of IgG autoantibodies (2.567, $p = 0.043$), and fewer peripheral basophils (0.178, $p = 0.030$) were identified as independent parameters to predict antihistamine non-responders in a logistic regression analysis.

Conclusion: We confirmed that a subpopulation of CSU patients has either anti-TPO IgE or anti-thyroid IgG autoantibodies as reported in prior studies. Anti-TPO IgE was related with the atopic status and favorable response to antihistamine treatment, whereas anti-thyroid IgG was associated with poor response.

This work was supported by a grant from the National Research Foundation of Korea (NRF) funded by the Korea government (MSIP) (2022R1A2C2006607, 2021R1H1A2095297).

Conflicts of interest: The authors did not specify any links of interest.

001004 | The relevance of an early diagnosis in systemic mastocytosis: On purpose of a case

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*Presenting author: A. Puig Fuentes

Background: Clinical presentation of mastocytosis is heterogeneous, ranging from cutaneous mastocytosis to a more aggressive variant with extra-cutaneous involvement (known as systemic mastocytosis, SM). SM's symptoms are due to a pathologic accumulation and activation of mast cells (MC) in various tissues (bone marrow, skin, gastrointestinal-tract, liver and spleen).

The objective was to describe the case of a patient who suffered almost daily non-specific symptoms treated with benzodiazepines for 8 years presenting two episodes of cardiorespiratory arrest (ACR) which provoked aftermath with choreic movements.

Method: A 39-year-old woman explained recurrent episodes of flushing, abdominal pain, diarrhea, vomiting and feeling of dyspnoea since 2014. In August 2020, an episode of ACR with hypoxia was presented, ruling out cardiac pathology. Computer tomography, cranial magnetic resonance imaging (MRI) and electroencephalogram were done. Another ACR episode with choreic movements appeared in September 2021, requiring admission to ICU for sedation to control symptoms for two months. The neurological symptoms remained over time and have required a lot of medication for control, improving slowly.

Results: Multiple MRI were performed, detecting a hyperintensity signal in the head of the nucleus right caudate and in the globus pallidus, due to ischemic injury. Tryptase and other vasoactive mediators (histamine/gastrin/VIP/catecholamines) tests were carried out. Elevated tryptase serum 122ng/ml and BM biopsy results (fusocelular MC >25%, ckit+, tryptase+, CD25+) were determined for SM's diagnosis.

After establishing the definitive diagnosis by a multidisciplinary team, symptom control was achieved with a maximum dose of Polaramine

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15 mg, Famotidine 40 mg, Montelukast 10 mg and Cromoglycate-disodium 1600 mg.

Conclusion: The diversity of clinical manifestations of SM can be a diagnostic challenge for the allergist. A high clinical suspicion is required to make an appropriate differential diagnosis, which together with serum tryptase and BM study after are the basis for an early and definitive diagnosis. Sometimes, an early diagnosis can avoid situations that could trigger serious consequences for our patients.

Conflicts of interest: The authors did not specify any links of interest.

000598 | Anti-IL5 treatment improved systemic involvement in a patient affected by aggressive systemic mastocytosis. A case report

I. Baglivo[1]; S. Colantuono[1]; A. Gasbarrini[1]; F. Macagno[1]; P. V. Mari[2]; M. Criscuolo[1]; S. Giammarco[1]; L. Pagano[1]; C. Caruso[1]

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*Presenting author: I. Baglivo

Background: Systemic mastocytosis is characterized by multifocal clusters of abnormal mast cells. The disease can involve skin, gastrointestinal, cardiovascular, respiratory and neurologic systems; organ damage could be due to mast cell's mediator release or to the mast cells infiltration.

In the context of mast cells mediated diseases, no evidences about the employment of anti IL-5 or anti IL-5 receptor drugs are available instead of the existence of interactions between mast cells, eosinophils and IL-5 is actually known.

Case report: A 64-years-old woman was diagnosed with severe eosinophilic asthma in 2007.

Gastroesophageal reflux disease, spinocerebellar ataxia, hepatic steatosis and hypertension were present as comorbidities.

From 2009 the patient presented multiple bone fractures and, in 2016, she presented dyspnea, asthenia, arthromyalgias, itching, flushing and diarrhea. Blood eosinophil count was increased (240 cell/mm3) as well as serum tryptase (20.7 µg/l). The patient underwent bone marrow biopsy and she was diagnosed with aggressive systemic mastocytosis (ASM). She was treated with oral corticosteroids (OCS), interferon, dasatanib and cladribine but all these treatments were stopped for inefficacy or intolerance.

Worsening of dyspnea was the major cause of continuous emergency room accesses and high dose of OCS pulses, so, according to severe eosinophilic asthma diagnosis, therapy with anti-IL5 monoclonal antibody (mAb) (mepolizumab 100 mg every 4 weeks) was started on June 2022, in order to improve asthma symptoms.

After 6 months of therapy, the patient showed relevant improvement in dyspnea, spirometry results (FEV1 was 86% vs 73%) and FeNO (31 ppb vs 18 ppb), no further OCS were needed.

Moreover, improvements in general, gastrointestinal and cutaneous symptoms were also observed: asthenia and arthromyalgias gradually disappeared, itching resolved and no further episodes of flushing or diarrhea occurred. Serum tryptase decreased to 4.6 µg/l and blood eosinophil count was 30 cell/mm3.

The patient's informed consent to publish the case was obtained.

Conclusion: The treatment with anti IL-5 mAb showed to improve both clinical symptoms and laboratory findings in this case of ASM in a patient treated with mepolizumab for severe eosinophilic asthma. Although it is not excluded that anti IL-5 mAb may have a direct effect on mast cells, the observed results could probably be due to a modulation of the interactions between mast cells, eosinophils and IL-5.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001248 | Could it be the anaphylaxis leading to ischemic cerebrovascular event?!

E. Lekli[1,2]; P. Cannito[2]; D. Shqalshi[2]; A. Roga[2]; I. Shehaj[2]

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*Presenting author: E. Lekli

Introduction: Along with clinical criteria, hypertryptasemia has been mainly used in diagnosis of anaphylactic reactions, but there are also other conditions that cause high levels of tryptase including systemic mastocytosis, hematological malignancies, and chronic kidney disease[1].

Case report: We present a case of 66 years old female, presented with the complain of generalized urticaria with important pruritis, fatigue, dizziness and difficulty walking. She referred a three-day urticaria history, and two episodes of lipothymia one day before. The patient was self-medicated with antihistamines. In objective examination patient had low blood pressure 90/50 mmHG, SPO2 95%, HR 108/min, unilateral left sensory neurological deficiency, without fever. In personal history patient has been on treatment for arterial hypertension, and had a known chronic kidney disease, but no previous history of allergic disease. Patient was referred to emergency room for treatment and further evaluation. Treated with prednisolone 50 mg, antihistamines, Sol.Nacl 0.9%. Cerebral MRI showed subacute ischemic lesions in right thalamic and occipital region. Hemogram without significant alterations, Glycemia 184 mg/dl; CRP 60.5 mg/dl; Azotemia 77 mg/dl; Creatinemia 2.31 mg/dl; Total IgE 254 UI/ml; Tryptasemia 16.7 ng/ml ($N < 11.5$ ng/ml); HbA1c 7.73%; other biochemical test was in normal range. The patient was transferred to a neurology department. Two weeks after hospital discharge, she was presented again for consultation with generalized urticaria and pruritus without other complains. Additional to the treatment, it was suggested to repeat tryptase level and several test for urticaria evaluation, results are not available yet.

Conclusions: Considering possible cerebrovascular consequences of severe hypotension induced from an allergic reaction, patients, family physicians and pharmacist should be aware of missed anaphylaxis diagnosis when treating ambulatory patients with acute generalized urticaria. From the other side in specialist setting, we could

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not exclude hypertryptasemia caused by anaphylaxis in a chronic kidney disease patient. A more specific marker of anaphylaxis within 24 h of the event is needed, when multiple tryptase samples may not available.

Key words: Hypertryptasemia, Anaphylaxis, cerebrovascular event

Reference

1. Elevated Serum Tryptase in Non-Anaphylaxis Cases: A Concise Review; DOI: 10.1159/000506199

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001478 | Mast-cell activation symptoms in familial cold-induced autoinflammatory syndrome type II: What's the role of IL-1?

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*Presenting author: L. Lo Sardo

Background: Familial cold-induced autoinflammatory syndrome type II (FCAS2) is a systemic autoinflammatory disease related to autosomal dominant NLRP12 mutation. To our knowledge, approximately 65 cases have been described worldwide. Patients with NLRP12 variants develop different clinical manifestations including autoimmunity and immunodeficiencies. Most described symptoms are periodic fever, joint involvement, skin rash, abdominal pain/diarrhea, lymphadenopathy/splenomegaly, headache, neurosensory involvement, and increased CRP/ESR.

Methods: A 49 years-old woman and her son presented to our Centre complaining of heterogeneous multisystemic symptoms since childhood.

The woman had suffered from recurrent fever, hyposthenia and arthromyalgia responsive to continuative medium-dose steroid treatment (prednisone 20 mg/die). Furthermore, she had mast-cell activation (MCA)-like symptoms: perennial rhinitis (with negative skin prick test for aeroallergens), moderate bronchial hyperreactivity, cold-inducible urticaria and recurrent diarrhea. These symptoms went better with continuative anti-H1 and anti-H2 treatment.

The man reported multisystem inflammatory symptoms such as noninfectious recurrent fever, recurrent aphthous stomatitis, arthromyalgia, hidradenitis, hyposthenia and myasthenia-like symptoms partially responsive to medium-dose steroid treatment (prednisone 20 mg/die). He also complained of MCA symptoms, although less severe, such as cold-inducible urticaria and dermographism responsive to continuative ketotifen. Also his grandmother compagne of the same symptoms.

In October 2022 an exome sequencing was performed; an heterozygous probably pathogenic variation in NLRP12 gene, c.957del (p.Thr320Argfs*8), was identified and the diagnosis of FCAS2 was made.

In November 2022 our patients started treatment with Anakinra (IL-1 receptor antagonist) with overall rapid clinical improvement. However, myasthenia-like symptoms persisted and reduction in the prednisone daily dose was not possible.

Conclusion: The diagnosis of FCAS2 is challenging due to the wide range of clinical manifestation and the limited number of described cases. Early diagnosis is crucial to start an effective targeted treatment with anti IL-1. The response of MCA symptoms to such a treatment must raise the suspect of IL-1 involvement in mast-cell activation.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001181 | Baseline serum tryptase: Establishment of reference values in a 2022 French nationwide study

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Background: Tryptase is the signature protease of human mast cells. Established in 1987 as a biomarker of anaphylaxis and mastocytosis, tryptase is also a predictor of the risk and severity of allergic reactions, while links to kidney disease, atherosclerosis, and metabolic syndrome are still investigated. The reference values of baseline serum tryptase (BST) have changed over time due to technical and conceptual progress. The purpose of the study was to report on BST levels in French general population and compare them to other recent reports.

Method: Retrospective anonymized collection of BST (total tryptase, fluoroimmunoenzymatic ImmunoCAP, Thermo Fisher Scientific, Uppsala, Sweden) in outpatients attending the nationwide Eurofins network of French private laboratories, January 1st 2022 through September 30, 2022. Acute tryptase samples were excluded. Samples with a BST value <1 µg/L detection limit of were assigned as 0.5 µg/L. Only the lowest BST value was included for subjects with repeated measurements.

Results: A total of 21,332 BST measurements were collected (67% female, mean age 46±21 years), with a median SBT 4.7 µg/L, 5–95% = 2.1–16.1 µg/L, highest values 605, 805, 816 and 1570 µg/L. After exclusion of SBT values ≥20 µg/L (n = 740, 3.5%), 20,592 BST measurements (67% female, mean age 45±21 years), median SBT was 4.6 µg/L with 5–95% = 2.1–11.6 µg/L. Comparison of SBT for age groups with recently published data from large cohorts in the Netherlands and Sweden showed that SBT values in French

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population were consistently greater than in the Netherlands, but lower than in Sweden (Table). Upper 95% values were greater than 8 µg/L, a value suggesting possible hereditary α-tryptasemia, in all age groups except 10–20 years.

Conclusion: We report SBT data in a large nationwide French population for the establishment of reference values. Comparison with SBT data from other European countries confirms slight but consistent variations across all age groups. The respective contribution of genetics, lifestyle, and study methodology warrants further studies.

References:

Slot MC et al. Tryptase reference ranges are age-dependent in a large population-based cohort. Allergy 2022;77:2833–4.

Vitte J et al. Tryptase reference values in a Swedish middle-aged general population and association with diabetes mellitus. Clin Exp Allergy 2022;52:1330–3.

Age (years)	Sample size (France)	Median SBT (5-95) (France)	Median SBT (2.5-97.5) (Netherlands)	Median SBT (5-95) (Sweden)
0-9	1111	4.0 (1.8-8.8)	3.9 (1.7-8.7)	NA
10-19	1779	3.7 (1.8-7.9)	3.3 (1.5-7.3)	NA
20-29	2240	4.0 (1.8-8.5)	3.3 (1.5-7.4)	NA
30-39	3086	4.2 (2.0-9.7)	3.7 (1.5-8.4)	NA
40-49	3118	4.5 (2.1-11.1)	3.8 (1.7-8.4)	NA
50-59	3383	5.1 (2.3-13.0)	4.4 (2.0-9.9)	5.5 (3.1-10.4)
60-69	3235	5.3 (2.6-13.9)	4.8 (2.1-10.9)	5.7 (3.3- 11.8)
>70	2640	5.8 (2.6-13.3)	5.4 (2.1-13.6)	NA

Serum baseline tryptase as a function of age in cohorts from France (present study), the Netherlands (Slot et al, 2022) and Sweden (Vitte et al, 2022).

Conflicts of interest: The authors did not specify any links of interest.

PEDIATRICS

001556 | Evaluations of rare NFKB2 variants in patients with various immunological disorders by NFKB2 knockout HeLa cells

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*Presenting author: H. Ohata

Background: *NFKB2* encodes the p100 protein, belonging to the NF-κB family. P100 is involved in signaling of the NF-κB non-canonical pathway, which is important for B cell survival and activation. Furthermore, the non-canonical pathway is thought to have reciprocal inhibitory effects on the canonical pathway, which is important for T cells survival and activation. Heterozygous haploinsufficient mutations in the *NFKB2* could cause common variable immunodeficiency (CVID), and heterozygous gain-of-function mutations could cause combined immunodeficiency (CID). In recent years, due to the advancement of genetic testing and the increased clinical application, there is a need for a method evaluating rare variants with unknown significance (VUS). Because previous study could not accurately evaluate the effect of each *NFKB2* VUS due to the presence of endogenous p100 expression in patients' cell lines, we studied this effect in *NFKB2* knockout HeLa cell lines.

Method: We generated *NFKB2* knockout HeLa cell lines by CRISPR/Cas9. We designed a guide RNA sequence in *NFKB2* exon2 and confirmed that almost the entire length was completely deleted. Single clones were obtained, and *NFKB2*-completely deficient cells were selected. Next, we used the transposon method to express *NFKB2* variants. The transfected cells were selected with puromycin. Then, to evaluate NF-κB non-canonical pathway activation, we extracted nuclear and cytoplasmic protein respectively and assessed p100 processing and RelB nuclear translocation during lymphotoxin α/β (LT) stimulation by Western blot analysis.

Results: We evaluated the reported *NFKB2* mutation (R853X) in NIK response domain (NRD) that causes CVID and the reported *NFKB2* mutation (R635X) in Ankyrin repeated domain (ARD) that causes CID. In R853X, p100 processing and RelB nuclear translocation were attenuated in response to LT stimulation. On the other hand in R635X, increased RelB nuclear translocation was found even without LT stimulation, indicating R635X is a GOF mutation as was reported. We further evaluated several unreported VUS: a VUS in NRD and ARD behaved similarly to R853X and R635X respectively, although some VUS didn't.

Conclusion: These results indicated *NFKB2* knockout HeLa cells enable to evaluate the impact of *NFKB2* VUS.

Conflicts of interest: The authors did not specify any links of interest.

000370 | Co-sensitization to tree nuts in peanut-sensitized infants and toddlers

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Background: Children with eczema are often sensitized to food allergens even before these foods have been introduced into their diet and peanuts are one of the most common food allergens. In peanut-sensitized children co-sensitization to tree nuts is often observed. However, common screening tests do not include tree nuts, although hazelnut, walnut and cashew are also commonly consumed in Europe. The aim of our study was therefore to determine how often peanut-sensitized infants and toddlers are sensitized against hazelnut, walnut or cashew and to analyse their sensitization profiles.

Method: Sera of children below the age of 2 years with peanut-specific IgE >= 0.1 kU/l with eczema were analysed in this study. Specific IgE to hazelnut, walnut and cashew was determined with the NOVEOS immunoanalyzer as well as to the respective 2S albumins Cor a 14, Jug r 1, Ana o 3 and also to Ara h 2.

Results: We analysed sera of 68 peanut-sensitized infants and toddlers. Age ranged from 5 to 23 months, median age 14 months. 49 (72%) of these patients showed specific IgE against Ara h 2 (median

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0.8 kU/l). In regard to tree nut sensitization 63 (93%), 56 (82%) and 54 (79%) children showed specific IgE to hazelnut, walnut and cashew, respectively, and 24 (35%), 26 (38%) and 23 (34%) to Cor a 14 (median 0.82 kU/l), Jug r 1 (median 0.58 kU/l) and Ana o 3 (median 0.43 kU/l). 53 (78%) of the children were sensitized to more than one tree nut.

Conclusion: Our analysis showed that sensitization to tree nuts are common in peanut- sensitized infants and toddlers with about 1/3 being sensitized to the respective 2S albumin indicating a higher likelihood of clinical relevant allergy. Therefore, in peanut-sensitized infants and toddlers it should be considered to determine specific IgE to tree nuts that have not been introduced into the diet so far. In case of sensitization the clinical relevance can then be determined under medical supervision.

Conflicts of interest: Kirsten Beyer reports advisory board/consulting fees from Aimmune Therapeutics, Bencard, Danone/Nutricia, DBV, Hycor, Infectopharm, Mabylon, Meda Pharma/Mylan, Nestle, Novartis; speakers bureau for Aimmune Therapeutics, Danone/Nutricia, Di-Text, Hammer und Rall Media, Infectopharm, Meda Pharma/Mylan, Med Update, Nestle, Novartis, ThermoFisher; and research grants from Aimmune, ALK, Danone/Nutricia, DBV Technologies, Good Mills, Hipp, Hycor, Infectopharm, ThermoFisher, VDI outside the submitted work.

000811 | Prevalence of asthma and asthma-related risk factors in pre-term infants based on 2002–2018 Korea national health insurance claims data

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*Presenting author: M. Kim

Background: The number of births in developed countries has decreased due to low fertility. However, the birth rate of premature infants (<37 completed weeks of gestation) is increasing. Chronic respiratory diseases are common sequelae of pre-term birth in later life, especially among extremely premature neonates or those with bronchopulmonary dysplasia (BPD). In this study, we retrospectively analyzed National Health Insurance (NHI) claims data (January 2002 to December 2018) to determine the asthma prevalence and risk factors among pre-term infants born in Korea.

Method: More than 98% of South Koreans are enrolled in the NHI program, which has the most significant advantage in that the data include nearly the entire country's population. Patients with asthma were defined as those with a history of asthma medication prescription at least twice per year with ICD-10 codes J45 and J46. We enrolled 99,139 pre-term infants. We studied newborns over 17 years from 2002 to 2018. The pediatric population with asthma between 2002 and 2018 was assessed using NHISS data by tracking birth-related factors.

Results: The prevalence rates of asthma in pre-term and full-term infants were 32.7% and 26.9% at two years, 21.2% and 19.1% at five years, 6.7% and 5.9% at ten years, 2.0% and 1.6% at 15 years, and 2.4% and 1.6% at 16 years of age, respectively. We compared the number of prescriptions of asthma-related medications and asthma in full-term and pre-term infants. The number of hospital visits for asthma and prescription of related medications at one year of age was 11.25 per patient for full-term infants compared with 15.03 for premature infants. An additional analysis was performed to determine the risk factors for asthma in pre-term infants. Among the pre-term infants, the number of all asthma-related prescriptions according to demographic factors or comorbidities was evaluated. The relative risk (RR) of asthma in pre-term male infants was 1.1-fold that in pre-term female infants. The RR of the prescription for asthma for extreme prematurity was 1.92-fold that for moderate/late pre-term birth. The RRs of the prescription for asthma in patients with bronchopulmonary dysplasia (BPD) and respiratory distress in newborns (RDS) were 1.34 and 1.06 without comorbidities, respectively.

Conclusion: This study revealed a higher prevalence of asthma among pre-term infants than among term infants. Male sex, extreme prematurity, BPD, and RDS are risk factors for the prescription for asthma in pre-term infants.

Conflicts of interest: The authors did not specify any links of interest.

000744 | Omalizumab in the treatment of chronic spontaneous urticaria in pediatric patients from the age of 6 years (real-life experience of one center)

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Background: Treatment options for pediatric chronic spontaneous urticaria (CSU) are primarily based on adult and adolescent data that have been extrapolated for children. According to the latest international *EAACI/GA²LEN/EuroGuiDerm/APAAACI* guidelines *(Zuberbier et al., 2022)*, omalizumab (OMA) is the second line option after the ineffective 4-fold-dose of antihistamines. The recommendation is to start with 300 mg of OMA every 4 weeks. In patients with insufficient response, up dosing should be considered – by shortening the interval (every 14 days) and/or increasing the dosage (600 mg). The recommended age of the start of the treatment is from the 12 years.

Method: We would like to present our experience with OMA and CSU in the children that started treatment at the age from 6 to 19 years and to prove its efficacy and safety. They underwent complex laboratory and clinical tests before and during the treatment. Weekly urticaria activity score (UAS7) was evaluated before, after one month and during the treatment. We analyzed selected clinical and laboratory parameters in all the enrolled subjects.

Results: Our group of patients consisted of 16 subjects – 10 females and 6 males with CSU. Both urticaria and angioedema had 13 (81.3

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%) and only urticaria had 3 (18.7 %) subjects. Chronic inducible urticaria (mostly cholinergic urticaria) had 5 (31.3 %) subjects with concomitant CSU. The mean value of the total serum IgE concentration was 62.39 ± 49.39 IU/ml. The mean age of the initiation of OMA was 13.38 ± 3.47 years. However, 3 patients started at the age younger than 12 years (respectively 6, 8 and 8.5 years), what is off-label based on the indicating and registered criteria of OMA. The mean UAS7 score before the OMA was 30.63 ± 3.96 points, after first dose 5.00 ± 1.41 points, during the treatment 3.83 ± 0.98 points. The patients didn't experience any side effects during the treatment.

Conclusion: There are some pediatric patients with CSU who do not respond to conventional treatment and need to be initiated to OMA at the earlier age than 12 years. The real-life experience has shown that OMA is safe in the children with asthma younger than 12 years and there are also case reports and case series with CSU and OMA in this group of children. We have also proved the efficacy and safety in our group of patients and in general excellent effectiveness in all the subjects.

Conflicts of interest: The authors did not specify any links of interest.

000146 | Challenges in completing the milk ladder for patients with IgE-mediated cow's milk protein allergy; A case series and review of the literature

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Background: The milk ladder is the cornerstone of management of IgE-mediated cow's milk protein allergy (CMPA) in Ireland. While most children achieve tolerance to cow's milk and reach the top of the ladder, the reasons for stopping the milk ladder and barriers to progression through the milk ladder have not been explored to date.

Aim: The aim of this study was to review the current literature on the milk ladder for IgE-mediated CMPA and identify children with IgE-mediated CMPA who failed to complete the milk ladder, establish the reasons for not completing the ladder and explore the challenges to completing the milk ladder.

Method: An online search of the literature regarding the milk ladder and gradual introduction to milk was conducted. Children with CMPA who completed the milk ladder between 2011 and 2021 were identified in a chart review. Parents of children who stopped the milk ladder were contacted to complete a telephone survey.

Results: Seven studies were identified which explored the use of the gradual introduction to milk in CMPA. The first study carried out in 2008 challenged the current standard of strict milk avoidance as the primary treatment for milk allergy, as they showed that patients who were tolerant to baked milk in an oral food challenge (OFC) showed significantly smaller immunologic reactions to fresh milk after 3 months of ingesting baked milk. A further four studies explored the introduction of baked milk from 2011–2018, with the amount of patients who became tolerant to unheated milk at the end of the studies ranged from 54% to 88.1% mean (62.5%). This compares to the range of those who underwent strict avoidance for the duration of this trial, which ranged from 0% to 66.7% (mean 21.42%). The most recent study published in 2022 found that failure to progress through the milk ladder was associated with parental anxiety.

8 patients were included for the case series. The mean age of CMPA diagnosis was 12.5 months, range 3 months to 27 months. The mean age at which treatment with the milk ladder was commenced was 35 months, range 7 to 58 months. Mean Skin prick tests (SPT) was 4.875. Mean Specific IgE for whole milk was 47.4 kIU/ml.

Most parents reported that they discontinued the ladder as their child experienced multiple and often severe reactions while progressing through the ladder. Other challenges to completing the milk ladder that parents explained included their child having multiple food allergies which prevented them from eating certain foods on the ladder, having other atopic conditions such as eczema for which they prioritised treatment, and diagnosis with autism, which prevented them from eating new foods due to sensory issues.

Conclusion: Multiple allergic symptoms like history of atopy, other allergic reactions and an ASD diagnosis could be potential barriers for the adequate introduction of milk using the milk ladder strategy. Improved parent education, frequent follow-ups throughout treatment, reducing parental anxiety and an adapted milk ladder with greater food choices may improve progression through the ladder. Further studies should be conducted to identify practical solutions to overcoming these challenges.

Conflicts of interest: The authors did not specify any links of interest.

000282 | The features of severe food protein-induced enterocolitis syndrome (FPIES) with acidosis

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Background: Food protein–induced enterocolitis syndrome (FPIES) is non-immunoglobulin E-mediated gastrointestinal food allergic disorder. Severe FPIES occasionally could develop acidosis, but the frequency and characteristics of severe FPIES with acidosis are not elucidated. This study aimed to investigate the characteristics of severe FPIES children with acidosis.

Method: This was a retrospective cohort study using children's medical records at the National Center for Child Health and Development from March 2002 to May 2022 in Tokyo. We extracted medical information following inclusion criteria; clinical diagnosis (food allergy/food protein-induced gastroenteropathy), history of hospitalization, pH < 7.25 with blood gas analysis, visit to our allergy department,

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and age <2 years. After extracting the children, we selected severe FPIES according to international consensus guidelines and divided them into two groups (acidosis group and non-acidosis group). We compared two groups on age of onset, causative food, and background such as birth history, and family history.

Results: Of 341 children extracted from the medical chart, we diagnosed 23 severe acute FPIES, 2 chronic FPIES, and 8 probable chronic FPIES according to the criteria of the international consensus guideline.

We identified 5 children (15.2 %) with acidosis. In the acidosis group ($n = 5$), all were triggered by cow's milk, and the median age at onset was 30 days. Two children were acute FPIES, one was chronic FPIES, and 2 were probable chronic FPIES. Two children (40%) were born with low body weight, 3 (60%) were premature birth, and 4 (80%) did not have any family history of atopy. One child was a sibling of a monozygotic twin, whereas the other child had no FPIES. In the non-acidosis group ($n = 28$), the most common causal food was cow's milk ($n = 18$), followed by eggs ($n = 5$), soybeans ($n = 3$), fish ($n = 1$), and rice ($n = 1$). The median age at onset was 210 days. Six children (21%) had low birth weight, 5 (18%) were premature birth, and only 2 (7%) did not have any family history of atopy.

Conclusion: We identified that 15.2% of severe FPIES children had acidosis history. Immaturity (low age, premature birth, and low birth weight) was likely to be a risk factor for severe FPIES with acidosis, as it is more likely to cause circulatory failure. On the other hand, neither immune-related backgrounds nor genetic factors were likely to be associated with the development of acidosis in severe FPIES. These findings may lead to 1) the safe oral food challenge by stratifying by FPIES severity factors and 2) the planning of clinical studies to elucidate the pathophysiology of severe FPIES.

Conflicts of interest: The authors did not specify any links of interest.

001455 | Hyper IgD syndrome- a strenuous road to diagnosis: A case report

T. Savevska; G. Milanovski; T. Brnjarchevska; M. Kirijas; O. Sibinovska; S. Iljoska; O. Efinska-Mladenovska; B. Dobrevski; K. Stamatovska; S. Kajevikj; A. Petlichkovski

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Background: Hyperimmunoglobulinemia D with periodic fever syndrome (HIDS) is a rare autosomal recessive disorder caused by pathogenic variants in the mevalonate kinase gene *(MVK)*. According to the residual enzyme activity, HIDS is on the milder end of the mevalonate kinase deficiency (MKD) spectrum. Experts claim it is vastly underrecognized, as it has been reported in several hundred patients worldwide. Diagnosis usually takes years, as IgD class antibodies may be negative in up to 20% of patients and assessing mevalonic aciduria during attacks usually requires specialized gas chromatography-mass spectrometry.

Case: We present a 17-year-old male patient with a lifelong history of unexplained febrile episodes, usually accompanied by pharyngotonsillitis, cervical lymphadenopathy and marked elevation of inflammatory markers. Repeated antibiotic courses and tonsillectomy performed at age 5 brought no improvement. Patient's history also includes several occurrences of aphthous stomatitis and macular rash. Frequent headaches with bouts of nausea, vomiting and abdominal pain were also present. Immunoglobulin classes A, G and M were tested in two instances showing mild elevation of IgG, while ANA, anti-CCP and RF were all negative.

Method: DNA sequencing was performed on IonTorrent S5 NGS platform using an AmpliSeq panel covering 44 genes associated with autoinflammatory syndromes. Interpretation of variant pathogenicity was based on the ACMG criteria using the IonReporter v.5.18. variant analysis and QIAGEN Clinical Insight Interpret 9.0. software.

Results: The analysis identified two bi-allelic pathogenic variants in the *MVK* gene (c.1129G>A; p.V377I and c.564G>A; p.W188*). The missense variant p.V377I is an established pathogenic founder mutation reported in a large majority of HIDS patients, while p.W188* is a rare nonsense variant predicted to cause loss of normal protein function.

Conclusion: Autoinflammatory disorders including HIDS are still a conundrum for clinicians worldwide. The delay in proper diagnosis leads to scarce treatment options and psychophysical burden on patients. This case reinforces genetic testing as a facilitator in the daunting diagnostic process and supports it as an added tool in immunologists' workup.

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Conflicts of interest: The authors did not specify any links of interest.

001461 | NLRP12 missense variant in three patients with periodic fever symptoms

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Background: Periodic fever syndrome is a group of systemic autoinflammatory disorders (SAIDs) presenting with recurrent attacks of fever and inflammation of joints, skin and serosal surfaces, accompanied by elevated inflammatory markers. We present three unrelated Macedonian patients with periodic fever symptoms and a rare NLRP12 missense variant.

Method: Pediatric patients with clinical features of SAIDs were referred to the Institute for Immunobiology and Human Genetics, Medical faculty, Skopje for genetic testing. Next-Generation Sequencing was performed using Ampliseq autoinflammatory

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panel with 44 SAIDs associated genes, on Ion Torrent S5 platform. Nucleotide sequence analysis and variant interpretation was done using Ion Reporter v.5.18. and QIAGEN Clinical Insight Interpret 9.0. softwares.

Results: Patient 1 is a 5-year-old girl, whose symptoms started a year ago with recurrent fever (>38.5°C), atopic dermatitis, tonsillopharyngitis and stomach pain accompanied with high levels of CRP during the episodes. Patient 2 is a 2.5-year-old girl, presenting symptoms at the age of 1 with transient synovitis of the left hip, multifocal osteolytic bone lesions, recurrent fever attacks, severe joint pain, erythematous blisters on hands and elevated inflammatory markers. Patient 3 is a 6-year-old girl whose symptoms started at the age of 2 with periodic fever episodes accompanied by elevated inflammatory markers, unsuccessfully treated with antibiotics. The average interval between attacks was 3 weeks. The sequencing data identified a heterozygous missense variant in the *NLRP12* gene (c.1054C>T p.Arg352Cys) in all of the patients, classified as a variant of uncertain significance (VUS).

Conclusion: Several NLRP12 variants have been associated with a rare autosomal dominant condition known as familial cold-induced autoinflammatory syndrome (FCAS2, OMIM #611762). This NLRP12 (c.1054C>T p.Arg352Cys) variant has been previously described in 3 other unrelated individuals with periodic fever or autoimmune diseases. It has an allele frequency of 0.04% of the general population, and ClinVar contains several entries of this variant reported as VUS. Proposed mechanism of pathogenicity is a gain of function, enhancing the processing of caspase 1 compared to wild type. Our findings highlight the interest of further functional experiments and family testing to evaluate the possible pathogenicity of this variant.

Conflicts of interest: The authors did not specify any links of interest.

000325 | A study on the association of asthma onset in infants and toddlers with croup using big data

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*Presenting author: E. H. Chung

Background: Croup and recurrent croup are known to be associated with bronchial asthma, which has also been associated with airway hypersensitivity. The purpose of this study was to investigate the relationship between asthma onset in infants and toddlers using big data and to study its characteristics.

Method: Among the sample cohort data from the National Health Insurance Corporation, 2,395,966 infants born between 2008 and 2012 were included in the study group with those who visited the ER or were hospitalized with croup (ICD code; J38.5, J04, J05) at least once (median follow-up of 72 months). In the control group, the time of occurrence was determined by density sampling. Premature infants, low birth weight infants, congenital anormaly, or a history of admission to the NICU were excluded from the study. Bronchial asthma was defined as a case of visiting the ER or hospitalized with a diagnosis code (ICD code; J45 or J46), or having been diagnosed with asthma twice or more and administered asthma medications. Confounding variables for asthma occurrence were gender, economic income, region, breastfeeding status, birth year and birth weight. Sensitivity analysis was performed for asthma by treatment history, diagnosis code and frequency of drug use, and croup only by diagnosis code.

Results: A total of 832,250 subjects were studied, of which 14,141 (1.7%) were diagnosed for croup. Six months after the diagnosis of croup, the incidence of asthma was 8.9% in the control group and 12.19% in the study group, and the risk of asthma occurrence was higher in the study group (HR 1.392, 95% CI 1.327 to 1.460). Asthma incidence was higher in males, with city dwellers, mixed lactation, and lower birth weight. Even when these confounding variables were controlled, croup had a higher risk of asthma (aHR 1.371, 95% CI 1.305 to 1.440). In the sensitivity analysis of asthma diagnosis, croup also increased the asthma risk.

Conclusion: Although the degree of atopy was unknown, in this study, patients with infantile croup or recurrent croup had a higher incidence of asthma than healthy children. In order to understand the mechanism of asthma development in patients with croup or recurrent croup, additional studies on the relationship between bronchial hypersensitivity, physiological parameters of upper airway obstruction, and atopy are needed.

Conflicts of interest: The authors did not specify any links of interest.

001140 | Evaluation of drug allergy in children with primary immunodeficiency

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Background: Primary immunodeficiencies(PID) are a heterogeneous group of disorders with an increased susceptibility to infections, autoinflammation, autoimmunity and allergies. Prophylactic or therapeutic antimicrobial drugs, immunoglobulin replacement and immunomodulatory therapies are often needed. Due to multidrug use and a predisposition to allergy in some PID patients, drug allergies can be seen in these patients. We aimed to investigate the frequency of drug allergy in children with PID.

Method: Patients with PID, followed in Ankara Bilkent City Hospital Department of Pediatric Immunology and Allergy, were evaluated for any drug reaction. Their medical records were reviewed. In patients with a history of suspected drug allergy, we performed skin tests and drug provocation tests if the patient was eligible. Otherwise, alternative treatments were preferred.

Results: Two hundred and one patients were included in the study. The median age (with interquartile range) was 11.9 (5.7–16.7) years,

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and 60.7% of patients were male. Diagnoses mostly included predominantly antibody deficiencies, combined immunodeficiencies and phagocyte defects, and to a lesser extent other types of PID. Out of a total of 201 patients, 50 drug reactions were described in 41 (20.4%) patients. Sixteen (32%) reactions were anaphylaxis, mostly with immunoglobulins. Four (8%) reactions were consistent with drug reaction with eosinophilia and systemic symptoms(DRESS). Overall, most reactions (64%) were defined with antimicrobials. Diagnostic tests were performed in 8 patients. In some cases, patients re-exposured to the culprit drug without any reaction. Totally in 20 (40%) reactions, patients could tolerate the drug later. Desensitization was successfully applied in 3 (6%) reactions with infliximab, rituximab and methylprednisolone. In 17 (34%) reactions, alternative treatments were chosen. Also, we preferred different drug brands in immunoglobulin reactions. There was no significant difference between groups of patients with and without drug reactions, in terms of median age, gender, PID type, presence of any other chronic diseases, presence of atopic diseases, and family history of drug allergy.

Conclusion: There is little information in the literature about drug hypersensitivity reactions in pediatric PID patients. These patients appear to be at risk of drug allergy and in a history of suspected drug reaction, a diagnostic evaluation can prevent mislabeling of a drug allery diagnosis.

Conflicts of interest: The authors did not specify any links of interest.

000549 | Phenotypes of pediatric allergic rhinitis based on cluster analysis

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Background: Allergic rhinitis (AR) is a wide spectrum disease of high prevalence in children and adolescents. Analysis of phenotype can be helpful in the treatment and management of AR. However, little is known about the AR phenotype in Korean children and adolescents. The purpose of this study was to investigate AR phenotypes in Korean children and adolescents using cluster analysis.

Method: Cluster analysis was performed on the data from 135 children and adolescents with AR who were enrolled by three university hospitals in south Korea between December 2019 and November 2020 in the Korean Allergic Rhinitis Cohort study (KoARCo). The questionnaire for clinical characteristics, environment factors were surveyed, and laboratory tests were analyzed.

Results: One hundred and thirty-five AR patients were extracted to 3 clusters: Cluster 1 ($n = 47$, 34.8%) which was the largest cluster and characterized by nasal itching; Cluster 2 ($n = 43$, 31.9%) which was the smallest cluster and characterized by living away from main road and cluster 3 ($n = 45$, 33.3%) which was characterized by gender. Additionally, these cluster phenotypes differed significantly in terms of ARIA guideline severity and VAS score within 12 months. But familial history of allergic diseases is not significantly different among the clusters.

Conclusion: The AR phenotypes among Korean children and adolescents can be classified into 3 clusters. The classification of phenotypes will be helpful to understand children's AR characteristics and the wide spectrum of pediatric rhinitis. The follow-up study is needed to reveal the prognosis according to the phenotypes based on cluster analysis.

Conflicts of interest: The authors did not specify any links of interest.

001513 | Cooperation between allergy-specialized hospitals and regional medical institutions for pediatric food allergy practice in Chiba prefecture, Japan

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Background: The principle of managing food allergies is to eliminate the causative food at the minimum necessary level based on the correct diagnosis and safe intake dose determined using an oral challenge test (OFC). Therefore, to manage food allergies properly, repeated OFCs, dietary guidance for safe intake at home, and an emergency medical system in the event of allergic symptoms are necessary.

However, in Chiba Prefecture in Japan, food allergy practice has been centralized due to the uneven distribution and lack of pediatric allergy-specialized medical institutions. Therefore, one problem is that patients are concentrated in allergy-specialized hospitals, which results in a long waiting period for OFC. However, in depopulated areas without access to allergy-specialized hospitals or emergency medical systems, OFCs are challenging to conduct, and appropriate food allergy treatment is unavailable.

Method: We established the Chiba-Allergy Local Network-ES (CALNES) to develop an OFC methodology that can be implemented by non-food allergists, nutritional guidance materials that non-food allergists can implement, and collaboration between allergy-specialized hospitals and regional medical institutions.

Results: We changed the dosing method of OFC to a single dose to make it safe and easy for non-allergy-specialized hospitals to implement by maintaining the intake without increasing the amount at home. In addition, dietary guidance "Food Allergy Medical Care

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Notebook" was provided to facilities in CALNES to make the family clinic responsible for medical care and dietary guidance during the maintenance period, even in underpopulated areas.

Conclusion: Collaboration between regional medical institutions and allergy-specialized hospitals has made it possible to provide standardized food allergy care even for children living in underpopulated areas.

Conflicts of interest: The authors did not specify any links of interest.

000107 | A study of common aeroallergens in children with wheeze

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Background: Wheezing is a highly frequent symptom in pediatric populations. Its main causes are viral infection and asthma. Etiologic diagnostic is complex and becomes more difficult with younger children. Given that asthma is the most frequent chronic disease and the first cause of admission in pediatrics, an accurate diagnosis is mandatory to lead to an early and correct treatment.

Method: Skin prick test (SPT) allows detection of sensitization in a safe and efficient way in all age-groups. Cross sectional observation study to study the type of allergic sensitivity in a pediatric population in Hyderabad Children with recurrent (4 or more episodes of wheezing in past one year) ages between 2 years to 10 years (Mean Age = 6.15 ± 2.4) Sample Size: $n = 100$ (50% Boys & 50% Girls).

Inclusion criteria

1. Frequent wheezers (>4 episodes in past one year).

Exclusion criteria

1. Children with underlying structural lung diseases.
2. Immune deficiencies.
3. Infective pathologies.

Results: Our study showed 67% of the cases showed a positive SPT for atleast one allergen tested by the SPT.

The sensitivity to aeroallergens increased with age 46.8% in 2–4 years & 81.25% in children >7 years of age (p value < 0.025). Allergy to dust mite was 63 % followed by fungi at 15% cat at 13% pollen & cockroach at 10%. Dust mite was the most common allergen in all age categories. Allergy to indoor allergens was significantly higher than outdoor allergens (P value <0.0001).

Conclusion: SPT is an effective way to determine aeroallergen with minimal expense & greater selection of antigen. Specific allergen identification helps in implementing specific allergen preventive measure. Dust mites are the most common aeroallergen in all age groups. Among Dust Mites Dermatophagoides Farinae, Dermatophygoides pteronyssiuns & Blomia are most common. Incidence of aero allergy in children with recurrent wheeze increases with age. Indoor allergens are more common than outdoor allergens.

Conflicts of interest: The authors did not specify any links of interest.

001641 | Early presentation of hereditary angioedama symptoms in 2-year-old boy

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*Presenting author: J. Sematonyte

Background: Hereditary angioedema (HAE) is a rare autosomal dominant disease that is caused by deficiency or dysfunction of the C1 inhibitor (C1-INH). There are three types of HAE. Type I (low level of C1-INH) and type II (dysfunction of C1-INH) are caused by a mutation in the SERPING1 gene which makes the C1 inhibitor protein, while type III (normal level of C1-INH) is often due to a mutation in the F12 gene. HAE clinically manifests with intermittent attacks of swelling of the subcutaneous tissue or submucosal layers of the respiratory or gastrointestinal tracts which were triggered by precipitating factors such as emotional stress, traumas, hormonal influences, infections, surgery or dental procedures. Symptoms often begin in puberty and occur by age 20 in the most patients but attacks are uncommon among pediatric patients. We present a 2-year-old boy with HAE who had recurrent episodes of swelling of the extremities and face without urticaria and pruritus.

Methods: The patients were consulted by allergologist – clinical immunologist at a tertiary university hospital for reccurent peripheral oedema attacks. Complement C3, C4, C1 inhibitor levels were measured in serum. Genetical testing for suspected HAE was performed.

Results: A 2-year-old boy started to experience attacks of painfull swelling on his face and upper extremities which were triggered by a minor trauma or viral infections. The symptoms were not associated with urticaria or pruritus. HAE was diagnosed for patient's father after 8 years from the disease onset and the diagnosis was confirmed by de novo SERPING1 gene mutation. The level of serum C4 was 0.07 g/l (normal: 0.16–0.38), C3 was 0.78 g/l. (normal: 0.79–1.52). The level of C1 inhibitor was 0.05 g/l (normal: 0.15–0.35). SERPING1 gene mutation was identified and HAE Type 1 due to C1-INH deficiency was confirmed. Plasma-derived C1 esterase inhibitor concentrate was administered during acute attacks. Symptoms usually stabilized within 30 min.

Conclusion: HAE is a very rare genetic condition and this is the first case with particularly early onset of typical severe hereditary angioedema attacks in 2-year-old boy due to C1 esterase inhibitor inherited deficiency in Lithuania.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

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PREVENTION

000171 | Advanced analytical testing and characterization of modified grass pollen allergen products

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Allergy Therapeutics, Worthing, UK
*Presenting author: J. Goodman

Background: Grass pollen is one of the most common inhalant allergies. Allergen immunotherapy is the only causal treatment for allergic patients. Grass pollen immunotherapy is often based on a mix of different grass species extracts, which can be modified or unmodified products. Allergy Therapeutics have developed an innovative subcutaneous adjuvant grass allergoid immunotherapy. Eu. Pharmacopeia Guidelines on Allergen Products (01/2019: 1063) do not differentiate testing requirements between modified and unmodified products

Method: Characterisation of the allergoid product was performed using various techniques. Primary amine and size exclusion chromatography were used to confirm allergoid formation. ELISA techniques assessing specific total IgE and IgG binding were performed to gain allergenicity and antigenicity insights of the product formed.

Results: Characterisation of the allergoid by means of assessing free primary amines has demonstrated a percentage modification from native unmodified pollen extraction to the modified aqueous sample of over 95%. This modification is confirmed using HPLC size exclusion which shows a size shift from low to high molecular weight.

This modification from the native unmodified pollen extraction to the modified aqueous sample has resulted in an average allergenicity decrease of at least 93%, shown using ELISA. Final product allergenicity testing shows a negligible amount of IgE reactivity. Whereas total antigenicity, using a total IgG ELISA, is detected throughout the manufacturing process. The total IgG ELISA was designed to be optimal for the testing of product, utilising rabbit sera raised against the modified product ensuring the final product can be detected and quantified when compared to representative reference.

Conclusion: In depth characterisation of adjuvanted grass allergoid immunotherapy confirms the effectiveness and control of both the modification and manufacturing processes. This characterisation ensures a high quality allergoid product with low allergenicity and high antigenicity.

These findings highlight that total antigenicity is a more relevant critical attribute for defining the quality control of the allergoid product as opposed to allergenicity based analysis.

Conflicts of interest: The authors did not specify any links of interest.

001507 | The dietary inflammatory index is related to asthma and lung function: Analysis of Korea National Health and Nutrition Examination Survey (KNHANES)

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*Presenting author: S. J. Chung

Background: A pro-inflammatory diet can increase allergic airway inflammation. However, the effect of a pro-inflammatory diet on asthma remains unclear. This study aimed to assess the relationship between the Dietary Inflammation Index (DII) Score and the diagnosis of asthma and lung function.

Method: Data from 8,968 individuals (aged 40–80 years), who participated in the 2016–2019 Korea National Health and Nutrition Examination Survey (KNHANES), were reviewed and analysed. Multiple logistic regression analysis was used to analyse the linear association between the DII score and the diagnostic rate of asthma and lung function. A generalised additive model was used to evaluate the linear relationship between DII and the diagnostic rate of asthma.

Results: A higher DII (a pro-inflammatory diet) was associated with a higher rate of asthma diagnosis (odds ratio [OR] for quartile four vs. one, OR [1.509, 95% confidence interval [CI] 1.067–2.134). Moreover, a higher DII was associated with decreased forced expiratory volume in 1 second, and forced vital capacity, among individuals without asthma. The DII was not related to lung function in the current asthma group.

Conclusion: Our findings suggest that a pro-inflammatory diet may contribute to an increased diagnosis of asthma and lower lung function. These results support the role of dietary interventions in preventing asthma and improving lung function.

Conflicts of interest: The authors did not specify any links of interest.

000388 | Adolescent experience of hereditary (HAE): Disease burden and treatment experiences

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*Presenting author: A. Yarlas

Background: Hereditary angioedema (HAE) is a rare, genetic disease characterized by disabling episodes of subcutaneous or submucosal tissue swelling that can be life-threatening. While the disease and treatment experience of adults with HAE has been documented, few studies have focused on the experiences of adolescents. The purpose of this qualitative study was to gain an in-depth understanding of disease and treatment experience from the perspective of adolescents with HAE.

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Method: Data were collected in this IRB-approved study via 60-minute, 1:1 interviews with 12 adolescents (6 males, 6 females; 6 aged 12–14, 6 aged 15–17 years) in the United States. Eligible participants, recruited via a patient advocacy organization, had a confirmed diagnosis of Type I or Type II HAE, and were currently on prophylactic treatment to prevent HAE attacks.

Results: Interviewees experienced attacks that varied by trigger, frequency, severity, location, and duration. During an attack, they experienced swelling ($n = 12$), pain ($n = 10$), nausea ($n = 7$), vomiting ($n = 5$), rash ($n = 5$), fatigue ($n = 4$), and a tingling sensation ($n = 2$). Adolescents reported their most bothersome symptoms (pre-prophylaxis) were pain associated with swelling ($n = 7$), stomach swelling ($n = 5$), and nausea/vomiting ($n = 2$). Those 3 symptoms were most frequently mentioned as most important to treat ($n = 4$, $n = 2$, $n = 2$, respectively), followed by general swelling ($n = 2$), laryngeal attacks ($n = 1$), and tightness or discomfort ($n = 1$). Adolescents described how HAE impacted their daily lives, including impacts on physical, social, emotional, and cognitive functioning, as well as sleep disturbance, school-related impacts, and a need to avoid attack triggers. They unanimously reported that since initiating prophylaxis, the frequency, severity, and duration of attacks had been reduced and their HAE-related impacts had been minimized. Participants were satisfied with their current prophylactic and acute treatments, and expressed a preference for treatments that were effective, convenient, self-administered, and had minimal side effects.

Conclusion: Adolescents with HAE experienced a wide range of symptoms that impacted feeling and functioning. All participants reported substantial reductions in symptoms and impacts following prophylactic treatment. This study provides insight into disease and treatment experiences of adolescents with HAE and emphasizes their preferences for effective treatments with minimal treatment burden.

Conflicts of interest: The authors did not specify any links of interest.

000435 | Can vitamin D prevent food sensitization? Insights from a randomized, double-blind, placebo-controlled study (vitamin D mediated prevention of allergic March in Chiba, D-PAC study)

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*Presenting author: T. Nakano

Background: Recent epidemiological studies have shown that the frequency of vitamin D (VD) deficiency in mothers and children is high and that low VD may be closely related to sensitization and allergy development. However, whether vitamin D is involved in the development of food allergy is still a controversial issue. We conducted the D-PAC study (Vitamin D mediated Prevention of Allergic march in Chiba) to evaluate whether VD can prevent food allergen sensitization.

Method: D-PAC study is a randomized, double-blind, placebo-controlled trial of VD supplementation conducted in Chiba city, Chiba, Japan. 400IU vitamin D3-cholecalciferol syrup or placebo syrup once daily are administered until six months of age. Participants are invited for a clinical assessment for 1, 4, 6, and 12 months. We analyzed the specific IgE levels of egg white and VD levels in the infant's sera at 6 and 12 months.

Results: In total, 265 pregnant women were recruited in the D-PAC study. 41 subjects were excluded at birth because of insufficient eligibility criteria. 87% of mothers and 46% of children at the age of one were VD deficient (25(OH)D3 <20 ng/mL). Egg white sensitization rates were significantly higher in subjects with deficient VD (43.9%) compared to subjects with sufficient VD (15.2%). There was no relation between the presence of eczema and VD levels.

Conclusion: Vitamin D might reduce the egg white sensitization. We are still in the process of fixing our data. The data after the key opening will be presented at the conference.

Conflicts of interest: The authors did not specify any links of interest.

000555 | Association between maternal folic acid supplementation during pregnancy and childhood allergic diseases among Asian children

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*Presenting author: C. Y. Hung

Background: Previous studies have suggested a relationship between maternal folic acid supplementation during pregnancy and allergic diseases in early childhood, but the results of epidemiological studies are conflicting. This study aimed to investigate the association of maternal folic acid supplementation during pregnancy with childhood allergic diseases and allergic sensitization among Asian children.

Method: A total of 1513 children (850 boys, 56.2%; mean age, 6.4 years) participated in the Longitudinal Investigation of Global Health in Taiwanese School children (LIGHTS) cohort were enrolled in this study. Information on demographics, maternal folic acid supplementation during pregnancy, childhood allergic diseases, and relevant covariates was obtained by parent-reported questionnaires. Allergic diseases, including asthma, allergic rhinitis, and atopic eczema were defined by physician diagnosis and the presence of corresponding symptoms in the last 12 months. Allergic sensitization was determined by Phadiatop Infant.

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Results: Maternal folic acid supplementation during pregnancy was significantly associated with increased risk of allergic rhinitis (adjusted odds ratio [AOR]: 1.39; 95% confidence interval [CI]: 1.05–1.85), after adjusting for relevant confounders. We found no evidence for significant association of maternal folic acid supplementation during pregnancy with asthma (AOR: 1.30; 95% CI: 0.77–2.19), atopic eczema (AOR: 1.04; 95% CI: 0.73–1.48), or allergic sensitization (AOR: 0.77; 95% CI: 0.57–1.03).

Conclusion: This study provides supportive evidence that maternal folic acid supplementation during pregnancy was significantly associated with 1.4-fold increased risk of allergic rhinitis by the age of 6 years, but not asthma, atopic eczema, or allergic sensitization, among Asian children in Taiwan.

Conflicts of interest: The authors did not specify any links of interest.

000521 | Is early childhood allergy prevention a relevant topic for parents, pediatricians and midwives? A qualitative interview and focus group study in Germany

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*Presenting author: J. Lander

Background: Allergic diseases are a major public health concern. Promising new avenues of prevention may reduce the risk of allergies, particularly when addressed at families with young children. As part of a multicenter research group on health literacy in early childhood allergy prevention (HELICAP FOR 2959; German Research Foundation – GZ: CU 438/ 1–1, GZ: DI-1757 / 2–1)), we explored to what extent pediatricians and midwives address early childhood allergy prevention (ECAP) vis-à-vis parents and, in contrast, how relevant parents deem this topic.

Method: We interviewed pediatricians ($n = 19$, female = 10) and midwives ($n = 23$) from different parts of Germany via telephone. We conducted – mostly digital – focus groups and individual interviews with parents ($n = 114$, female = 106, own allergy = 51). Conversations were audio recorded, transcribed, anonymized, coded and subjected to thematic content analysis.

Results: All pediatricians and midwives were aware of scientific ECAP recommendations. They frequently referred to ECAP as not being a stand-alone topic in counselling, but one that resonates for instance with nutrition, hygiene and living environment. They stated to seldom address ECAP explicitly, including reference to latest evidence. Time constraints, overburdening amounts of topics and parental insecurity were named as major reasons. Parents ascribed most relevance to ECAP in case of children showing symptoms or existing familial predisposition. Overall, parental awareness was not pronounced with parents mentioning not being made aware of it during medical consultations, missing basic information, and a lack of opportunities to learn about ECAP. Accordingly, parents reported to only know little about the range of potential prevention measures, to rarely be aware of high-quality information sources, and to make prevention-related decisions for the child based on gut feeling rather than evidence-based.

Conclusion: As parental awareness and perceived relevance is often lacking, pediatricians and midwives should use opportunities such as counselling on infant nutrition to address ECAP more explicitly. This may be effective particularly with families with pre-dispositions, who require adequate information to take effective preventive measures for their children at the right time. A health-literacy sensitive approach seems advisable to account for parents' distinct levels of comprehension and prevention knowledge.

Conflicts of interest: The authors did not specify any links of interest.

000855 | User feedback and clinical outcomes when using a novel sleeve attachment device providing reduced activation force for pressurised metered dosage inhalers

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Background: Pediatric asthmatic patients often lack the strength to activate their pressurized metered dose inhaler (pMDI). A recently developed sleeve device, the Easy Squeezy (ES) that attaches to a pMDI reduces the activation force of pMDIs from 39N to 12.6N.

Method: In this cross-over study we recruited 60 asthmatic children between the age of 5 and 12 years. The participants were randomised into two groups. One of the groups used ES for 6 weeks while the other group used pMDI. After 6 weeks the participants crossed over to the other group. Lung function test parameters were measured before randomisation and after each 6 weeks of device use. Quality of life information (PAQLQ) and child asthma control test (C-ACT), were measured after each period of device use.

Results: There was no significant difference in the baseline lung function between the groups. ES group had significantly lower percentage difference between pre- and post-bronchodilator FEV1. The differences in lung function parameters from previous measurement was found to be significantly better with ES than with pMDI alone. No significant differences were observed in PAQLQ scores between the groups. The average total C-ACT scores were significantly higher after the use of ES when compared to pMDI alone.

Conclusion: When compared to the pMDI, we found that the Easy Squeezy enabled paediatric patients to activate their pMDIs with ease. Use of the ES decreased reversibility, indicating improvements

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in bronchial hyper-reactivity with the use of ES, was associated with improvements in pre-bronchodilator FEV1 and FEV1/FVC ratio from the prior lung function measurement and resulted in improved asthma control.

Conflicts of interest: Advisor for Impulse Biomedical Pty Ltd.

000968 | Safety of early allergen introduction in high-risk infants – First results from the RCT 'tolerance induction through early feeding to prevent food allergy in infants with eczema (TEFFA)'

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*Presenting author: L. Meixner

Background: The primary aim of the TEFFA trial is to investigate, whether an early introduction of small amounts of hen's egg (HE), cow's milk (CM), peanut (PN), and hazelnut (HN) in parallel in infants with eczema is safe and can reduce the risk for developing food allergy in the first year of life.

Method: Infants with eczema at the age of 4–8 months are randomized (2:1 ratio) into a verum group that receives daily rusk-like biscuit powder with HE, CM, PN, and HN or into a placebo group (double-blind). During the interventional period of 6 months, the amount of allergens in the study product is increased three times from approximately 2 mg to 150 mg for each of the food allergens. Parents are asked to document any adverse event in a diary. In case of an allergic reaction within 2 h of study product intake parents should call the study site.

Results: The study started in February 2020 and is ongoing (still blinded). So far, 49 participants have been randomized, of whom 19 were sensitized to HE, CM, PN and/or HN at the beginning of the study. 32 infants (16 sensitized) have completed the 6-month-intervention without any problems; four are currently consuming the 2mg-dose; eight participants dropped-out of the study due to personal reasons, and five discontinued the intervention early due to adverse events. Of these five, two patients stopped the intake of the study product due to urticaria after its intake (one at the 10mg-dose and one at the 150mg-dose) and two due to worsening of eczema after the intake of the 2mg-dose for several days. All four infants were sensitized. The fifth infant showed recurrent gastrointestinal problems independently of the intake of the study product.

Conclusion: Although 19 participants were sensitized against the interventional allergens at the beginning of the study, no severe allergic reactions occurred. From these preliminary (blinded) data, early allergen introduction of small amounts in high-risk infants seems to be safe regarding the occurrence of immediate type allergic reactions.

Conflicts of interest: K. Beyer reports advisory board/consulting fees from Aimmune Therapeutics, Bencard, Danone/Nutricia, DBV, Hycor, Infectopharm, Mabylon, Meda Pharma/Mylan, Nestle, and Novartis; speakers bureau for Aimmune Ther- apeutics, Danone/Nutricia, Di-Text, Hammer und Rall Media, Infectopharm, Meda Pharma/Mylan, Med Update, Nestle, Novartis, and ThermoFisher; and research grants from Aimmune, ALK, Danone/Nutricia, DBV Technologies, Good Mills, Hipp, Hycor, Infectopharm, ThermoFisher, and VDI outside the submitted workM. Worm declares the receipt of honoraria or consultation fees by the following companies: ALK, Mylan /Viatris, Bencard Allergie GmbH, Novartis AG, Biotest AG, Sanofi-Aventis Deutschland GmbH, HAL Allergie GmbH, DBV Technologies S.A, Aimmune, Regeneron.

000943 | The needs of parents of children with allergic diseases in preschool and school: A qualitative focus group study

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*Presenting author: A. Turesson

Background: Pediatric allergic diseases in childhood are a major health problem and may reduce quality of life and impair social and learning development of the child. Few studies show the holistic perspective regarding the needs of parents of children with severe allergic diseases related to allergy management in preschools and schools. We aimed to identify the needs of parents of children with severe allergic diseases, with consideration to different aspects of allergy management in both the physical and psychological environments, in preschools and schools.

Method: A qualitative focus group study was performed with parents of children with various/multiple allergies and/or asthma, sex and age (ages 2–13), living in Stockholm, Sweden. Parents were recruited from an Allergy Consultant Clinic consisting of specialized nurses in pediatric, asthma and allergies for education in preschool and school. A semi-structured interview guide was used. Systematic text condensation was used to analyze the data.

Results: We performed four focus group, involving a total of 25 parents, in which we identified five categories from the parents' experiences of needs regarding allergy management in preschool and school: Implemented routines/guidelines, Allergy competence among personnel, Improved communication, Need for their child to be treated equally, and To feel trust. Parents of children with severe allergy often feel anxiety regarding their child being in preschool and school and there is a need for more safety and trust around their child. They express a need for improved routines and guidelines, in relation to allergy management and that personnel have clearer

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responsibilities and better allergy competence. Another factor is that children with allergies should be given the same conditions and be treated equally as their peers.

Conclusion: Parents of children with severe allergies describe a great need for improved allergy management in preschools and schools. This includes better and more comprehensive routines, guidelines and responsibilities among personnel, adjustments of the physical environment, basic and practical knowledge about allergy among personnel and improved communication. Additionally, equal treatment and inclusion for children with allergy in preschools and schools is of importance.

Conflicts of interest: The authors did not specify any links of interest.

000884 | Start and success of long-term prophylaxis in hereditary (HAE) in Hong Kong

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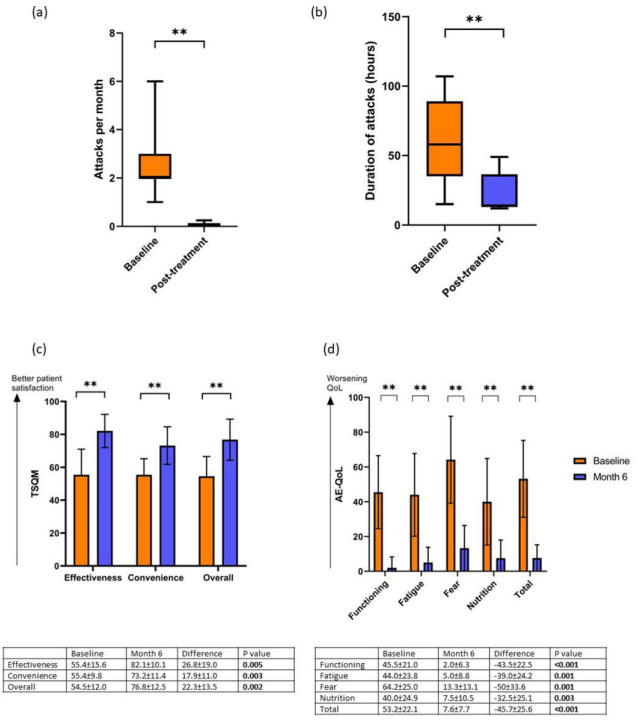
*Presenting author: P. Li

Background: With no approved long-term prophylaxis (LTP) for the prevention of hereditary angioedema (HAE) attacks, patients rely soley on compassionate use and various drug trials. Moreover, studies regarding the use and efficacy of LTP in Asia are lacking.

Method: We conducted a prospective study to assess the efficacy and safety of two LTP medications in the treatment of HAE; lanadelumab and garacimumab. Adult patients with a diagnosis of type 1 or 2 HAE, with 1 or more expert-confirmed attack per month were consecutively recruited. Patients were on treatment for at least 6 months. Clinical data was obtained, and questionnaires was conducted prior to treatment and periodically at least 6 months after LTP.

Results: More than a quarter (10/36) of all adult HAE patients were started on LTP; 8 on garacimumab and 2 on lanadelumab. At baseline, the time-normalized number of HAE attacks was 2.5±1.4 per month. There was a significant reduction in attacks of -2.4 (-3.4 to -1.5 [95% CI]) per month, $p < 0.001$. There was a significant reduction in duration of symptoms pretreatment; 61.0±28.6 h compared with 22.6±15.5 h post treatment, $p = 0.007$. LTP significantly improved all dimensions and overall Angioedema Quality-of-Life score (53.2% to 7.6%, $p < 0.001$) and reduced activity impairment due to health from the Work Productivity and Activity Impairment Questionnaire: General Health (55.7% to 15.7%, $p = 0.008$). There was also significant improvement in all dimensions of the Treatment Satisfaction for Medication Questionnaire (54.5% to 76.8%, $p = 0.002$). There were no adverse events reported.

Conclusion: LTP is a safe and efficacious preventative treatment option and urges the importance and urgency of introducing LTP into Asian markets like Hong Kong.



	Baseline	Month 6	Difference	P value
Effectiveness	55.4±15.6	82.1±10.1	26.8±19.0	**0.005**
Convenience	55.4±9.8	73.2±11.4	17.9±11.0	**0.003**
Overall	54.5±12.0	76.8±12.5	22.3±13.5	**0.002**

	Baseline	Month 6	Difference	P value
Functioning	45.5±21.0	2.0±6.3	-43.5±22.5	**<0.001**
Fatigue	44.0±23.8	5.0±8.8	-39.0±24.2	**0.001**
Fear	64.2±25.0	13.3±13.1	-50±33.6	**0.001**
Nutrition	40.0±24.9	7.5±10.5	-32.5±25.1	**0.003**
Total	53.2±22.1	7.6±7.7	-45.7±25.6	**<0.001**

Conflicts of interest: The authors did not specify any links of interest.

ALLERGOONCOLOGY

000867 | Atezolizumab and bevacizumab. Who is guilty?

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*Presenting author: N. Rodríguez-Otero

Background: The use of biologic drugs is increasing. Atezolizumab is a humanized IgG1 checkpoint inhibitor. Bevacizumab is a monoclonal antibody Vascular Endothelial Growth Factor (VEGF) Inhibitor. Both are currently approved for several indications, among which is non-small cell lung cancer. Hypersensitivity reactions to both drugs have been reported. Recently a type IV hypersensitivity reaction to atezolizumab has been confirmed with lymphocyte transformation test (LTT).

Method: We report a case of a 70-year-old female with history of enteroid adenocarcinoma of the lung stage 4 receiving treatment with paclitaxel, carboplatin, bevacizumab and atezolizumab. One week after the third cycle of treatment, she developed a generalized maculopapular rash with peeling. She did not present other systemic symptoms. Blood tests showed elevated liver enzymes and eosinophils. A skin biopsy was not performed.

When skin lesions resolved, she was reexposed under close surveillance to carboplatin and paclitaxel since late reactions to these drugs

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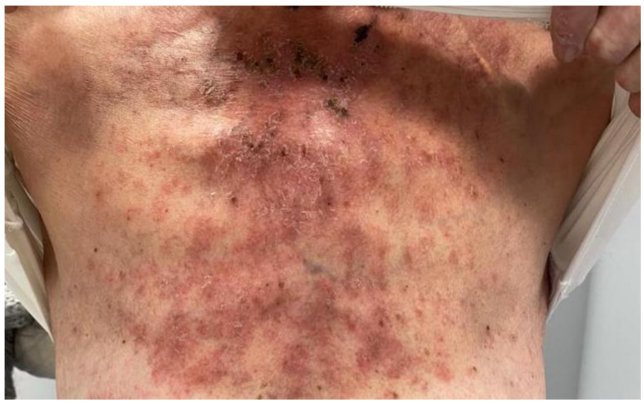
are rare and we did not suspect they were the cause. She did not experience any reactions.

We performed skin prick tests and skin intradermal tests with delayed readings with both atezolizumab and bevacizumab. We then performed a LTT with atezolizumab and bevacizumab. Cells were stimulated with 5000 µg/ml, 500 µg/ml, 50 µg/ml, 5 µg/ml, 0.5 µg/ml, 0.05 µg/ml of atezolizumab and bevacizumab.

Results: Prick tests and intradermal tests showed negative results for immediate and delayed reading. LTT with bevacizumab was negative but LTT with atezolizumab showed a positive result (SI>3) with concentration of 5 µg/ml. LTT controls were negative.

Conclusion: We confirmed hypersensitivity to atezolizumab through LTT and opened up the possibility of reexposing the patient to bevacizumab. Therefore, LTT could be a useful diagnostic technique to identify the drug responsible for severe reactions in which reexposure cannot be performed because of high risk. In this case, bevacizumab could be reintroduced under close allergy supervision if there is a therapeutic indication. Our patient has not yet been reexposed as she currently has a bleeding ulcer which contraindicates the use of VEGF.



Conflicts of interest: The authors did not specify any links of interest.

000693 | Desensitization with chemotherapeutic agents: Our experience

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*Presenting author: A. Pelaez Vargas

Background: Chemotherapeutic drugs have been widely used in the treatment of cancer disease. However, all chemotherapeutic agents can induce hypersensitivity reactions (HSRs), with different incidences depending on the culprit drug. Most reactions are caused by platinum compounds, taxanes, epipodophyllotoxins and asparaginase. Drug desensitization has been an effective method for safely reintroducing chemotherapeutic agents.

The objective of this study is to present the experience of our unit with desensitization procedures with chemotherapy.

Method: Descriptive study of the desensitization procedures performed in our unit between 2019 and 2022.

Results: We have performed desensitization with chemotherapeutic agents in 30 patients (63% women; mean age: 59 years). All the patients had presented a systemic reaction prior to this procedure (Grade I Müller: 10 patients; Grade II: 16 patients; Grade III: 4 patients and Grade IV: 4 patients) having received an average of four cycles of chemotherapy, being in the Most of the cases the first line of treatment.

All patients presented positive skin tests (prick-test and/or intradermal reaction) against the drug involved (oxaliplatin: 53.3%; %; doxorubicin: 20%; infliximab: 10%; paclitaxel: 6.6%; irinotecan: 3.3%; rituximab: 3.3%; durmalumab: 3.3%).

All desensitizations were performed with a 3-bag and 12-step protocol except in two cases in which it was performed with a 1-bag and 4-step protocol. A single patient presented a systemic reaction with pruritus, hypertension, and chest pain (3rd bag-first step). 14 patients (46.6%) presented mild delayed skin reaction, all of them in pocket 3 (first step: 4 patients; third step: 1 patient; fourth step: 9 patients). In all cases the full dose of the drug was administered. 90% of these patients remain alive.

Conclusion: In our experience, desensitization with chemotherapeutic agents is an affordable and safe method to reintroduce these drugs in patients who have experienced hypersensitivity reactions, with a good survival rate. It would be convenient to correctly classify patients with the use of biomarkers such as tryptase and IL-6.

Conflicts of interest: The authors did not specify any links of interest.

000909 | IgE-mediated hypersensitivity reaction to paclitaxel – A clinical report

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*Presenting author: J. Cardoso Lopes

Background: Taxanes are used for treating various malignancies, notably gynecologic and lung cancers. Paclitaxel was originally isolated from the Pacific yew (*Taxus baccata*). Later, paclitaxel precursors were shown to be easily synthesized from extracts from the leaves of the European yew tree (*Taxus baccata*), which is a much more renewable source than the bark of the Pacific yew tree.

Given the timing of the reaction, particularly after the first or second exposures, those are not believed to be IgE-mediated. More recently, IgE mediated mechanisms have been described based on skin sensitivity tests and immunoblot assays. One possible mechanism explaining the occurrence of IgE-mediated hypersensitivity (HSR) to paclitaxel during the early cycles could include patients living in yew-bearing regions that can be sensitized through previous pollen exposure.

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Case Report: We present the case of a 65-year-old French patient diagnosed with lung squamous cell carcinoma stage IVA under palliative treatment with chemotherapy (paclitaxel and carboplatin) and biological therapy (pembrolizumab). On his second treatment cycle, less than 5 minutes after paclitaxel infusion he present with severe hypotension (systolic blood pressure~60mmHg), tachycardia, bronchospasm, desaturation (with peripheral O2 saturation ~80%) and loss of consciousness with sphincter incontinence. Perfusion was immediately interrupted and treated, namely endovenous corticosteroids, antihistamine, aminophylline and intramuscular adrenaline was administered. He was put on a high output oxygen mask (at 15 liters per minute) and partial recovery/stability with gain of consciousness took around 3 h to achieve.

He was then referred to our specialized drug allergy consultation in the Allergy and Clinical Immunology Department for evaluation.

Skin prick (SPT) and intradermal (ID) tests were performed with paclitaxel 6 mg/mL (prick 0.6 mg/mL and 6 mg/mL and ID 0.06 mg/mL and 0.006 mg/mL) with a positive result at the ID test 0.06 mg/mL.

He was thus proposed for desensitization treatment with nab-paclitaxel, completing the remaining cycles uneventfully (a 16-step protocol).

Conclusion: SPT with taxanes were not routinely performed since the reaction mechanisms have traditionally been considered to be non-IgE mediated.

However, a subset of patients may develop primary sensitization to taxanes after previous exposure to *Taxus baccata* pollen, which appears to be the case of this emigrant French patient, who had possibly previously lived in an area with traces of this aeroallergen.

The purposes of this case were to reinforce the relevance of primary sensitization and to document IgE hypersensitivity mechanisms with taxanes, which must be taken into account regarding desensitization protocols on IgE-mediated HSR.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

000610 | Kounis syndrome during an oxaliplatin desensitization protocol

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*Presenting author: N. Giangrande

The term Kounis syndrome (KS) describes the simultaneous occurrence of an acute coronary syndrome with an hypersentivity reaction. It was reported for first time in 1991 by Kounis and Zavras who observe the direct relationship between the mediators relased during a vasospastic angina in a myocardial infarction and those released in hypersensitivy reaction. Three diferent variants of KS have been described according the coronary condition of patient. We report the case of a Kounis Syndrome during an oxaliplatin desensitization protocol.

A 59-year-old woman, with no history of atopia, affected by stage IV rectal carcinoma. In 2020, within few minutes of the 7th cycle of first-line oxaliplatin she suffered dyspnea and epigastric pain treated with antihistamine and corticosteroids. Oxaliplatin was discontinued and the she received 5 sucessive lines of chemotherapy. Then, reintroduction of oxaliplatin was mandatory, so she was referred to our Unit Allergy where skin tests with oxaliplatin were performed with negative results. Due to referred symptomatology, oxaliplatin desensitization procedure of 3 bags/10 step according the protocol of Ramon Y Cajal University Hospital had been performed. During the 2ND desensitization, at the step 8 the patient developed itchy rash in head and neck, dyspnea and severe chest pain. Hypotension at 70/40 and tachycardia to 140 had been detected. She was immediately treated with intramuscular adrenaline (0.3 mg), dexchlorpheniramine (5 mg), and metilprednisolone (80 mg), improving quickly. Electrocardiogram showed initially paroxysmal atrial fibrillation and just then ST segment depression in V3-V6, D2-D3-Avf and ST elevation in V1-AVL. Ultra-sensitive troponin increased until 335 ng/L. Serum tryptase and IL-6 at the moment of reaction are × and × respectively. Coronary angiography showed normal coronary arteries

Discussion: The Kounis Syndrome (KS) represent a medical challenge due to the severity of both cardiac and anaphylactic condition. KS is rarely reported in published literature and probably underdiagnosed. According to the normal coronary angiography we report a KS type 1. To our knowledge, this is the first reported case of Kounis Sundome during a oxaliplatin desensitiazion protocol.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001357 | Mepolizumab treatment for immune checkpoint inhibitors eosinophilic-induced adverse events

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*Presenting author: L. Rubin

Background: Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome represents a severe hypersensitivity reaction. Up-to-date treatment is based on withdrawal of medication, supportive care, and immunosuppression using high-dose corticosteroid (CS) therapy. However, evidence-based data are lacking regarding second-line therapy for steroid- resistant or steroid-dependent patients.

Method: We hypothesize that the interleukin-5 (IL-5) axis plays a critical role in the pathophysiology of DRESS, and hence inhibition of this signaling pathway could offer a potential therapy for

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steroid-depended and/or steroid-resistant cases and it may offer an alternative to CS therapy in certain patients more prone to CS toxicity.

Methods: Herein we present two cases of DRESS and preformed a literature review of all DRESS cases treated with biological agents targeting the IL-5 axis, indexed in PubMed up to Oct. 2022.

Results: Thirteen patients received IL-5 targeted therapy for DRESS, with a slight female predominance of 61% (8/13) and a mean age of 56 years old. Mepolizumab was administered to five patients, one patient was treated with reslizumab, six patients were treated with benralizumab and one patient received benralizumab followed by mepolizumab therapy. All patients received concurrent corticosteroid therapy, two cases received additional therapy with intravenous immunoglobulin and one patient received concurrent therapy with cyclosporine and cyclophosphamide. The clinical indication for initiation of anti-IL5 targeted therapy was due to steroid-resistant DRESS in eight patients, steroid-dependent and relapsing cases in three patients, one patient received upfront therapy to avoid GC toxicity, and one patient as part of desensitization, to continue the culprit drug. Anti-IL-5 treatment regimen differed: six patients received a single dose, and seven patients required multiple doses. However, all cases responded with complete resolution of DRESS symptoms, laboratory recovery, and complete weaning off from steroid therapy.

Conclusion: Future implementation of IL-5 axis blockade could offer a steroid-sparing effect, potential therapy to steroid-resistant cases, and perhaps offer an alternative to CS in certain DRESS patients more prone to CS toxicity.

Conflicts of interest: The authors did not specify any links of interest.

ALLERGY ASTHMA AND SPORT

001584 | Mould sensitization to aspergillus fumigatus/alternaria alternata and asthma control: Data from the champiasthma French study

M. Sauvere[1]; S. Lejeune[1]; E. Drumez[1]; S. Rogeau[1]; F. Chagnon[2]; H. Ducoin[2]; M. Scalbert[3]; A. Le Mee[4]; S. El Mourad[5]; S. Encherry[6]; M. Amani[7]; G. Pouessel[8]; J. Roussel[9]; M. Dartus[10]; A. Deschildre[1]; E. Frealle[1]

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*Presenting author: M. Sauvere

Background: Data from the CHAMPIASTHMA study showed negative association between home exposure to moisture/mould and asthma control in children. Data regarding the association between mould sensitization and asthma control are lacking.

Objectives: To describe sensitization to *Alternaria alternata (AA)* and *Aspergillus fumigatus (AF)* in relation with asthma outcomes and moisture/mould exposure in the CHAMPIASTHMA study.

Method: Multicenter, cross-sectional, observational study, with parents-filled questionnaires assessing home environment and asthma outcomes (424 children aged 1–17y). Mould sensitization was retained in case of positive prick test (≥ 3mm) and/or specifics IgE (≥ 0.35kui/l) to AA and/or AF. Moisture/mould exposure (E+) was retained in case of positive answer to any of 5 previously described indicators *(Jaakkola J, et al. Environ Health Perspect 2005)*. Asthma control (GINA, ACT or pACT), number of exacerbations (oral corticosteroids ≥ 3 days, hospitalization), daily inhaled corticosteroids (ICS) doses were assessed. Results are expressed as median [IQR] or numbers (%).

Results: 341 (80%) children undergone a test evaluating AA/AF sensitization. Among them, 42 (12%) were sensitized (S+) [14 (4%) to AF et 34 (10%) to AA]. There was no difference between S+ and S- on asthma control according to GINA ($p = 0.27$) and ACT scores ($p = 0.96$), number of exacerbations ($p = 0.08$), courses of oral corticosteroids in the past year ($p = 0.87$), hospitalization ($p = 0.88$). ICS doses were higher among S+: 245 [200; 250] µg/day vs 200 [92; 250] among S- ($p = 0.0027$). 15 S+ (37%) were E+ vs 101 S- (34%) ($p = 0.71$), with apparent moisture and mould among S+ in 13 (32%), and 11 (27%), respectively, and among S- in 62 (21%) and 57 (19%), respectively ($p = 0.13$ and 0.28).

Conclusion: Mould sensitization was often diagnosed in asthmatic children from the CHAMPIASTHMA study. This sensitization was not associated with poorer asthma control nor with exposure to moisture/mould, but was associated with higher ICS doses, which could reflect more severe asthma.

Conflicts of interest: The authors did not specify any links of interest.

000585 | The impact of anti-IL5 therapies in allergic patients with severe asthma, with and without fungal sensitization

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Background: Among the inflammatory phenotypes described in severe asthma, allergic asthma and particularly, allergic asthma due to fungi sensitization is a frequent phenotype with different pathophysiological characteristics in the type 2 (T2) asthma.

The aim of this study was to compare the clinical characteristics and efficacy of biologic therapies targeting IL-5 or IL-5 receptor among patients with allergic severe asthma, with and without fungal sensitization.

Method: We performed an observational, retrospective analysis of a series of patients with allergic severe asthma who received biologic

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agents targeting IL-5 or the IL-5R (mepolizumab, reslizumab or benralizumab). Patients were divided into two groups: allergic patients with fungal sensitization (defined with positive skin prick test (SPT) and/or specific immunoglobulin E ≥ 0.35 kU/L to any fungi), and allergic patients without fungal sensitization (positive SPT or specific IgE to any of the aeroallergens excluding fungi). The following variables were analyzed at baseline and after one year of biological treatment: total IgE, blood eosinophil count, spirometry, FENO, Asthma Control Test (ACT), Adherence to Inhalers Test (TAI), treatment and frequency of exacerbations.

Results: 41 patients treated with anti-IL5/5R therapy were included (12.19% received reslizumab, 53.6% mepolizumab and 34.1% benralizumab). 13/41 patients (31.7%) were sensitized to at least one fungal allergen (76.9% to *Aspergillus* sp., 38.4% to *Alternaria* sp., 30.76% to *Candida* sp. and 23% to *Cladosporium* sp.) and 28/41 (68.2%) patients were sensitized to any other aeroallergen excluding fungi. After one year of treatment, we observed a better control of asthma according to the ACT and decrease in eosinophil and IgE blood counts in both groups. In the fungal sensitization group, patients reduced their mean annual rate of exacerbations (from 2.5 to 0.5), but the use of oral corticosteroids (OCS) did not change; in contrast, a decrease in the percentage of patients using OCS (from 60.7% to 17.85%) was observed in patients not sensitized to fungi. No changes in spirometry, FENO and TAI values were observed in both groups.

We summarize our results in Table I.

Conclusion: Anti-IL5/5R biologic therapy improved asthma control according to ACT in allergic patients with severe asthma. Patients sensitized to fungi are probably at increased risk for oral corticosteroid use. Further studies with larger samples are required.

TABLE 1 Patients characteristics and clinical outcomes at baseline and after one year of biologic treatment.

	Fungal sensitization group (N=13)		Non-fungal sensitization group (N=28)	
	Baseline	After one year	Baseline	After one year
Total IgE (kU/L)	322.7 ± 248.8	227.8 ± 220.5	238.6 ± 201.4	176.0 ± 173.8
Eosinophil/μL of blood	387.7 ± 356.6	55 ± 60.5	523.7 ± 778.9	75.7 ± 83.3
FEV_1 (L)	2.1 ± 1.0	2.2 ± 8.2	2.4 ± 8.3	2.3 ± 8.8
FVC (L)	3.2 ± 1.1	3.2 ± 1.0	3.6 ± 1.1	3.3 ± 1.0
FEV_1/FVC (%)	62 ± 15.2	62.9 ± 12.1	63.4 ±12.3	67.3 ± 11.1
FENO (ppb)	54.3 ± 33.7	60.6 ± 52.2	62.7 ± 51.7	61.5 ± 47.1
ACT	13.4 ± 4.0	19.6 ± 4.4	16.3± 4.9	20.9 ± 4.5
TAI	50	49.6 ± 0.7	48.8 ± 2.5	47.2 ± 8.2
Annual exacerbation rate	2.5 ± 3.0	0.5 ± 0.8	2.0 ± 1.5	2.1 ± 9.3
Oral corticosteroids (*n*, %)	4 (30.7)	3 (23.07)	17 (60.71)	5 (17.85)

Abbreviations: IgE, Immunoglobulin E; FEV_1, forced expiratory volume in 1 second; FVC, forced vital capacity; ACT, Asthma Control Test; TAI, Test of Adherence to Inhalers.

Conflicts of interest: The authors did not specify any links of interest.

001570 | **Sometimes sport plays tricks on you**

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Background: Food-dependent exercise-induced anaphylaxis (FDEIA) is characterized by the onset of anaphylaxis during (or immediately after) physical exercise following the ingestion of a meal, while the ingredients of the meal and exercise are tolerated separately. In FDEIA sometimes physical exercise can precede food ingestion.

There are two groups of FDEIA: specific FDEIA (sFDEIA) that occurs after ingestion of an allergen to which a person is sensitized (no symptoms without exercise). Non specific FDEIA (nsFDEIA) occurs after ingestion of any food, with no sensitization confirmed by skin or in vitro tests.

Wheat is the most common cause of sFDEIA, but other cereals, seafood, peanuts, eggs, milk, seeds, Rosaceae fruits and vegetables have also been reported as causes of FDEIA.

Method: A 12-year-old-boy, with no personal history of allergy, went to a pub after playing a football match and developed anaphylaxis after eating a sesame sandwich (dyspnea and bronchospasm, generalized urticaria with itching, lipothymia without collapse). Before this episode, the boy regularly ate sesame sandwiches or hamburgers and played football 3 times-a-week.

In the Ermergency Department he was adequately treated with intramuscular epinephrine and albuterol nebulization, with good results. At discharge he receveid an adrenaline auto-injector for self-administration.

A few weeks later, the prick-by-prick with sesame resulted positive (mean wheal diameter of 5 mm); the skin prick test with wheat was negative, and the in vitro test for gliadin ω-5 was also negative.

Results: We confirmed the diagnosis of exercise-induced and sesame dependent anaphylaxis. Since then, the boy no longer eats sesame seeds before or immediately after sports activity.

Conclusion: The management of FDEIA consists mainly of appropriate treatment of acute anaphylactic symptoms and education to prevent further episodes. Exercise should be stopped immediately at any early warning signs of anaphylaxis to avoid progression to severe life-threatening symptoms, and intramuscular epinephrine should be administered promptly. It is proposed to abstain from exercise for 4–6 h after eating the causative food, but there are no standardized recommendation for the optimal prevention of FDEIA. In sFDEIA/nsFDEIA no symptoms are induced by exercise or food consumption alone.

Conflicts of interest: The authors did not specify any links of interest.

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ALLERGY DIAGNOSIS + SYSTEMS MEDICINE 3

000635 | Analysis of elements that determine when a patient could be diagnosed with drug allergy without undergoing drug provocation test

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Background: The gold standard for the drug allergy work up is the drug provocation test but however sometimes it is difficult to take the risk of performing drug provocation tests (DPT) based on the first assessment interview. This study focuses on the profile and characteristics of patients, type of reaction and drugs that does prevent to allergists of our Hospital to not schedule DPT.

Method: In this study were included all patients that consulted for a possible drug allergy for which a DPT was not performed at University Hospital Fundacion Alcorcon in 2016 (1054 drugs). The data was obtained from the electronical clinical records.

Results: DPT was not performed for 165 drugs that had been reported by patients as causes of their reactions. Among the patients who DPT was not performed (median age 62.2 years) skin tests were positive in 61 cases (36.97%) and specific IgE to penicillin or amoxicillin was positive in 12 cases (7.28%), most positive test results were for amoxicillin and metamizole (13.93% and 24.72%). A DPT was not normally performed if the skin tests or specific IgE were positive, except for 4 patients: 2 with a non-IgE-mediated response (codeine and levofloxacin) and 2 whose clinical records were doubtful/ambiguous. The syndromes with less DPT performed were anaphylaxis (27.91%) and fixed drug eruption (50%). Metamizole, ciprofloxacin and amoxicillin-clavulanic acid (15% each) were the 3 drugs were least frequently studies were performed. The patient was diagnosed without the need for a DPT in 39 cases of anaphylaxis (94.87%), 11 morbilliform rashes (33.33%), and 111 cases of urticaria (65.29%). Finally, patients who did not undergo a DPT were older than those who did, either if had positive and negative results (medians 62.2, 56.81, 52.83 years, respectively, $p = 0.0001$).

Conclusion: The patients that physicians exclude from work-ups are those with more dangerous scenarios, such as reproducing anaphylaxis in patients with many comorbidities (e.g., older patients); and situations clearly associated with drug allergy, such as easily identifiable clinical disorders (e.g., fixed drug eruption), and drugs that unfailingly appear in all the lists as the most common cause of drug allergy.

Conflicts of interest: The authors did not specify any links of interest.

000892 | Serum IgE for boiled cow's milk: A ten-year experience

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Background: Cow's milk allergy (CMA) is one of the most common food allergies in early childhood. It is a common cause of severe life-threatening reactions in pediatric allergic patients. This study evaluates all dosages of IgEs (Immunocap System – Thermo Fischer Scientific, Phadia), performed in ten years, for whole milk (f2), major protein fractions, and particularly for boiled milk.

Method: 3110, of age ≤17 years were consecutively evaluated. Serum sIgE against different milk components (casein, α lactalbumin, β lactoglobulin) and boiled milk were measured When f2 is positive, ≥ 0.35 KU/l, the main proteins are dosed (reflex test): α lactalbumin Bos d4, β lactoglobulin Bos d5, and casein Bos d8, while boiled milk is only performed on specific request from the specialist. We have 305 dosages for f2 with boiled milk which correspond to a total of 289 patients of which 221 are children, of which 16 were re-checked after 1–2 years.

Results: Five thousand four assays are carried for cow's milk, of which 1041 are positive, 21%, of which 167 have very low concentration values, from 0.36 to 2.93 KU/l, such that the samples are negative for the main proteins of the milk. Twenty-three patients are positive for both whole milk and boiled milk, 2 of which are re-checked after 1–2 years. Only 12 children are positive for both f2, f231, and main milk proteins, Bos d4, Bos d5, Bos d8, and of these, two are still positive at the recheck after 1/2 years. What is most striking about the results obtained is the overlapping of the concentration value of the casein with the result of the boiled milk.

Conclusion: Boiled milk identifies patients likely to tolerate baked milk; however, its diagnostic accuracy is not significantly better than the current serum markers. Boiling is known to reduce the allergenicity of proteins but not of casein. In light of this, we focused on the result of diagnostic superimposable casein-boiled milk. It would be useful to further investigate the usefulness of sIgE for boiled milk to identify cow's milk allergy phenotypes in clinical practice.

Conflicts of interest: The authors did not specify any links of interest.

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000723 | Fixed drug eruption caused by iodinated contrast media: An unusual hypersensitivity reaction

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Introduction: Fixed drug eruption (FDE) due to iodinated contrast media (ICM) has rarely been reported in the scientific literature. We present a case of FDE caused by ICM, including the diagnostic approach and subsequent management.

Clinical case: A 64-year-old male reported erythematous lesions on the left foot a few hours after receiving ICM for urological examination 15 years earlier. ICM used was either Iopromide or Ioxithalamate. Years later, he presented pruritic erythematous lesions at the exact same locations, 12h after a coronary angiography with iopromide. He was treated with oral antihistamines and the skin lesions improved progressively over two weeks, with associated desquamation. Three months later he underwent an angioplasty with iopromide, on premedication with prednisolone. Six hours after ICM, lesions reappeared in the previously targeted locations with no other symptoms or signs. He was evaluated by the Allergy and Clinical Immunology team and treated with oral antihistamine and topical corticosteroid, with resolution in 10 days with no residual erythema or hyperpigmentation. A FDE associated with ICM was suspected.

Patch tests with undiluted solutions of Iohexol, Ioversol, Iopromide, and Iomeprol on Finn Chamber® were applied, two months later, at the site of previously erythematous areas and at unaffected skin. Patch tests were removed after 48h and read at 72h. These tests were positive but it was impossible to discriminate which ICM was responsible for the reaction. Considering that the prime suspect was iopromide patch tests with Iomeprol and Ioversol were reapplied one month later at affected areas, with all tests resulting negative. An intravenous drug provocation with an alternative drug (ioversol) was performed with negative results.

Discussion: FDE to ICM is a challenging diagnosis. As prick and intradermal tests have a limited diagnostic role, patch tests applied to the affected areas are the most useful diagnostic tool. Moreover, finding alternatives when ICM allergy is confirmed may be difficult, as little is known about cross-reactivity among different ICM. After negative patch tests, ioversol was the chosen ICM to perform a provocation, according to previously described cross-reactivity patterns.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

000111 | Investigating the diagnostic value of histamine for perioperative anaphylaxis

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Background: Anaphylaxis is a rare, but critical complication during the perioperative period. Guidelines for perioperative anaphylaxis (POA) recommend measuring blood tryptase or histamine concentrations to help diagnose POA. However, histamine concentration is rarely measured in clinical practice due to its short half-life compared to tryptase. Since the appropriate timing of blood collection and its threshold value is controversial, we aimed to investigate them in the present study.

Method: The study included 30 patients who underwent elective surgery under general anesthesia without complications, including anaphylaxis. Blood collection for measuring histamine concentration was performed three times: at anesthesia induction (baseline), and 30 minutes (first point) and two hours (second point) after the start of surgery. We defined these patients as controls and compared their histamine concentrations with those of patients with POA. We used data from 43 patients with POA from our previous study; their timing of blood sampling was 30 minutes (first point), two hours (second point), and at least 24 h after the anaphylactic event (baseline). We performed receiver operating characteristic (ROC) curve analysis to determine threshold histamine levels and compare its diagnostic accuracy at the two measurement points.

Results: There were no differences in age, sex, and histamine concentration at baseline between controls and patients with POA. Histamine concentrations in controls were lower than those in patients with POA at the first point (median, 0.9 ng/ml [interquartile range, 0.7 to 1.1] vs. 5.2 ng/ml [1.6 to 34.2], $P < 0.001$) and the second point (median, 0.8 ng/ml [interquartlile range, 0.6 to 1.0] vs. 1.8 ng/ml [0.9 to 2.7], $P < 0.001$). The sensitivity and specificity for diagnosing POA at the first point were 76.7% and 100%, respectively, when the threshold histamine value was 1.5 ng/ml. In comparison, the sensitivity and specificity for diagnosing POA at the second point were 70% and 83%, respectively, when the histamine threshold was 1.1 ng/ml. There was no difference between the areas under the ROC curves at the first and second points (0.83 vs. 0.79, $P = 0.38$).

Conclusion: We determined the threshold histamine value for diagnosing POA with fair accuracy. Measuring histamine concentrations within two hours after symptom onset might help in the diagnosis of POA.

Conflicts of interest: The authors did not specify any links of interest.

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000463 | Mite or insect contamination as hidden allergens causing anaphylaxis to a pizza roll

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Background: Anaphylaxis after ingestion of foods containing storage mite or insect contaminated flour has been reported sporadically before and is commonly associated with house dust mite sensitization. The reactions are characterized by symptom onset shortly after ingestion of contaminated foods and can be very severe. As contamination is hidden and standard investigations often do not identify the cause, these patients may be labelled with idiopathic anaphylaxis.

Objective: To investigate a 51-year-old woman who experienced anaphylaxis with increased tryptase level after ingestion of suspected storage mite/insect contaminated food. Symptom onset was 5 minutes after intake of a pizza roll. She developed pruritus, generalized urticaria, tachycardia, and decreased consciousness and recovered after treatment with epinephrine, systemic corticosteroids, and antihistamine. She had not eaten anything else or been exposed to any drugs prior to the reaction. A relative ate a pizza roll at the same time without allergic reaction. The patient has consented to publication.

Methods and results: Skin prick testing (SPT) and specific IgE for house dust mites: *Dermatophagoides pteronyssinus*, *Dermatophagoides farinae* and standard inhalation allergens were negative, but SPT for mealworm (*Akohitobius Diaperinus*) was positive. Specific IgE to storage mites (*Tyrophagus putrescentiae*, *Lepidoglyphus destructor*, *Acarus siro*) and cockroach were positive. Specific IgE and SPT to ingredients of the ingested pizza roll (wheat, buckwheat, egg, milk) and specific IgE for gluten, yeast, omega-5 gliadin, tri a 14, pork, Alpha-Gal (galactose-α-1,3-galactose) were all negative. The flour from the suspected pizza roll could not be retrieved for testing, but the patient tolerated an open food challenge with an identical pizza roll from the same bakery 8 months later.

Conclusion: We hypothesize that mite/insect food contamination elicited her anaphylactic episode, since the patient tolerated the exact same pizza roll on a later occasion but showed relevant sensitization for mites and insects. In the literature oral mite anaphylaxis is mostly related to house dust mite sensitization. This case highlights the need to consider insect or mite contamination as potential hidden allergens in anaphylaxis to food, where no obvious allergen is identified on initial investigations, even in the absence of house dust mite sensitization.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

000142 | Limpet allergy: A rare case report

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A 44 years-old man, working as a cook for 24 years, handling fish, mussels, oysters and shrimps. He lived in Madeira Island for 6 months during 2022.

During this time, he reported angioedema of the lips, associated with laringeral constriction, maculopapular exantema with pruritus and dyspnea 1 hour after ingestion of 15 grilled limpets. He denied drug expousure, exercise, infection or dehidration. He went to the emergency department and was given treatment with antihistamine and oral corticosteroids, with total symptom resolutin whithin hours. No information on vital signs and basal tryptase was given.

He denied limpet ingestion after this episode. He kept eating shrimps, lobster, mussels, crab, octupus and squid without allergic reaction. He doesn't like snails.

Skin Prick Tests were negative to shrimp, octupus, squid and clams (histamine 9mm); Prick-to-Prick Tests were positive to limpet 13 mm (histamine 9 mm).

Total IgE was 90 kUA/L and specific IgE were positive to limpet (1.56 kUA/L), and negative to snail (0.06 kUA/L), shrimp (0.01 kUA/L), octupus (0.01 kUA/L), squid (0.01 kUA/L), and clams(0.01 kUA/L) and Anisakis (0.07 kUA/L). The basal tryptase was 5.15 µg/L.

A diagnosis of food allergy to limpets was made and given the severe presentation the patient was given an adrenaline auto-injetor and oral corticosteroid and antihistamines.

IgE-mediated seafood allergy normally persists over time, so the patient was educated to maintain a strict avoindance to limpets. There is cross-reactivity between limpets and snails, but in this case the patient had no interest in eating snails, so for now he maintains avoidance.

Since he works as a cook, it was also important to highlight the need to avoid handling limpets in ordetr to avoid a reaction trhough handling or an innalation reaction during food preparation.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

000832 | Development of a specific IgE immunoassay for rCan s 3 and it's utility investigating cross reactivity

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Background: The legal use of cannabis in the world is steadily increasing. Approximately 4% of the world's population use cannabis

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for medical and/or recreational purposes and an increasing number use it as healthy food. The rise in exposure of cannabis through different routes such as ingestion, smoking, skin contact, pollen and occupational exposure due to use of hemp seeds, hemp or cannabis oil underlies the need for greater awareness of the spectrum of cannabis allergy, its diagnostics and management. The best-studied and characterized allergen from *Cannabis sativa* is Can s 3, a major allergen, due to its extensive cross-reactions with other non-specific lipid transfer proteins (nsLTPs) across the plant kingdom.

Method: A prototype ImmunoCAP rCan s 3 Research Use Only (RUO) test was developed according to conventional methods. The analytical characteristics of the ImmunoCAP rCan s 3 test has been determined and an accelerated stability study was performed. The test was used in a small cross-reactivity study comparing sIgE concentrations for 10 LTP sensitized individuals.

Results: The ImmunoCAP rCan s 3 test fulfilled internal RUO performance specifications. The accelerated stability study predicted a shelf-life of two years. The results showed higher specificity for the rCan s 3 component test for some samples compared to the Hemp extract test, although the Hemp test had higher sensitivity in some cases. This indicate that the rCan s 3 and the Hemp test complement each other. The LTP sensitized patient samples displayed high cross-reactivity binding between rCan s 3 and the food LTPs Pru p 3, Mal d 3, Cor a 8 and Ara h 9 (listed with decreasing cross reactivity score, 62–42%). For the group of pollen LTP, Art v 3, Ole e 7, and Par j 2 the patient samples showed lower cross reactivity score (44–10%). The results correlate to the sequence homology, were Can s 3 have a high sequence homology (85–70%) with food LTPs and lower with the pollen LTP components included in this study.

Conclusion: An ImmunoCAP rCan s 3 test was developed. This test can be used to investigate sIgE sensitization patterns in patient samples and facilitate a deeper understanding of the cross-reactivity between cannabis and food allergy. Can s 3 can be considered a potential future biomarker for the diagnosis of cannabis allergy.

Conflicts of interest: The authors did not specify any links of interest.

000147 | Serological features and sensitization profile in LTP syndrome in Murcia, Spain

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Background: Lipid Transfer Proteins (LTP) are major food allergens in the Mediterranean area and can frequently trigger food-induced anaphylaxis due to their physicochemical properties.

In this descriptive retrospective study, we aimed to analyse nsLTP sensitization profiles using molecular diagnostics (allergen microarray immunoassay), in order to predict the clinical course and severity of patients with LTP Syndrome.

Method: A total of 100 patients with LTP Syndrome were selected from the Allergology Service of the Reina Sofia General Hospital of Murcia (Spain) between the years 2014 and 2022, including 62 patients with anaphylaxis and 38 without anaphylaxis. We carried out a detailed medical history of allergy symptoms, as well as component-based allergy diagnosis by microarray.

Results: Overall, 99% of the patients were sensitised to Pru p 3 (peach), followed by Jug r 3 (walnut) in 92%, Ara h 9 (peanut) in 81%, Cor a 8 (hazelnut) in 65% and lastly Tri a 14 (wheat) in 9%. The most prevalent pneumoallergens were firstly Art v 3 (Artemisia) in 77%, Pla a 3 (Platanus) in 74% and Ole e 7 (olive tree) in 31%.

As to the number of positive nsLTPs in microarray (7 in total), we found that 34% of patients with anaphylaxis were sensitized to at least 6 nsLTP, compared to 22% of patients without anaphylaxis. The average number of nsLTP sensitisation for both groups was 5.

Another result to highlight was the higher mean value of IgG4 to Pru p 3 in patients without anaphylaxis (1.28 kU/L) compared to the group with anaphylaxis (0.51 kU/L). No remarkable differences were found in the mean total IgE and Pru p 3 specific IgE between both groups.

Conclusion: Based in our results, we can conclude that peach LTP (Pru p 3) is the primary sensitizer and major allergen in LTP Syndrome, followed by walnut (Jug r 3) and peanut (Ara h 9). Most of the patients were also sensitized to pollen species, mainly Artemisia and Platanus. Another conclusion to highlight is the protective role that IgG4 seems to play, since higher values were found in patients without anaphylaxis. Finally, a greater number of positive nsLTP in microarray analysis may predict a worse prognosis in our patients.

Conflicts of interest: The authors did not specify any links of interest.

000451 | Use of synthesized Omega-5 gliadin for specific IgE detection in wheat-related allergy patients

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Background: Omega-5 gliadin (ω-5 gliadin) is a major allergen found in wheat that induces severe IgE-mediated allergic reactions. This allergy often manifests when wheat ingestion is followed by a cofactor, usually exercise, and as such is a major contributor to wheat-dependent exercise-induced anaphylaxis (WDEIA) in adults. It has been shown that cofactors lower the threshold for allergic reactions to wheat in patients by increasing the amount of allergen absorbed from the gut, or potentially by increasing the immunogenicity of ω-5 gliadin. A specific peptide, Tri a 19, has been shown to be highly immunogenic. In a Japanese study, wheat allergy prevalence in adults was reported to be 0.21%. According to literature, patients with WDEIA have specific IgE antibodies to Tri a 19, with a sensitivity of 91% and a specificity of 92%.

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In this study, we measure the allergen-specific IgE profiles of suspected Tri a 19-allergic individuals using biotinylated synthesized Tri a 19 peptide (sTri a 19) and assess its performance in terms of linearity of response.

Method: Tri a 19 was synthesized in line with PEG4-biotin to generate a fully conjugated sTri a 19 peptide.

Serum samples were collected from 17 subjects with a clinical history of known Tri a 19 or wheat-specific IgE reactivity. Samples were tested for IgE to the component sTri a 19 allergen using the IMMULITE® 2000 3gAllergy™ Specific IgE assay. Concentration values of ≥0.10 kU/L were considered positive. Performance was additionally assessed by linearity of response.

Results: In comparison to the clinical history of the 17 samples examined, there was a 94% agreement between the samples. Regression analysis was performed following linearity assessment and resulted in a slope CI 95% of 0.9523–1.0528 (range 0.22–16.27kU/L).

Conclusion: These data demonstrate that sTri a 19 molecular allergen is a sensitive tool to aid in the diagnosis of wheat-related allergy.

Conflicts of interest: The authors did not specify any links of interest.

000455 | The polysensitization to 2S-albumins increases the probability for a positive cashew nut challenge in children

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*Presenting author: P. Röntynen

Background: Ana o 3-IgE is associated with cashew nut allergy. Novel data suggests cross-reactivity between different 2S-albumins of peanut and tree nuts may interfere to clinical reactivity. We aimed to study the sensitization rate to various 2S-albumins in confirmed pediatric cashew nut allergy.

Method: We performed between years 2017–2020 106 open cashew nut challenges to children aged 1–16 years. The sensitization rate to 2S-albumins of cashew nut, peanut, hazelnut, walnut, and Brazilian nut (ie. Ana o 3, Ara h 2, Cor a 14, Jug r 1, and Ber e 1, respectively) was analyzed in the study population, and in the no-anaphylaxis and anaphylaxis subgroups among children who reacted. Spesific IgE ≥ 0.35 kU/L was considered as cutoff for sensitization.

Results: Seventy-two (68%) children reacted during the cashew nut challenge, of whom thirty-four (47%) patients experienced an anaphylactic reaction. Twenty (28%) children with a positive challenge were monosensitized to Ana o 3, the 2S-albumin of cashew nut. Among those who reacted, significantly more children were sensitized to multiple 2S-albumins of nuts compared to those with a negative challenge (51% vs 26%, $P = 0.016$*). The polysensitization was not more common when comparing anaphylaxis and no-anaphylaxis subgroups (50% vs 53%, $P = 0.824$) when only children with a positive challenge were included. Ana o 3-IgE correlated most clearly to sensitization to 2S-albumin of walnut, Jug r 1 (Spearman's rho 0.339, $P < 0.001$), and to 2S-albumin of hazelnut, Cor a 14 (Spearman's rho 0.327, $P = 0.001$).

Conclusion: Polysensitization to 2S-albumins of peanut and tree nuts appears to increase the probability for a positive cashew nut challenge. However, polysensitization to 2S-albumins of nuts did not increase the risk for anaphylaxis.

Conflicts of interest: The authors did not specify any links of interest.

000852 | Prevalence of PRU P 7 sensitization in patients with LTP syndrome

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*Presenting author: M. Gonzalez

Background: Peach is the main cause of food allergy in adults in the Mediterranean area, primarily due to lipid transfer protein (LTP) sensitization, with a heterogeneous clinical expression. Sensitization to a new allergen, peamaclein (Pru p 7), has been associated with pollen-food syndrome and severe food allergic reactions in southern France.

The aim of the study was to determine the prevalence of sensitization to Pru p 7 among a cohort of patients from Barcelona with LTP syndrome and its potential role in clinical phenotypes.

Method: Sensitization to Pru p 7 was assessed by ImmunoCAP ® (positive ≥ 0.1 kU_A/L) in a sample of patients with LTP syndrome, sensitized to Pru p 3 and/or other nsLTPs. Patients were previously classified according to clinical manifestations upon peach ingestion in mild (contact urticaria, OAS, U/AE, digestive symptoms) or severe (anaphylaxis).

Results: One hundred patients were included, 50 mild and 50 severe. Pru p 7 was positive in 2 patients with mild LTP syndrome (1%) and in 4 patients with severe symptoms (2%). Median levels were 1.22 kU_A/L with no significant differences among groups. All positive patients were also sensitized to *Cupressus arizonica* (ImmunoCAP > 0.1 kU_A/L).

Conclusion: Prevalence of sensitization to Pru p 7 is very low in our population of LTP syndrome and does not seem to play a role in its clinical expression.

Conflicts of interest: Olga Luego has received honorarium from Termofisher for previous talks

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000931 | Gastric perforation: A rare (but dramatic) complication of dress syndrome

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*Presenting author: A. L. Pinhal

Drug reaction with eosinophilia and systemic symptoms (DRESS) is a delayed hypersensitivity drug reaction characterized by diffuse rash, fever, eosinophilia and visceral organ involvement. The gastrointestinal tract (GIT) involvement in patients with DRESS is extremely rare, but it can be fatal.

Female, 72 years old, started alopurinol because of her history of asymptomatic hyperuricemia and severe chronic kidney disease. Three weeks later she was admitted at the emergency department with fever, generalized exanthema, facial edema and ulcerative lesions in the oral and ocular mucosa. Blood tests showed leukocytosis with eosinophilia, acute kidney injury, anemia, coagulation dysfunction, hepatic cholestasis and pancreatic involvement. She was diagnosed with DRESS (RegiSCAR 7) and started systemic corticotherapy and support treatment and there was no evidence of viral reactivation. During hospitalization (day 2), she developed acute abdomen, with gastric rupture, probably related to DRESS severe mucosal involvement. She underwent an emergency laparotomy and had a post-op cardiac arrest. However, she responded positively with improvements in multi-organ dysfunction and mucocutaneous lesions.

The case described proved to be atypical due to severe oral and ocular mucosa and gastric perforation. GIT in DRESS is less common than other visceral complications and it might be underreported. There are rare cases described with abrupt gastrointestinal bleeding relatively to CMV gastric ulcerations in DRESS. Although most ulceration cases in DRESS are described in the large bowel, the association with CMV is variable. Moreover, in a recent review where patients with DRESS colitis were submitted to colon biopsy, around 60% of them yielded important findings. The results revealed mainly inflammation, friable mucosa, mucosal ulcerations and eosinophilic infiltration that might lead to bowel ischemia. Additionally, this study reports three patients with severe DRESS colitis, which, in one case, led to multiple perforations and pneumoperitoneum. In this case, endoscopy or gastric biopsy were not performed due to the urgent nature of the intercurrence, but, due to timing and absence of other causes, gastric perforation was assumed in the context of DRESS. Although the described entity is very rare, it can manifest itself dramatically and might be associated with increased mortality.

JM case reports session: 18243.
Conflicts of interest: The authors did not specify any links of interest.

001407 | Paradoxical worsening of chronic spontaneous urticaria following omalizumab – The missing link

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*Presenting author: G. Konstantinou

Background: Omalizumab is a humanized anti-IgE monoclonal antibody approved for treating antihistamine refractory chronic spontaneous urticaria (CSU). IgE antibodies also provide constitutional protection against parasitic infestations. We report an antihistamine refractory CSU which worsened following omalizumab therapy.

Case-report: A 28-year-old woman, agriculturist by profession and farm-resident with domestic animals, presented with CSU of 6-month duration. Her disease remained uncontrolled even after four times up-dosed levocetirizine (20mg daily) or ebastine (40mg daily) (UCT = 4, UAS7 = 28). She reported contact with synthetic pesticides (organophosphates) during this time and strict avoidance did not help. She also reported dyspepsia and gastro-oesophageal reflux disease, and gastroenterology workout revealed mild gastritis. Stool examination for *H.pylori* and parasites was negative. Famotidine PO BD for three weeks improved her gastritis without affecting CSU activity. Her blood eosinophils were 70/μL, serum IgE 55.5 IU/ml and C-reactive protein (CRP) value was 0.31mg/dL (normal < 0.8 mg/dL). Blood biochemistry, including complete blood count, liver, renal, and thyroid function tests, anti-TPO-IgG, erythrocyte sedimentation rate, C3-C4 complement levels, and urine analysis were normal. Omalizumab SC 300 mg Q-4 weeks was introduced as add-on therapy. However, no appreciable clinical improvement was noted after three doses. On the contrary, angioedema flare-ups of the lips emerged. Therefore, Omalizumab was up-dosed, as per current guidelines, to 450 mg Q-4 weeks. One week following up-dosing, CSU worsened (UAS7 = 35) with alternate-day lip angioedema. Add-on methylprednisolone PO 8 mg qd was introduced without much benefit. Stool parasitic examination was repeated but remained negative. However, serologic examination for parasites revealed IgG(2+) and IgM(2+) for *Echinococcus granulosus* and *Toxocara canis* (checked twice). Omalizumab was stopped, and albendazole PO 400 mg BD was administered for five days. Follow-up visit after 4-weeks revealed significant improvement of CSU (UAS7 = 14, UCT = 14), while serologic examination demonstrated only IgG 4+ and no IgM for the above parasites. Albendazole was repeated, resulting in complete CSU remission. Currently, she is controlled with Ebastine 20mg qd daily, although she started experiencing mild symptomatic dermographism when ebastine is further tapered.

Conclusion: Parasitic infestation is a known trigger of CSU. Rare paradoxical exacerbation of CSU may occur following Omalizumab therapy if there is concomitant parasitic infestation. Anti-IgE Omalizumab may interfere with anti-parasitic immunity (mediated by IgE) and thus favor infestation. Therefore, it is suggested to appropriately screen for occult parasitic infestations before

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starting Omalizumab in CSU patients living and/or working in endemic settings.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

000198 | Recurrent food induced anaphylaxis caused by lipid transfer proteins and 2S albumin families in a child

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*Presenting author: S. Koc

Background: Food is the most common cause of anaphylaxis in children. We wanted to report a child who had no history of anaphylaxis through till age of one year, but experienced recurrent anaphylaxis to wheat, sesame, and maize until the age of two.

Case: A 1-year-old child presented to the emergency department with anaphylaxis. He had eaten wheat pancakes (which he had previously tolerated) for an hour. He had experienced angioedema of the lips and vomiting and was treated with intramuscular adrenaline. His complaints were resolved within an hour; an adrenaline autoinjection kit was prescribed, and the parents were instructed on its usage. The child was followed up in our pediatric allergy clinic after the first anaphylaxis. There was no family history of allergic disease. The skin prick test (SPT) to wheat was 5x5 mm, and Immulite (Sıemens) revealed specific IgE against wheat was 54.3 kU/L. The second food induced anaphylaxis occurred when he was 18 months old after consuming tahini (made from ground sesame). Within 10 minutes, the child developed a cough and generalized urticaria. He had previously consumed tahini too. The specific IgE against sesame was 24.6 kU/L, and the SPT to sesame was 5 × 5 mm. During this period, the patient's medical history revealed that he had angioedema of the lips after eating red, green lentil and chickpeas. The third episode of anaphylaxis onset occurred after the ingestion of maize within about an hour when the child was two years old. The cough and vomiting that began after eating maize were relieved by the administration of adrenaline. The SPT to maize was negative, but the specific IgE against maize was 28.1 kU/L. Molecular diagnostics using the ALEX test identified the presence of Zea m14 (6.18 kU/l), wheat Tria14 (12.48 kU/l), and sesame seeds Sesi1 (13.54 kU/l). The tyriptase level was normal between the anaphylaxis and he had no pollinosis related to lipid transfer protein sensitization.

Conclusion: Wheat, sesame, and maize can induce severe and unexpected responses due to allergens from the 2S albumin or lipid tranfer protein families. Our case represents an uncommon and extreme hypersensitivity to these families.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

000135 | Salmon-specific IgE is superior to skin prick test for diagnosis of salmon allergy

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*Presenting author: A. S. Y. Leung

Background: Although salmon is an important cause of food allergy, our group has earlier reported that up to a third of fish-allergic Chinese children can selectively tolerate salmon. Molecular diagnosis in fish allergy is lacking while reliance on oral food challenge (OFC) remains high. This study aimed to investigate the performance of diagnostic tools in identifying patients with IgE-mediated salmon allergy.

Method: Individuals who were (1) salmon-allergic (SA) with convincing history of fish-allergic reaction within 2 years and salmon-specific IgE 20 kuA/L or failed OFC to salmon; (2) sensitized to but tolerant of salmon (SS) with either skin prick test (SPT) wheal size of 3 mm or greater and/or a salmon-specific IgE titre of 0.35 kUA/L or greater and passed OFC to salmon, and (3) neither sensitized nor allergic to any fish (control) were enrolled.

Results: A total of 100 individuals including 42 SA, 48 SS and 10 controls were recruited. Levels of sIgE to salmon extract and components including rGad c 1 and rCyp c 1 with commercially available platform (immunoCAP) were significantly higher in SA compared to SS subjects ($P < 0.001$). In-house recombinant salmon parvalbumin (PV) isoforms, Sal s 1- β1 & Sal s 1- β2, were produced and sIgE levels evaluated by ELISA were higher in SA than SS individuals. However, results of SPT to fish mix and salmon were similar between SA and SS ($P > 0.05$). The area under the ROC curve for sIgE to salmon extract (0.847) was the highest, followed by sIgE to rSal s 1- β1 (0.839). The AUC for rSal s 1- β1 was higher than that for any of the other fish components assessed.

Conclusion: SPT was a suboptimal screening tool for salmon allergy while sIgE to salmon extract should be included in the first line investigation for fish-allergic individuals. Utility of recombinant PV isoforms of salmon warrants further investigation.

Conflicts of interest: The authors did not specify any links of interest.

000707 | Delayed hypersensitivity reactions to amoxicillin in paediatric population

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*Presenting author: V. Albéndiz Gutiérrez

Background: Amoxicillin is an antibiotic widely used to treat infections in children. Sometimes, reactions occur during treatment with

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amoxicillin that are attributed to the antibiotic itself, although most of them are due to other causes. This produces erroneous diagnoses and unnecessary drug prohibitions.

Method: A retrospective study was carried out that included children referred to the Children's Allergy Unit of Hospital Vithas Málaga between January 2021 and September 2022, with suspected delayed reaction to amoxicillin.

Results: A total of 22 patients were referred. Most of them were male (54%), with a mean age of 4.5 years (range 1–13 years). All reactions were mild, involving exclusively the skin (6 urticaria, 12 maculopapular rash, 4 erythema). The mean time between the start of treatment and the onset of symptoms was 6.5 days (range 3–8 days). As all the reactions were mild, controlled oral challenge tests (OCT) with amoxicillin adjusted to the weight of the patients were performed, being negative. Subsequently, it was indicated to continue taking amoxicillin at home for a total of 5 days, producing a reaction in two girls, aged 2 and 8 years respectively.

In both cases, prick and ID skin tests were performed with major and minor determinants of penicillins and amoxicillin, with negative results. A subsequent controlled OCT was performed with Cefixime, which was negative, and it was indicated to continue with Cefixime at home for another 5 days, in which no reaction occurred.

Conclusion: Although skin reactions are frequent during treatment with amoxicillin, most of them are not allergic.

Oral challenge tests can help us provide alternative safe treatments or de-labelling penicillin allergy in these patients.

Conflicts of interest: The authors did not specify any links of interest.

000561 | Analysis of the safety of drug -allergy workups in a Spanish university hospital: Correlation between the diagnosis in the first visit and after the drug provocation test

B. Sellers Gutierrez-Argumosa[1]; Y. Peña Acebedo[1,2]; A. Moncada Salinero[1]; M. Goyanes-Malumbres[1]; P. Andrade Garbán[1]; M. Brandoni Petrone[1]; A. Rosado Ingelmo[1]; W. Vargas Porras[1]; M. A. Tejedor Alonso[1]

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*Presenting author: B. Sellers Gutierrez-Argumosa

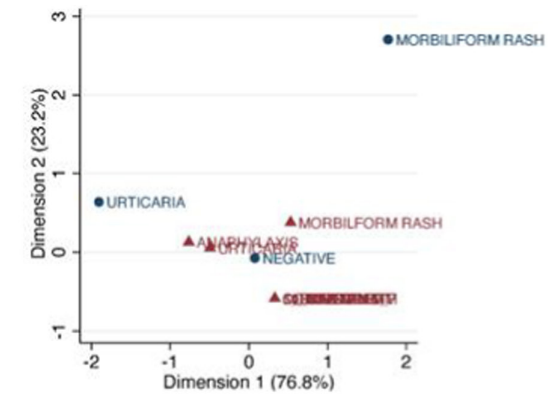
Background: The drug provocation test (DPT) is the gold standard for the drug allergy diagnosis. However, is it no free from severe adverse reactions. Our aim was to obtain robust data that predict a reaction after the DPT at the first contact with the patient in the allergy outpatient clinic.

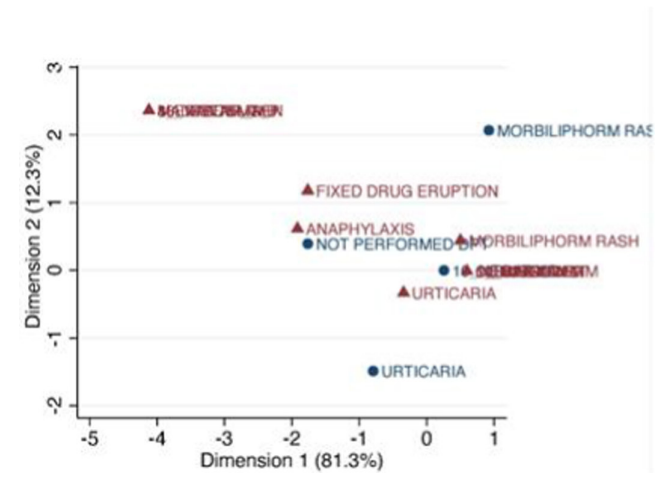
Method: The population of this study comprised all patients undergoing a drug allergy work-up (clinical assessment, specific IgE, or skin tests, or DPT) at University Hospital Fundacion Alcorcon in 2016. DPT was performed until therapeutic doses were reached and late reactions were checked. The clinical disorders assessed in our study were classified mainly as absence of allergic reactions, morbilliform rash, urticaria and anaphylaxis. We carried out correspondence analyses to determine the proximity between the most frequent clinical disorders at the first visit and after the DPT. The clinical disorders diagnosed at the first visit (independent variables) and the most frequent diagnoses after DPT (dependent variable) were analyzed again using multinomial logistic regression models

Results: In the correspondence analyses, analysis of the proximities in Figure 1 shows that the Euclidian distance for morbilliform rash at the first visit and after DPT was very far, whereas it was very close for negative studies after DPT. Urticaria at the first visit was close to either urticaria or negative results. Anaphylaxis at the first visit was close to urticaria episodes and negative studies after DPT but very far from anaphylaxis after DPT and very close to DPT not performed (all analysis $p < 0.001$).

In the multinomial logistic regression, the diagnostic reference was negative findings at the first visit. In summary, all positive reactions after or during DPT were more probable if the same syndrome was diagnosed at the first visit (morbilliphorm rash OR 4.47, urticaria 8.67); age did not favor positive results, except for morbilliform rash, but only slightly (OR 1.03 for each year of age). Anaphylaxis could not be analyzed as only 2 anaphylaxis occurred after DPT.

Conclusion: In our center, performing DPT on morbilliform rash diagnosed in the first assessment is safer than performing DPT on patients who present for urticaria.





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Allergy EUROPEAN JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY EAACI WILEY

000801 | Donkey milk as a possible alternative for cow's milk allergic patients

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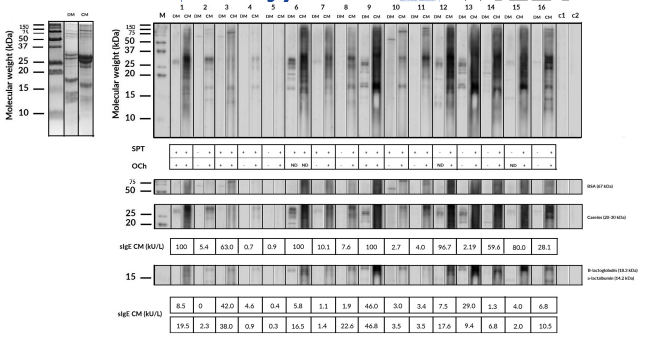
*Presenting author: F. Pineda de la Losa

Background: Previous studies have determined a high degree of similarity in the biochemical composition of human and donkey milk. Consequently, donkey milk could be a good alternative to the consumption of cow's milk and other ruminants, especially for people allergic to cow's milk. The main objective of the study was to determine the allergenic response and profile to donkey milk in patients sensitized to cow's milk attended during one year at the Allergy Department of the Rio Hortega Hospital (Valladolid).

Method: Samples of donkey milk (*Equus africanus asinus var* Zamorano-Leonese donkey) were obtained from Zamora and frozen at -72°C. *In vivo* (prick-prick and oral challenge test) and *in vitro* studies (specific IgE by ImmunoCAP, protein and allergen profile by SDS-PAGE and Western blot, and molecular analysis by microarrays) were performed in four groups: two groups of patients sensitized to cow's milk (severe clinical and eosinophilic esophagitis) and two control groups (healthy and allergic to grass pollens without digestive symptoms patients), after obtaining patients´ signature (or their tutors´) of the informed consent.

Results: during one year, 2032 patients presented proven hypersensitivity to some food, of whom 83 exhibited severe symptoms related to cow's milk intake (4%). Of these, 46 had positive IgE to alpha-lactoglobulin, 42 to beta-lactoglobulin and 47 to casein. Of these, 46 patients accepted donkey milk challenge, which was positive for 19. Of the 67 patients with eosinophilic esophagitis only 13 accepted the provocation, being positive in 6 patients, with mild-moderate symptoms, and negative in the rest, tolerating 100 ml of donkey milk without immediate or delayed reactions. In addition, Western blot results showed an allergenic profile of donkey milk similar to that of cow milk in all patients analyzed, being able to recognize proteins in common (caseins) in both types of milk; although clearly with less intensity in donkey milk.

Conclusion: This study demonstrates a lower IgE-mediated allergic hypersensitivity to donkey milk in patients allergic to cow's milk. Therefore, donkey milk could be a feasible alternative for these patients, given its accessibility and characteristics, although future researches in this field are necessary.



Conflicts of interest: The authors did not specify any links of interest.

000679 | Egg allergy debut in adult patient

F. J. Cañizares Gomez De Terreros; M. D. Lanuza Rubio; S. Dager García; N. Llano ceballos; M. Bermeo Avila; C. Perez Frances

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Background: Allergy to egg is one of the most prevalent food allergies, mainly in pediatric population. Most of these patients develop symptoms during their first years of live, and the majority of adult patients that show signs or symptoms of egg allergy have had these since childhood; or had them during their childhood, gained tolerance, and then lost tolerance. There are some adults who show sensitization to egg as part of a bird-egg syndrome, with a sensitization to bird allergens with cross-reactivity to egg yolk allergens, mainly alfa-livetin. Sensitization to egg allergens as seen in children is rare in adults without prior allergy to these proteins.

We present a 55 years old patient who develops food allergy to eggs with hipersensibility tipe I symptoms, including OAS, itching, abdominal pain, and diarrhea. This patient had a history of rhinoconjuntivitis and asthma with sensitization to dust mites, tree and grass polen, and a food allergy to peach LTP, but had no history regarding sensitization to egg, no exposure to bird allergens, and no history of gastrointestinal disorders that could justify sensitization.

Material and methods: Prick test with extracts of whole egg, egg white, egg yolk, ovomucoid, ovoalbumin, and chicken meat were performed.

Total IgE and specific IgE to egg white, egg yolk, ovomucoid (Gal d 1) and ovoalbumin (Gal d 2) were determined then and a year after.

Multiplex array containing Gal d 1, Gal d 2, ovotranferrin (Gal d 3), lysozym C (Gal d 4), seric albumin (Gal d 5), egg white, and egg yolk for a more complete study was also performed.

Results: Prick test were positive for: egg yolk 7x9mm, egg white 6x7mm, ovoalbumin 10x6mm, ovomucoid 7x10mm, histamine 8x6mm.

Prick test for chicken meat was negative.

Total IgE determination was of 771kUi/L, specific IgE for ovomucoid 4.47kUi/L, ovoalbumin 0.62 kUi/L, egg white 1.85kUi/L, egg yolk 0.65kUi/L

Multiplex results were negative

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IgE after a year of avoidance were: Gal d 1 3.51kUi/L, Egg white 0.55kUi/L, negative for the rest.

Conclusion

- This patient had no identifiable risk factors that justify the development of a food allergy other than a history of other allergies.
- There is no discernible cause for sensitization in this patient who up until one point had tolerance to egg proteins.
- With egg avoidance the symptoms disappeared.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

000184 | Anaphylaxis to constrast material: A rare case

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*Presenting author: F. Rodrigues dos Santos

Background: Contrast material is generally well tolerated although approximately 1% of patients who receive contrast material will develop anaphylaxis symptoms. We describe a case of a patient who developed an anaphylatic reaction after iopromide contrast administration and needed treatment at the emergency department.

Case: A 21 years-old male patient with history of Marfan Syndrome presented to the Emergency Department after a CT scan procedure with constrast in our Hospital; he presented symptoms throat itching, swelling of the larynx, shortness of breath, tachycardia, generalized maculopapular exantema and blurred vision 5 minutes after intravenous administration of iodinated contrast iopromide (ultravist 370mg/mL). He showed altered vital signs with hypotension (80/50mmHg) and tachycardia (CF 136bpm). He was given hydrocortisone 200mg iv, and adrenaline 0.5mg/mL and was transfered to the Emergency Department, were he was also seen by an Allergist and treated with clemastine 2mg iv, prednisolone 60mg, with gradual resolution of the episode.Tryptase levels were collected whithin the first hour of reaction and were elevated (14.0 µg/L, normal range <11.4 µg/L), in contrast with normal basal tryptase levels collected 3 weeks later (3.14 µg/L, normal range <11.4 µg/L) Other laboratory findings were unremarkable. A short cicle of oral corticosteroids and antihistamines was given at discharge.

Skin Prick tests (SPT) to the available contrasts in our hospital setting were negative to Ioversol 741mg/mL and Iodixanol 320mg/mL (histamine 9mm), and Intradermal Tests (IDT) at progressively increasing concentrations of Ioversol (7.41mg/mL and 74.1mg/mL) and Iodixanol (3.2mg/m Land 32mg/mL) were negative. SPT and IDT to Iopromide 370mg/mL were not performmed.

A challenge test was not performed given the history of grade 3 anaphylaxis.

The Basophil activation test (BAT) to Iopromide, Iodixanol and Ioveversol was negative.

A diagnosis of anaphylaxis to Iopromide was made and the patient was advised not to undergo CT scans using Iopromide in the future. If needed, a contrast solution with the lowest molecular weight, like Iodixanol, should be given, as well as corticosteroids and antihistamines prior to the exam.

Discussion/conclusion: IgE-mediated anaphylaxis is rare but may be one of the possible mechanisms of severe adverse reactions to contrast material. We highlight the need for an allergologic referral and workup. Skin testing (and basophil activation testing, if available) with a panel of different contrast materials appears to be useful for identifying alternative contrast material that can be used safely, specially with prophylactic pretreatment drug regimens.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

ANAPHYLAXIS

001267 | Telemedicine as an educational tool for caregivers regarding auto-injectors and anaphylaxis management (TEAAM): Post-education session comparisons

C. O'kelly[1]; C. Cronin[2]; H. Keohane[2]; L. Flores Villarta[1]; J. Trujillo[1]

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*Presenting author: C. Cronin

Background: Food allergy affects up to 10% of children and its prevalence continues to increase[1]. Anaphylaxis is a severe, life-threatening allergic reaction for which first-line treatment is adrenaline. Caregiver education regarding adrenaline auto-injector (AAI) administration and anaphylaxis management is an important method of improving anaphylaxis outcomes in children[2,3]. During the Covid-19 pandemic however, face-to-face caregiver education opportunities were drastically reduced following implementation of virtual clinics. Our project aims to assess whether virtual education sessions can improve caregiver knowledge and AAI administration technique, as well as assess the acceptability amongst caregivers towards continued online learning.

Method: TEAAM is a prospective, interventional study. Potential participants were identified from outpatient clinic lists and were invited to complete a pre-intervention questionnaire. Those eligible were then enrolled in an online education session involving AAI administration assessment, videos displaying correct AAI administration and anaphylaxis management information, followed by re-assessment of caregiver AAI technique. Caregivers then completed a post-intervention questionnaire which assessed satisfaction and improvement of knowledge. A 6-month follow-up assessment has been completed with a limited number of participants

Results: 185 participants completed the online questionnaire. 152 participants took part in an education session of which 76 (50%) have

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completed the post-intervention questionnaire. 29 (19%) have completed a 6-month follow up. Anaphylaxis management knowledge following educational intervention was increased, with a sustained subtle improvement after 6 months (average score 82.4% vs 90.4% vs 84.8% respectively). AAI administration technique was marked based on observation of key steps outlined in figure 1. Scores increased from 69.95% to 95% following instruction. There was no statistically significant difference in score improvement between brands of AAI used or number of times AAI had been administered. 97.3% found the session useful.

Conclusion: Caregiver performances pre-intervention were above average, and improvements post-intervention were comparable with face-to-face education[4,5]. Overall satisfaction levels were high. Virtual instruction regarding anaphylaxis management and AAI administration appears to be a safe, effective tool for caregiver education.

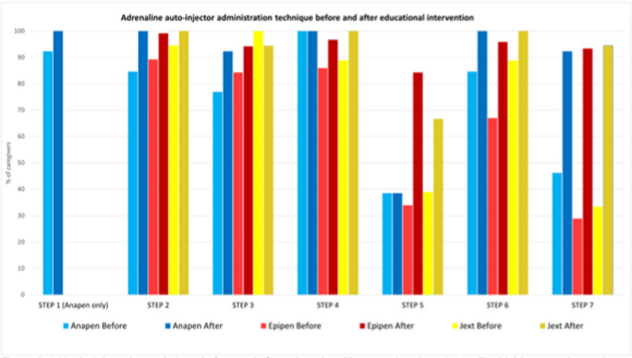

Figure 2: AAI administration technique before and after educational intervention. Step 1: Needle shield removed, step 2 = Cap removed, step 3 = Correct side directed towards thigh, step 4 = Administered to upper outer thigh, step 5 = Pushed firmly until click (Anapen: Press red button) step 6 = Held in place for 10 seconds, step 7 = Massaged area after removal

Conflicts of interest: The authors did not specify any links of interest.

000496 | **Hong Kong multidisciplinary anaphylaxis management initiative (HK-MAMI): Epidemiology, outcomes and disproportionate burden of food-dependent exercise-induced anaphylaxis**

H. W. F. Mak[1]; V. Chiang[2]; M. H. Y. Yeung[1]; A. K. C. Kan[1]; E. Y. L. Au[2]; P. Li[1]

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*Presenting author: H. W. F. Mak

Background: Anaphylaxis is a life-threatening allergic reaction that poses a considerable burden on populations across all ethnicities and age groups. The Hong Kong Multidisciplinary Anaphylaxis Management Initiative (HK-MAMI) was established to streamline the assessment of anaphylaxis patients via a multidisciplinary and protocol-driven approach. This prospective study aims to define the etiology, clinical manifestations, and treatment of anaphylaxis patients in Hong Kong.

Method: Prospective clinical data from allergological investigations from patients who completed evaluation by the HK-MAMI pathway between January 2017 and August 2022 were analyzed.

Results: 131 (81.4%) out of 161 patients referred via HK-MAMI met diagnostic criteria for anaphylaxis. The median delay in diagnosis was 2 (0–30) years. The majority of anaphylaxis cases were attributed to food-dependent exercise-induced anaphylaxis (FDEIA), especially wheat (WDEIA). In acute management settings, paired tryptase samples were only taken in around one-third of cases, but with 82.5% demonstrating significant elevation. There was a general under-prescription of adrenaline autoinjectors (AAI), especially for food-related anaphylaxis. FDEIA patients had later ages of onset and diagnosis, and present with more cardiovascular manifestations. Skin prick tests (SPT) and specific IgE tests (sIgE) could diagnose 95% of FDEIA cases.

Conclusion: Our study highlights the significant burden of FDEIA, especially WDEIA, in Hong Kong, its association with severe presentations, and difficulties encountered in acute-care settings. We advocate appropriate adrenaline use during acute-care management and discharge plans, as well as taking serum mast cell tryptase samples during acute episodes. Interdisciplinary collaboration remains crucial for optimized care for anaphylaxis patients in Hong Kong.

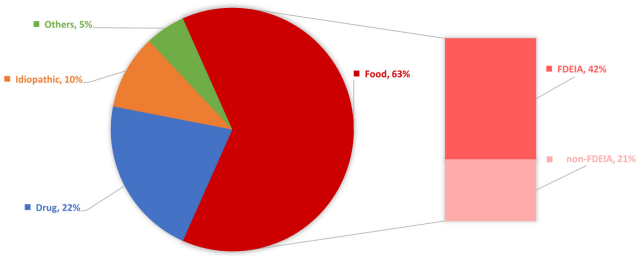

FIGURE 1 Breakdown of confirmed aetiologies of anaphylaxis ($n = 131$).

Conflicts of interest: The authors did not specify any links of interest.

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000746 | Food anaphylaxis in the elderly: Analysis of allergy vigilance network data from 2002 to 2021

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*Presenting author: H. El Hanache

Background: Few studies have focused on food allergies in the elderly, even though it may persist or appear de novo.

Method: We reviewed data for all cases of food-induced anaphylaxis in people age ≥60 reported to the French "Allergy Vigilance Network" (RAV) between 2002 and 2021. RAV collates data reported by French-speaking allergists regarding cases of anaphylaxis graded II to IV according to the Ring and Messmer classification.

Results: 191 cases were reported, with an even sex distribution and mean age was 67.4 years (range 60 to 93).

The most frequent allergens were mammalian meat and offal (31 cases, 16.2%), often associated with IgE to α-Gal. Legumes were reported in 26 cases (13.6%), fruits and vegetables in 25 cases (13.1%), shellfish 25 cases (13.1%), nuts 20 cases (10.5%), cereals 18 cases (9.4%), seeds 10 cases (5.2%), fish 8 cases (4.2%) and anisakis 8 cases (4.2%). PR-10 proteins were involved in 11% of anaphylaxis.

Severity was grade II in 86 cases (45%), grade III in 98 cases (52%) and grade IV in 6 cases (3%) with one death. Most episodes occurred at home or in a restaurant and in most cases adrenaline was not used to treat the acute episode.

Potentially relevant cofactors such as beta-blocker (24%), alcohol (20%) or non-steroidal anti-inflammatory drug intake (18%) were present in 61% of cases. Chronic cardiomyopathy, present in 11.5% of the population, was associated with greater, grade III or IV reaction severity OR 3.4; (1.24, 10.95).

Conclusion: This series shows the impact of allergens such as alphaGal or PR-10 proteins in the elderly, and the interest of an allergological assessment and an individualised action plan with adrenaline auto-injector.

Conflicts of interest: The authors did not specify any links of interest.

000730 | Detection of pru du γ-conglutin as a relevant allergen in a child with exercise-induced anaphylaxis due to almond

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*Presenting author: C. Rivas Juesas

Introduction and case report: The prevalence of almond allergy is not well known due to geographical differences and heterogeneity of studies. In Spain, 6.9% of the population claim to be allergic to nuts. Currently, 9 potential almond allergens have been described, including γ-conglutin, whose clinical presentation is not clearly known.

We present the case of a 12-year-old male patient, who consulted for three episodes of bilateral eyelid oedema lasting about six hours, with no clear trigger. The last was associated with profuse rhinitis, dyspnoea, cough and dysphagia. He required emergency care and corticoids and antihistamines. i.v. were administered, with resolution of the symptoms. The episode occurred 45 minutes after eating almond nougat. Two hours earlier he had been playing football. In another episode of eyelid oedema, the patient was taking ibuprofen.

Methodology and results: We carried out skin prick tests with commercial extracts and we found a positive result for almond (6 mm) and histamine (4 mm) but the remain nut extracts were negative.

In the same battery tests, a sensitisation to Alternaria (8 mm), dog (4 mm), cat (4.5 mm), rabbit (4.5 mm) and parietaria (8 mm) was detected. Laboratory studies showed a total IgE of 11 UI/mL, and a sIgE to almond IgE of 1.6 kU_A/L. A multiplex diagnostic test (ImmunoCAP ISAC) was performed, which showed a value of sIgE to Alt a 1 of 1 ISU-E and Par j 2 of 1.7 ISU-E).

According to the Western blot analysis, the patient´s sera recognized mainly a protein around 45 kDa, particullarly present in raw almonds. This protein could be a Pru du γ-conglutin, which shares a similar structure and sequence with inhibitors of the xyloglucan-specific endo-beta1,4-glucanase inhibitors.

Conclusion: This case seems to confirm that Pru du γ-conglutin is a food allergen capable of inducing food allergen capable of inducing severe reactions, and it would be the first of this family of family of proteins.

JM case reports session: 18244.

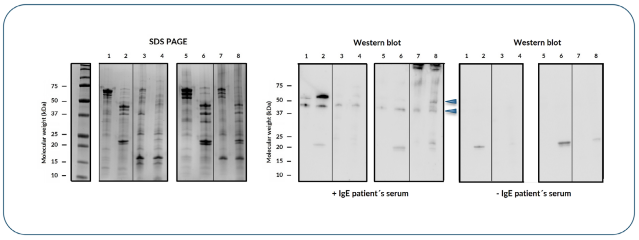

Figure 1. SDS PAGE/IgE-Western blot. Lane 1. raw almond (hydro part), lane 2: raw almond (hydro part) + β-mercaptoethanol, lane 3: raw almond (lipo part), lane 4: raw almond (lipo part) + β-mercaptoethanol, lane 5: Roasted almond (hydro part), lane 6: Roasted almond (hydro part) + β-mercaptoethanol, lane 7: Roasted almond (lipo part), lane 8: Roasted almond (lipo part) + β-mercaptoethanol

Conflicts of interest: The authors did not specify any links of interest.

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000193 | Epidemiology of anaphylaxis in children in Singapore

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*Presenting author: H. Y. Cheng

Background: Anaphylaxis is a severe, life-threatening systemic hypersensitivity reaction that can be triggered by a variety of allergens. The aim of this study was to evaluate the cause and clinical presentation of anaphylaxis amongst children (aged ≤19 years) in Singapore from April 2014 to December 2020.

Method: An electronic database search using International Statistical Classification of Diseases and Related Health Problems (ICD-9) codes for anaphylaxis (9950), angioedema (9951), allergy (9953), and urticaria (7080, 7089) was performed for patients visiting two major paediatric emergency departments. Those who fulfilled the 2011 World Allergy Organisation criteria for anaphylaxis were included in the study.

Results: A total of 863 cases of anaphylaxis were identified across the years. The subjects ranged from age 2 months to 19 years 11 months, the median age being 7 years 6 months, of which 60.7% were male. They were of different ethnic groups, comprising Chinese (58.5%), Malay (16.5%), Indian (5.1%) and others (19.9%). The prevalence of anaphylaxis in Singapore showed an increasing trend from 2015 to 2020, with the estimated annual incidence rate increasing from 14.9 to 24.5 visits per 100,000 population. Specifically, there was a greatest increase in food-induced anaphylaxis cases in younger children (≤9 years). The main trigger was food (75.6%), of which the most common allergens were nuts (19.6%), shellfish (10.0%), egg (9.3%) and milk (6.0%). Other triggers include drug (9.5%), stings (1.2%), exercise (0.7%), and idiopathic (12.2%).

Older children (15–19 years) presented with more respiratory symptoms (86.8% vs 44.9% in those <1 year, $p < 0.05$), while those <1 year had more gastrointestinal manifestations (70.1% vs 51.1%, $p < 0.05$). There was no statistical significance for cardiovascular and skin symptoms with age, overall 21.9% and 96.5% respectively. Most subjects (88.9%) were managed with epinephrine and there were no fatalities.

A history of asthma and male sex were significantly associated with the onset of respiratory symptoms (Adj OR (95% CI): 2.020 (1.009–4.041) and 1.443 (1.027–2.033) respectively).

Recurrent anaphylaxis was significantly associated with older age (aOR 1.423 (1.178–1.719)) and with a history of food allergy (aOR 4.538 (2.767–7.442)).

Conclusion: The prevalence of anaphylaxis has increased with time, particularly that of food anaphylaxis among young children. There is a need to better understand the presentation of anaphylaxis in children to guide management.

Conflicts of interest: The authors did not specify any links of interest.

000245 | Intraoperative protamine-induced anaphylaxis occurs by an IgE-dependent mechanism as indicated by basophil activation tests: A case report

M. Orihara; T. Horiuchi; T. Takazawa; K. Nagumo; T. Haraguchi; S. Saito

Gunma University Hospital, Maebashi, Japan

*Presenting author: M. Orihara

Background: Protamine is commonly used to reverse the effects of heparin. Although protamine-induced anaphylaxis has been known for many years, few studies have investigated the underlying mechanism. To the best of our knowledge, this is the first report suggesting an IgE-dependent mechanism, as indicated by basophil activation tests (BATs).

Case presentation: Written informed consent for this publication was obtained from the patient. A 75-year-old man underwent endovascular aortic repair under general anesthesia. He had undergone the same surgery approximately 2 years earlier, and had been uneventfully exposed to protamine. However, immediately after protamine administration in the current surgery, his systolic blood pressure fell to approximately 50 mmHg, along with increased airway resistance. Suspecting anaphylaxis, he was treated with 30 μg adrenaline, with stabilization of his general condition. He discharged home four days after the operation. Serum tryptase levels measured at 30 min, 2 h, and 24 h after the suspected reaction were 33.3 μg/L, 23.0 μg/L, and 4.5 μg/L, respectively. We diagnosed anaphylaxis based on his clinical symptoms and high serum tryptase levels.

Seven weeks later, skin tests were performed with all suspected agents, showing positive results only for protamine. BATs with CD203c were subsequently performed using serial dilutions of protamine. Anti-IgE antibodies and formyl-methionine-leucyl-phenylamine (fMLP) were used as positive controls. Unlike anti-IgE, fMLP activates basophils through an IgE-independent pathway. Wortmannin, an inhibitor of phosphoinositide 3-kinase, was used to investigate whether anaphylaxis was caused by an IgE-dependent or -independent mechanism. Compared to CD203c+ basophils from a healthy control, those in the patient were significantly elevated after adding protamine. These results suggested that the causative agent was likely protamine. The rates of CD203c+ basophils that responded to anti-IgE, fMLP, and protamine at 1 mg/mL concentrations were 81.1%, 37.8%, and 23.3%, and those with pretreatment wortmannin were 2.5%, 26.2%, and 1.3%, respectively. The inhibitory effect of wortmannin on basophil activation by anti-IgE and protamine, but not fMLP, suggested an IgE-dependent mechanism underlying protamine-induced anaphylaxis.

Conclusions: Protamine might cause anaphylaxis through an IgE-dependent mechanism. BATs might be useful for investigating the mechanism underlying drug-induced anaphylaxis.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

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000428 | Is atopy related to the severity of anaphylactic reactions in drug provocation test?

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*Presenting author: J. J. Laguna Martinez

Background: Drug provocation test (DPT) is the gold standard test in drug allergy.

Our study aimed to describe the clinical characteristics of the patients who presented reactions after DPT and analyze the factors that might be related to their severity.

Method: From December 2018 to December 2022, we selected positive DPTs that occurred in our center.

After obtaining informed consent, we performed DPTs with 60-minute dose-increasing interval, under careful monitoring.

The reactions elicited during the DPT event were classified according to Brown´s anaphylaxis severity criteria. Tryptase levels were measured in samples collected during the acute and basal phase of anaphylaxis.

Each episode was classified according to their underlying mechanism in: IgE mediated, cyclooxygenase-1 inhibition pathway (intolerance reactions by nonsteroidal anti-inflammatory drugs (NSAIDs)) and direct activation of mast cells via Mas-related G-protein-coupled receptor member X2 (MRGPRX2). We analyzed which factors were related to the severity.

Results: We collected 93 reactions, the patient´s mean age was 42.29 (SD 15.77), 64.5% (60/93) were women.

Atopy was present in 31.2% (29/93) of cases, most of them were NSAIDs (22/50), especially intolerance reactions. In 28.3% (26/93) there was an increase in tryptase compared to the baseline value. The drugs involved in the reaction were: 50 NSAIDs, 27 betalactams, 10 quinolones, 2 vancomycin, 1 omeprazole, 1 gentamycin, 1 sugammadex and 1 iodinated contrast agent.

The underlying mechanisms were: IgE-mediated in 38 cases, NSAIDs intolerance in 43 cases and suspected by MGRPX2 mechanisms in 12 cases.

In 60 (64.5%) cases the severity reaction was grade 1 and 33 (35.5%) grade 2.

Atopy was present in 45.5 % of grade 2 severity reactions, but only in 23.3 % of grade 1 reactions (p 0.015). Tryptase elevation and treatment with adrenaline were statistically more frequent in grade 2 reactions ($p < 0.01$).

Conclusion: Atopy was associated with greater severity in DPT reactions. NSAIDs were the most frequent culprit drugs ($p < 0.01$). The severity of the reaction was associated with an increase in tryptase levels and use of adrenaline. Although no significative differences were found in severity according to the underlying mechanism, 50% of IgE mediated reactions needed adrenaline treatment.

Conflicts of interest: The authors did not specify any links of interest.

000706 | Phenotypes of non-cow's milk induced anaphylaxis – Analysis of the paediatric data from network for online registration of anaphylaxis (NORA)

E. Cichocka-Jarosz[1]; S. Dölle-Bierke[2]; U. Jedynak-Wąsowicz[1]; D. Sabouraud-Leclerc[3]; A. Köhli[4]; L. Lange[5]; N. Papadopoulos[6]; J. Hourihane[7]; K. Nemat[8]; K. Scherer Hofmeier[9]; S. Hompes[10]; H. Ott[11]; L. Camargo Lopes de Oliveira[12]; T. Spindler[13]; C. Vogelberg[14]; M. Worm[2]

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*Presenting author: S. Dölle-Bierke

Background: Unlike cow's milk anaphylaxis (CMA), milk from other animal species anaphylaxis (other milk anaphylaxis, OMA) is rare in children. The aim of this study was to analyse their phenotypes in a paediatric population up to twelve years of age.

Method: Data were collected in the years 2007–2020 within the Network for Online Registration of Anaphylaxis (NORA). Clinical phenotypes of single allergen anaphylaxis and treatment were analysed. Fisher-Freeman-Halton test was used for statistical analysis.

Results: 27 cases of OMA (goat milk $n = 21$ and ewe milk $n = 6$) from 5 European countries (two thirds from Southern Europe) and 284 cases of CMA from 10 European countries and Brazil were identified. OMA patients were older (median = 4 years vs median = 1 year, $p < 0.001$), whereas gender and severity of the reactions did not differ significantly. Comorbidities were more frequent in the OMA patients (85% vs 54%, $p = 0.003$) – in detail: history of atopic dermatitis (62% vs 37%, $p = 0.014$), atopy (92% vs 54%, $p < 0.001$), food allergy (57% vs 22%, $p < 0.001$) and current food allergy (57% vs 23%, $p < 0.001$). Children with OMA experienced more often wheezing (42% vs 24%, $p = 0.048$) and less often erythema (15% vs 39%, $p = 0.015$). During the episode adrenaline iv was given by a physician about 7 times more frequently in the OMA group (29% vs 4%, $p = 0.035$). Twice as many OMA children were supplied with adrenaline autoinjector (AAI) (46% vs 20%, $p = 0.003$) and systemic glucocorticoteroids (40% vs 20%, $p = 0.019$) prior to the anaphylactic reaction than in the CMA group.

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Conclusion: Clinical phenotypes and medical intervention differed significantly between OMA and CMA children. OMA, although ten times less frequent than CMA, it appears to be associated with an increased risk of severe anaphylaxis due to the type of intervention.
Conflicts of interest: The authors did not specify any links of interest.

001185 | Food dependent exercise induced anaphylaxis – Report of two cases

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*Presenting author: J. Asllani

Case 1: A 48-year-old women with a history of rhinitis reports two episodes of an allergic reaction associated with exercise: the first one presented with generalized urticaria, pruritus, face angioedema, dyspnea and chest tightness 1 h after walking. She referred she had wheat flour biscuits 30 minutes before the walk. The symptoms resolved after 4–5 h after treatment. The second episode presented with urticaria, dyspnea, profuse sweating, hypotension, abdominal pain and dizziness. Symptoms started one hour after dancing. In the same day about 2–3 h previously she had eaten cheese pie accompanied by wine and she had also taken one tablet of ketoprofen for headache 6 h before symptoms appeared. Skin prick tests for aeroallergens and foods with commercial extracts were carried out: wheat flour (7 mm). Prick by prick with wheat flour: 10mm.
Case 2: A 41-year-old policeman reporting 2 episodes with urticaria, dyspnea, hypotension, obscuration of vision, profuse sweating, and hoarseness. The first one occurred 30 min after running and previously he had pizza with ton fish. The second one after 60 min of walking. One hour before walking he had wheat flour bread and vegetable salad. Several previous episodes of mild urticaria related with ingestions were also reported. Skin prick tests for aeroallergens and foods were negative. Prick by prick with wheat flour: negative. Molecular allergy (ALEX ^{2}) was performed in both cases (Table 1). Both patients were diagnosed with Food Dependent Exercise Induced Anaphylaxis (FDEIA). An epinephrine auto injector was prescribed and patients were advised to avoid the ingestion of wheat products 3 hours before and 1 hour after exercising.
Conclusion: FDEIA is a rare and complex condition. Reactions vary widely regarding clinical patterns, triggers or response to treatment, therefore might sometimes be misdiagnosed. It impacts seriously patient' lives and all allergists or physicians should be able to recognize. A detailed history and allergy testing is needed to properly diagnose and manage patients. Molecular allergy diagnosis was an important tool in understanding the sensitization profile in both our cases and in diagnosing them.

TABLE 1 Laboratory tests results for both cases.

Tests	Case 1	Case 2
SIgE levels to Tri a 19 (Ω -5-Gliadin)	5.65 kU_A/l	40.17 kU_A/l
SIgE levels to Tri aA_TI (alpha amylase trypsin Inhibitor)	<0.1 kU_A/l	23.69 kU_A/l
Tryptase (>24 h after episode)	3.21ng/ml	4.82 ng/ml
Total IgE	85 UI/ml	106 UI/ml

JM case reports session: 18243.
Conflicts of interest: The authors did not specify any links of interest.

001492 | Adrenaline autoinjector in Chile, Chilean national survey 2020

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Background: Anaphylaxis is a severe systemic allergic reaction with a sudden and potential life-threatening onset that requires prompt treatment with intramuscular epinephrine. Global prevalence is increasing, with a rate of 50 to 112 cases per 100.000 inhabitants[1]. The objective of this study is to describe the current situation in Chile regarding the management and indication of the epinephrine autoinjector (EAI) to treat anaphylaxis
Method: In 2020 the Chilean Foundation "Growing Up with Food Allergies" conducted a national survey among users of EAI and physicians who diagnose anaphylaxis. The survey was released among users of EAI through the foundation's EAI purchase database, social media and via email to 5 medical societies.
Results: 406 patients and 72 physicians completed the survey. The average age of patients was 26 years old (1–75), 59% women and 40% men. 66% were from the Metropolitan Region (RM), where the capital city is located. 85% reported at least one anaphylactic episode and 51% had the episode at home. 71% pointed to food as trigger, 16% a drug, 19% hymenoptera venom, 6% latex and 3% exercise-induced anaphylaxis. 58% of users indicated more than one trigger. Of the patients who suffered anaphylaxis, only 54% reported having received epinephrine (81% in emergency services, 15% administered EAI and 4% self-administered hospital epinephrine injection). Of the physicians who prescribed EAI, 50% were immunologists, 20.8% pediatricians, 12.5% general practitioners and the remaining were from other specialties. Before diagnosis of anaphylaxis, only 61.1%

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of the doctors always prescribe EAI, 19.4% prescribe antihistamines and corticosteroids. 100% of the surveyed doctors believe that it is necessary to develop and implement a national ministerial protocol for the management of anaphylaxis.

Conclusion: Epinephrine is an essential medication according to World Health Organization (WHO). The EAI is available in 32% of the countries and in Latin America it is only available in Chile and Argentina, both of which are not subsidized by the State. Our survey reveals a suboptimal management of anaphylaxis and the insufficient use of epinephrine in acute management as well as in discharge indications. In line with what has been proposed by different allergy societies, it seems urgent to promote national regulation and protocols for the management of this entity, as well as a subsidy of the EAI by the health system coverage plans.

Conflicts of interest: The authors did not specify any links of interest.

000337 | Anaphylaxis to methylprednisolone succinate in a child

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Background: Immediate hypersensitivity to glucocorticoids is rare, with a prevalence of 0.1 % to 0.3 %, and sometimes due to excipients such as sodium succinate which is used to increase hydrosolubility.

Case: We report a case of anaphylaxis to methylprednisolone succinate in a 7-year-old asthmatic boy, hospitalized in Vietnam with a severe hypoxemic asthma attack in a context of COVID 19 infection, with secondary SARS-CoV2 encephalitis.

He presented a grade 3 anaphylaxis with cyanosis and severe respiratory impairment during an intra-venous (i.v.) injection of methylprednisolone succinate, put on the account of asthma worsening instead of an allergy. The same treatment 6 days later produced an identical anaphylactic reaction. Both reactions were successfully treated with epinephrine i.v. Treatment with dexamethasone, prednisone and prednisolone were well tolerated thereafter.

Results: An immediate hypersensitivity to methylprednisolone succinate was confirmed by a positive intradermal test (IDT) at 1 mg/ml. A positive IDT to hydrocortisone hemissucinate at 1 mg/ml and negative IDTs to methylprednisolone acetate up to 4 mg/ml proved the responsibility of sodium succinate. Basal serum tryptase was 2.15 µg/l.

Discussion: Corticosteroid allergy remained controversial for a long time, since these drugs are used to treat allergic reactions.

To make corticosteroids water-soluble for intravenous application, they are coupled with esters, such as succinate ester, particularly in the position of C21. Succinate ester especially seems to have sensitizing potential. Because of their low molecular weight, corticosteroids probably act as haptens.

Symptoms of anaphylaxis are often atypical and severe, sometimes life-threatening. Patients requiring repeated parenteral corticosteroid treatments, such as patients with transplants, asthma or rheumatic diseases, seem to be particularly at risk.

Conclusion: This case emphasizes the importance for awareness of corticosteroid-induced reactions, especially in asthmatic patients in whom the symptoms may be mistakenly interpreted as an exacerbation of their primary illness.

Allergologic follow-up with search for sodium succinate hypersensitivity is essential to guide the choice of systemic corticosteroids allowed for the patient.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

000881 | Fatal anaphylaxis in Slovenia

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Background: Anaphylaxis is a serious, life-threatening systemic hypersensitivity reaction. About 0.3% of anaphylactic events result in death. In a retrospective analysis we reviewed fatal anaphylactic events in Slovenia between 2010–2020.

Method: We obtained the data in cooperation with the Institute of Forensic Medicine (IFM). We included the patients whose postmortem serum samples were send to the Immunology Laboratory at Golnik Clinic for the analysis of the tryptase. We examined each case induvidually using documentation provided by IFM, by checking data with personal doctors and hospitals and the value for tryptase.

Results: Between 2010–2020, 15 people (mean age at death 55.6 years, 60% men) who died of anaphylaxis were autopsied at the IFM. The most common cause of death (47%) was hymenoptera sting allergy, predominatly wasp. 20% were medication-related, 27% seemed to be idiopathic. In 73% no previous hypersensitivity was known.

Conclusion: The analysis shows a high number of fatal anaphylactic events in people with no previous known allergy.

Conflicts of interest: The authors did not specify any links of interest.

001174 | Anaphylaxis following intravenous sodium fluorescein – A case report

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Background: Sodium fluorescein is a contrast media used in ocular angiography. The incidence of side effects following the intravenous administration of sodium fluorescein is about 5%. Severe hypersensitivity reactions, including anaphylaxis are very rare.

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Method: We present a case of patient who experienced anaphylaxis during drug provocation test with sodium fluorescein.

Results: A 51-year-old male patient with visual disturbances was referred to intravenous fluorescein angiography for the first time in his life. Since he had a history of allergic reaction to iodine contrast media (loss of consciousness) and doxycycline (cutaneous reaction), an allergist was consulted and the patient underwent drug provocation test with sodium fluorescein. Three to four minutes after the beginning of intravenous administration of sodium fluorescein, the patient developed intense malaise, dyspnea, and generalized pallor. His blood pressure was unmeasurable, and anaphylaxis was highly suspected. The patient was treated with epinephrine, methylprednisolone, intravenous fluids and oxygen therapy. The patient successfully recovered and was safely discharged after 24h of close observation.

Conclusion: Although uncommon, anaphylaxis to sodium fluorescein may occur. Patients with drug allergy history may have an increased risk of hypersensitivity reaction to sodium fluorescein, including anaphylaxis.

Conflicts of interest: The authors did not specify any links of interest.

000497 | Basophil activation test (BAT): A useful tool in the search of the cause of anaphylactic shock

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Background: There are different possible causes of anaphylaxis that the allergist should try to determine its cause to prevent future reactions and thus, to establish appropriate recommendations. In these severe cases it can be useful to perform BAT, as it is a safe test that provides a great deal of information.

Objectives: To describe a case of anaphylactic shock with different potential causes involved (drugs and food) and to show the usefulness of BAT for accurate diagnosis.

Method: A 50-year-old woman who, 5 minutes after eating an apple with peel, presented palmoplantar pruritus, tongue edema, nasal packing, dyspnea, vomiting, sphincter relaxation and loss of consciousness. Methylprednisolone and Polaramine IM was administrated in an emergency room with improvement of the symptomatology.

Completing the medical history, she reported that 45 minutes before eating the apple, she had taken an Ibuprofen tablet for renal lithiasis. Subsequently, she avoided apple and Ibuprofen. She tolerates Dexketoprofen.

Results: Skin tests were performed with prick test with basic food screening and with different fruits, including, Apple (Mal d 1) and Peach LTP resulting positive for LTP.

Specific serum IgE was requested by ImmunoCAP (IUa/mL) for Apple (1.84), Apple (Mal d 1; PR-10) 0.00, Apple (Mal d 3; LTP) 2.14, Peach (2.12), Peach (Pru p 3 LTP) 2.60.

BAT was also performed by flow cytometry labeled with anti-CD63 and anti-CD123 with the drug involved in the reaction: Ibuprofen and with other propionics and Aspirin with negative results.

Given the results, a controlled exposure test with Ibuprofen was performed and the result was negative.

The diagnosis was anaphylactic shock due to allergy to lipid transporter protein (LTP) with tolerance to propionics.

Conclusion: The combination of tools, such as skin tests, specific serum IgE and BAT improves the diagnosis of anaphylaxis.

The negative result obtained in the BAT allows to propose a study with the drug involved in the severe reaction. This way, the whole propionic group, which is widely used in clinical practice, does not have to be eliminated, and only make recommendations of LTP avoidance.

Conflicts of interest: The authors did not specify any links of interest.

001417 | A rare case of recurrent anaphylaxis with chicken meat

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Allergic reactions to poultry meat are very rare and only case reports were declared in the literature. In this case, we present a child who experienced anaphylaxis with chicken meat for 4 times in her life.

A thirteen-years-old female patient admitted to the emergency service with respiratory, circulatory and mucosal symptoms of anaphylaxis after eating a piece of boiled chicken meat. She also has the history of anaphylaxis with chicken meat at the age of 6, 7 and 11. All reactions were including respiratory, circulatory and mucosal symptoms and starting in 30 minutes after eating chicken meat. After first reaction she was evaluated by pediatric allergy department, skin prick test was positive for Pallus galinecaus (chicken meat-LOFARMA, Italy): 5x7mm, but negative for prick-to-prick tests with raw, boiled and fried chicken. The provocation test could not be performed because consent from the family could not be obtained. The family and kid were informed about risks and adrenalin autoinjector was provided. At the age of 7 she was accidentally consumed rice cooked with chicken broth, at the age of 11 she unawarely consumed meatball mixed with chicken meat and she had anaphylaxis with same severity. But at last reaction (13 years-old) the patient wanted to try eating a piece of chicken meat. She was evaluated by pediatric allergy department again. Chicken meat specific Ig E (f83 CLIA): 1.97 kU/L (Class II) and tryptase level was 23.4 ng/ml (reference range<11.2 ng/ml). Prick-to-prick tests were positive for boiled chicken (11x6mm) and boiled turkey meat (15x12mm). All other tests were normal, including skin prick tests. Serum triptase level was back to normal at control. Provocation test was refused again by family. They are informed about risky behaviors can occur during adolescence and adrenalin autoinjector was provided.

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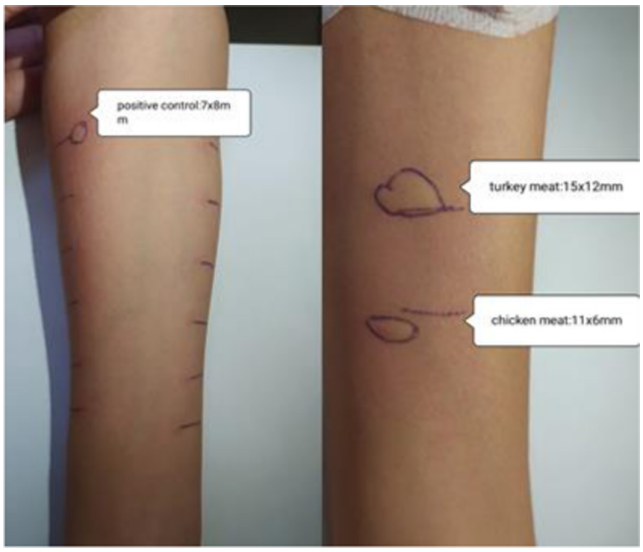
Our patient was consuming all other foods without reaction (like eggs, meat, fish, milk) but she was not consuming any poultry meat. This is a good example for primary poultry meat allergy. It is life-threatening and rare food allergy, published data about this situation mainly refer to single case reports. We believe as data on the subject published, the awareness will increase.

TABLE 1 Skin prick test and pric-to-prick test results (2022).

Positive control (histamine, 10mg/ml-LOFARMA, Italy)	7 × 8 mm	Fishes mix (LOFARMA, Italy)	—
Negative control (50% glycerinated saline-LOFARMA, Italy)	—	Soybean (LOFARMA, Italy)	—
Dermatophagoides farinea (LOFARMA, Italy)	—	Beef (LOFARMA, Italy)	—
Dermatophagoides pteronyssinus (LOFARMA, Italy)	—	Boiled turkey meat (prick-to-prick)	15 × 12 mm
Egg yolk (LOFARMA, Italy)	—	Boiled chicken meat (prick-to-prick)	11 × 6 mm
Egg White (LOFARMA, Italy)	—		

JM case reports session: 18243.



Conflicts of interest: The authors did not specify any links of interest.

ASTHMA 3

000644 | Clinical characterization of severe asthma in young adults and patients with NSAID-exacerbated respiratory disease. Results of the biobadaler consortium

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Background: NSAID-exacerbated respiratory disease (NERD) is a severe asthma (SA) phenotype related to chronic rhinosinusitis (CRS) and allergy absence. Nevertheless, most published series include patients with no confirmed diagnosis of NERD or CRS, and included SA patients with an average age >60 years, being little known about SA in younger adults. This study, conducted by the eight SA units belonging to BIOBADALER consortium, investigates SA characteristics in young adults (18–40 years) and NERD patients.

Method: SA patients were defined as those requiring high-dose inhaled corticosteroids plus other controller medication, or remaining uncontrolled despite treatment. Patients were prospectively recruited, and data entered into a RedCap© database. NERD was confirmed by nasal challenge or oral provocation with aspirin, whereas CRS (with and without nasal polyps) by compatible symptoms and nasal endoscopy. Atopy was established by positive skin prick test to at least one relevant aeroallergen.

Results: We recruited 321 SA patients (66% women). From them, 85 were ≤40 years (27%), and 207 were receiving biological treatment (66%). NERD and CRS were confirmed in 48 and 96 patients (15% and 30%, respectively), and atopy in 241 (75%). The prevalence of NERD and of atopy, and the proportion of patients receiving biological treatment were not affected by being older/younger than 40 years. The proportion of overweight/obese patients and the prevalence of CRS were significantly higher in subjects >40 years (64.34% versus 29.62%, $p < 0.001$; 27.27% vs 9.26%, $p = 0.004$, respectively). Moreover, NERD patients and aspirin-tolerant asthmatics (ATA) did not differ significantly regarding atopy (75.86% versus 79.76%, $p = 0.5$), average age, or body mass index. Compared to ATA, NERD patients showed a significantly higher prevalence of CRS (14.29% versus 72.41%, $p < 0.001$), and were treated more often with biologicals (62.50% versus 86.27%, $p = 0.01$).

Conclusion: Our results indicate that, unlike older subjects, SA in young adults is not related to obesity. We confirmed the relationship among NERD, CRS, and severity. Our findings suggest that allergic mechanisms can coexist with NSAID intolerance in SA. The confirmation diagnosis of NERD and CRS, and the significant proportion of young adults included represent the added value of our study.

Conflicts of interest: The authors did not specify any links of interest.

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001157 | Efficacy and safety of epicutaneous immunotherapy (EPIT) for peanut allergy in subjects aged 1–3 years with and without concomitant asthma in the epitope study

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*Presenting author: G. du Toit

Background: Epicutaneous immunotherapy (EPIT) with a 250-µg peanut patch (VP250) has recently been shown to be superior to placebo in desensitizing 1 to <4-year-old peanut-allergic children. Asthma is a common comorbidity in food-allergic patients and an important consideration in immunotherapy. Thus, it is important to assess efficacy and safety of EPIT with VP250 in those with and without asthma.

Method: EPITOPE was a Phase 3, randomized, double-blind, placebo-controlled trial of VP250 in 362 children 1 to <4 years of age across 51 sites in Europe, North America, and Australia. The primary outcome was defined according to change in eliciting dose from Baseline to Month 12 double-blind placebo-controlled food challenge. Efficacy and safety outcomes were assessed in children with and without ongoing asthma (as specified by site investigator) at study entry.

Results: At baseline, 66 (18.2%) subjects had asthma and 296 (81.8%) did not. In subjects with asthma, the responder rate was 49.6% (VP250) vs 24.5% (placebo); risk difference of 25.2% (95%CI: 1.33, 48.99). In subjects without asthma, the responder rate was 70.3% (VP250) vs 36.1% (placebo); risk difference of 34.2% (95%CI: 21.83, 46.64). There was a non-significant ($P = 0.72$) interaction effect between baseline asthma and treatment effect.

Serious treatment-emergent adverse events (TEAEs) assessed as related to VP250 in those receiving VP250 occurred in 1 (1.2%) subject without asthma and no subject with asthma. Likewise, TEAEs leading to permanent study discontinuation occurred in 8 subjects receiving VP250, 5 (2.4%) subjects without asthma and 3 (7.7%) subjects with asthma.

Conclusion: In peanut-allergic children between 1 to <4 years of age, response to 12 months of treatment in the EPITOPE study was in favor of VP250 vs placebo, irrespective of whether subjects had concomitant asthma at study entry, demonstrating that EPIT with VP250 increased the amount of peanut protein that could be consumed prior to an allergic reaction in children with and without asthma. Safety and tolerability profiles were similar between the groups with and without baseline asthma.

Conflicts of interest: DC, KB, TB, HS: employees of DBV TechnologiesWB: grants Food Allergy & Anaphylaxis Network, NIH, Wallace Research Foundation; consulting fees FARE, NIH, WAO, Aimmune, Epiva, Genentech, Marck, Stallergenes, Valeant, PPD Development, Allertein, and Sanofi GDT: research funding (institution) DBV Technologies; honoraria DBV TechnologiesPT: grant UK Medical Research Council, NIHR/Imperial BRC, JM Charitable Foundation; consulting UK Food Standards Agency, Aimmune Therapeutics, Allergenis, Aquestive Therapeutics, and NovartisCV: research funding (institution) DBV Technologies; Honoraria and Advisory Board DBV Technologies.

001256 | Prediction of sputum eosinophilia based on peripheral biomarkers in aspirin-exacerbated respiratory disease

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Background: Sputum eosinophils can help identify the type of airway inflammation, thus facilitating individualized management of asthma. However, this approach is not routinely used in clinical practice.

We aimed to assess the prediction of sputum eosinophil count (%) based on peripheral parameters (blood eosinophil count and urinary leukotriene E_4 [LTE_4]) in patients with asthma with and without aspirin hypersensitivity.

Method: The study included 213 participants: 133 patients with aspirin-exacerbated respiratory disease (AERD) and 80 controls with aspirin-tolerant asthma (ATA). Induced sputum was collected. Sputum eosinophils at a cutoff value of ≥3% were considered to indicate eosinophilic airway inflammation. Blood eosinophil count and urinary LTE_4 levels were measured. Their diagnostic value for predicting eosinophilic airway inflammation was assessed using the area under the receiver operating characteristic curve (AUROC). Neural networks were used to assess the discriminatory power of variables.

Results: In AERD patients, the AUROC was 0.73 ($P < 0.001$) for blood eosinophil count, 0.73 ($p < 0.001$) for urinary LTE_4, and 0.86 in a combined multivariate model. In ATA patients, the AUROC was 0.83 ($p < 0.001$), 0.66 ($p = 0.02$), and 0.83, respectively. A cutoff point of blood eosinophil count was lower in patients with AERD than in those with ATA: 370/mm^3 (sensitivity, 65.67%; specificity, 69.7%) vs 462/mm^3 (sensitivity, 71.43%; specificity, 86.44%).

Conclusion: Blood eosinophil count is not an ideal surrogate marker of eosinophilic airway inflammation in patients with AERD and may be inadequate to determine eligibility for biological therapy.

Conflicts of interest: The authors did not specify any links of interest.

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001609 | Biomarkers to predict long-term outcomes in childhood asthma: A systematic review

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Background: Although the use of non-invasive biomarkers is highly supported in recent guidelines for documenting diagnosis and supporting monitoring of asthmatic patients, data on the pediatric population are limited. We therefore aimed to assess the role of non-invasive biomarkers in childhood asthma with respect to prognostication and development of non-reversible airflow limitation.
Method: We performed a systematic review of randomized controlled trials and observational studies fulfilling the following criteria: children and adolescents with asthma or recurrent preschool wheeze; ≥12 months' follow-up period; inclusion of at least one prespecified outcome measure. The primary outcome was the utility of non-invasive biomarkers in predicting asthma persistence and/or development of fixed airflow obstruction. Secondary outcomes included persistence of asthma into adulthood, development of severe or difficult-to-treat asthma and risk of exacerbations. We searched MEDLINE and CENTRAL, independently extracted data on study population, type of biomarkers, and relevant outcome measures, and assessed the methodologic quality using the Quality in prognostic factor studies (QUIPS) tool.
Results: Of 4,444 abstracts screened, 51 studies met eligibility criteria. The main biomarkers considered were the following: blood eosinophils, total and specific IgE, pulmonary function tests, fractional exhaled nitric oxide (FeNO), volatile organic compounds, exhaled breath condensate and bronchial hyperresponsiveness. Thirty-four studies had low or moderate risk of bias. The primary outcome was reported in 20 studies. Blood eosinophilia, allergic sensitization, and increased FeNO values were not predictors of asthma persistence in most studies, whereas lung function measurements were associated with asthma persistence in seven studies. In one study, impulse oscillometry parameters were associated with the development of non-reversible airflow obstruction. Asthma exacerbations was the most frequently reported secondary outcome (18 studies). High blood eosinophil count and FeNO values, allergic sensitization and low lung function measurements, were associated with increased risk of exacerbations, especially in studies of shorter follow-up duration.
Conclusion: Certain non-invasive biomarkers may be associated with asthma exacerbations and lung function tests results may also predict asthma persistence. Their use in clinical practice could improve the management of children with asthma.
Conflicts of interest: The authors did not specify any links of interest.

001523 | Biomarkers for predicting type 2-high and uncontrolled asthma in real-world practice

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*Presenting author: S. D. Woo

Background: Blood eosinophil count (BEC), immunoglobulin E (IgE), and fractional exhaled nitric oxide (FeNO) are key clinical indicators for identifying type 2 (T2) asthma; however, there have been few studies on their clinical validation in real-world practice.
Method: Various clinical and laboratory parameters were analyzed according to the result of T2 markers (BEC ≥ 300 cells/μL, serum free IgE ≥ 120 ng/mL, and FeNO ≥ 25 ppb) in adult asthmatics who had maintained anti-asthmatic medications. Their cutoff levels for representing T2-high or uncontrolled asthma were determined using receiver operating characteristic (ROC) analysis. Blood levels of periostin and eosinophil-derived neurotoxin (EDN) were measured by ELISA. Activation markers of circulating eosinophils (siglec8$^+$) and neutrophils (CD66$^+$) were analyzed by flow cytometry.
Results: Of 133 asthmatic patients, 23 (17.3%) had 3 T2 markers and significantly higher levels of sputum eosinophils/blood EDN/siglec8$^+$ eosinophils, but lower FEV_1% as well as higher rate of uncontrolled status ($P < 0.05$ for all). The optimal cutoff values for identifying T2-high asthma were found to be 41 ppb of FeNO levels, 304 cells/L of BECs, and 128.6 ng/mL of serum free IgE levels. In addition, patients with uncontrolled asthma had significantly higher levels of FeNO/BEC with lower FEV_1% ($P < 0.05$ for all). Multiple ROC analysis identified that FeNO/BEC/serum free IgE were predictive of uncontrolled asthma (area under the curve 0.745, $P < 0.001$).

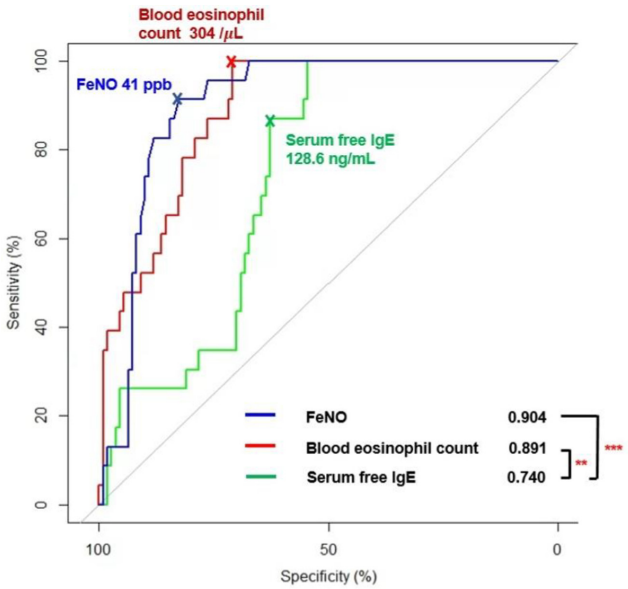

Figure. Receiver operating characteristic curve analyses for assessing T2-high asthma in asthmatic patients. $^{**}P < .01$; $^{***}P < .001$.

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Conclusion: We suggest the optimal cutoff values of BEC, IgE, and FeNO for classifying T2-high or uncontrolled asthma, which could be apply as candidate biomarkers for targeting asthmatics who require T2-biologics.

Table 1. Comparison of clinical characteristics, inflammatory variables, and asthma control status among the 3 study groups

Variables	Group 1 (n=23)	Group 2 (n=87)	Group 3 (n=23)	P-value
Age (year)	47.7 ± 14.2	49.7 ± 15.1	52.1 ± 13.5	0.603
Female (%)	15 (65.2)	53 (60.9)	19 (82.6)	0.151
Body mass index (kg/m²)	22.7 ± 3.2	24.3 ± 3.9	24.0 ± 2.9	0.202
Ex- or current smoker (%)	4 (17.4)	22 (25.3)	2 (8.7)	0.198
Atopy (%)	15 (65.2)	53 (60.9)	7 (30.4)	0.043
Serum-free IgE (ng/mL)	482.8 ± 344.0	342.2 ± 367.9	39.9 ± 35.9	<0.001
Blood eosinophil count (/μL)	814.7 ± 991.6	287.8 ± 200.9	127.3 ± 78.2	<0.001
FeNO (ppb)	71.3 ± 27.9	30.5 ± 29.0	12.0 ± 4.7	<0.001
Sputum eosinophils (%)	38.8 ± 33.3	23.5 ± 31.5	16.0 ± 31.2	0.032
Sputum neutrophils (%)	52.7 ± 36.7	63.9 ± 31.4	75.8 ± 31.2	0.048
FEV1 (% predicted)	83.3 ± 20.5	92.1 ± 16.5	91.7 ± 18.8	0.034
FEV1/FVC (%)	81.2 ± 9.4	82.9 ± 8.8	85.5 ± 7.5	0.232
PC20M (mg/mL)	4.6 ± 6.3	6.8 ± 8.5	8.8 ± 8.3	0.294
Plasma EDN (ng/mL)	21.2 ± 12.3	15.9 ± 14.3	9.7 ± 4.9	0.011
Serum periostin (ng/mL)	82.7 ± 27.8	77.9 ± 31.9	70.1 ± 20.7	0.132
Blood siglec8+ eosinophils (%)	14.0 ± 11.9	9.5 ± 10.8	5.6 ± 3.8	0.024
Blood CD66+ neutrophils (%)	61.9 ± 32.9	48.8 ± 28.6	42.8 ± 27.2	0.100
Asthma control status (%)				
Uncontrolled	7 (30.4)	8 (9.2)	0 (0)	<0.001
Partly or well controlled	16 (69.6)	79 (90.8)	23 (100)	

Group 1: Serum-free IgE ≥120 ng/mL and blood eosinophil counts ≥300 cells/μL and FeNO ≥25 ppb
Group 2: Serum-free IgE ≥120 ng/mL or blood eosinophil counts ≥300 cells/μL or FeNO ≥25 ppb, but group 1 is excluded
Group 3: Serum-free IgE <120 ng/mL and blood eosinophil counts <300 cells/μL and FeNO <25 ppb

PC20M, provocative concentration of methacholine to induce >20% decline of FEV1%; EDN, eosinophil-derived neurotoxin

Conflicts of interest: The authors did not specify any links of interest.

001542 | Biological treatment in severe asthma phenotype overlap-insights from a tertiary pulmonary centre

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Background: Biological therapy is a cornerstone of modern severe asthma treatment. Currently, with several different monoclonal antibodies to choose from, picking the right treatment in patients with traits of more than one asthma phenotype poses a new challenge for pulmonary specialists. Moreover, no guidelines on selection, or biomarkers of response to biologicals have been established so far.
Method: We analysed medical records of 125 severe asthma patients treated with biologicals in our tertiary pulmonary centre. The data included initial IgE and absolute eosinophil counts (AEC), aeroallergen-specific IgE profiles, as well as Asthma Control Questionnaire (ACQ) and mini Asthma Quality of Life Questionnaire (mAQLQ) before the treatment and after 6, 12 and 24 months of receiving biologicals.
Results: We identified 67 patients with features of both allergic and eosinophilic phenotype. While no statistical differences were observed in ACQ or mAQLQ reduction between patients treated with mepolizumab and benralizumab, those receiving omalizumab had significantly less marked improvement in ACQ score reduction (-1.8 vs -0.7). Interestingly, initial eosinophil levels did not affect the efficacy of treatment, including patients with hypereosinophilia (AEC ≥1500/microL), in whom both benralizumab and mepolizumab proved as effective as in patients with moderate AEC levels.
Conclusion: Asthma phenotype overlap is relatively common and requires individual approach to every patient Targeting eosinophilia appears significantly more effective than anti-IgE treatment, regardless of the initial eosinophil counts.
Conflicts of interest: The authors did not specify any links of interest.

001177 | ACAAI members' preferred step 1–3 asthma maintenance and reliever therapy and practice hurdles, mainly related to incomplete insurance coverage

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Background: New asthma guidelines (GINA, 2022; NAEPP EPR-4, 2020), include considerable changes in treatment recommendations, specifically regarding anti-inflammatory rescue and Single MAintenance and Reliever Therapy (SMART), with GINA having a preferred and alternative track, the former recommending only rescue with inhaled corticosteroid (ICS) – formoterol for step 1–2 without maintenance. Our objective is to explore ACAAI members' preferred treatment after these guideline changes and perceived hurdles.
Method: A survey (Surveymonkey®) regarding step1-step3 asthma therapy was emailed to ACAAI members.
Results: Allergists completed 147 surveys (46% >20y experience; 98% from US; 29% academic, 75% (also) private practice). 69% follow NAEPP, 81% GINA recommendations. *In a 4yo* patient for Step1 treatment, 55% of allergists would give anti-inflammatory maintenance (ICS or montelukast) and 25% ICS+SABA as rescue in Step1–2; for Step2, most prescribe an inhaled corticosteroid (ICS) 100–200mcg BUDeq daily; for Step3, 49% prescribes ICS+LABA and half of them as SMART strategy. *In a 7yo patient* for Step1 therapy, 40% prescribes only SABA; for Step3, 45% would institute SMART strategy, but only 8/135 (6%) chose very-low dose ICS+FORM (GINA recommended); most (39%) use low-dose ICS+FORM. As for rescue therapy 59% is now instituting some form of anti-inflammatory rescue. *In a 25yo patient* (N = 147): Step1, 39% prescribes exclusively SABA; Step2, 4% only anti-inflammatory rescue, the rest prescribes ICS maintenance; one-third begins SMART strategy at Step2, 50% in step3.
117/147 (80%) indicated correctly what SMART strategy is; 21/36/50/39% would use SMART in step3 treatment of a <5yo/5–11yo/12–65/>65yo patient, respectively. In this group, 11–14%

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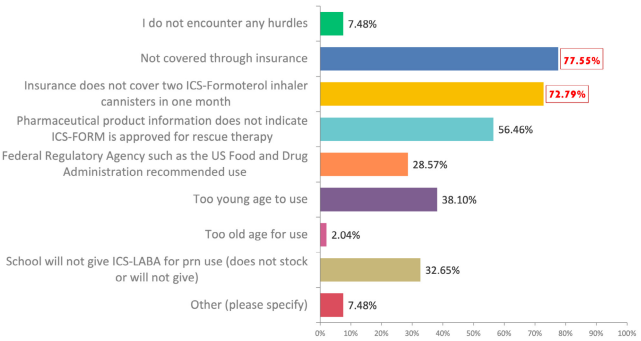
incorrectly chose ICS+salmeterol, and 9% ICS+vilanterol for SMART. Major hurdles for prescribing one's preferred strategy included incomplete insurance coverage and the pharmacy failing to provide (insurance not approving) more than one cannister of ICS-FORM per month.

Conclusion: Asthma therapy varies among physicians, with many respondents wanting to follow guidelines recommendations, but suggesting underutilization of the recommended anti-inflammatory rescue and SMART therapy. A major hurdle is lack of insurance coverage of medication in line with guidelines.



Conflicts of interest: The authors did not specify any links of interest.

000070 | Allergic bronchopulmonary aspergillosis revealig asthma

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*Presenting author: J. Hyun Jung

Allergic bronchopulmonary aspergillosis (ABPA) is a complex allergic disease caused by hypersensitivity to *Aspergillus* in asthma or cystic fibrosis patients. Most patients suffer from poorly controlled asthma. However, atypical symptoms make it difficult to diagnose ABPA. We report a case in which ABPA was diagnosed in a patient with no previous diagnosis of asthma. A 57-year-old woman visited our clinic because of a persistent cough and sputum for two months. The phlegm was like yellowish plugs of mucus. There was no fever, dyspnea, or wheezing. There was no medical history of other allergic diseases including asthma. She had been treated for pneumonia a year ago. Chest computed tomography showed atelectasis and mild bronchiectasis in the right upper and middle lobe and lingula segment. Bronchoscopy revealed complete obstruction of the right middle bronchus by a yellowish material that could be removed. Histological examination confirmed chronic inflammation with mucoid exudate including numerous eosinophils, with a few fungal hyphae. Grocott's methenamine silver staining was performed to confirm the fungus, and it was positive. Her eosinophil count was 1360/μl. Total IgE was 1070 IU/Mℓ. *Aspergillus fumigatus* specific IgE was positive at 3.34 IU/Mℓ. Methacholine provocation test was the positive response. The patient could be diagnosed with ABPA and received a high dose of oral corticosteroids. Her symptoms improved. The results of blood tests and imaging tests also improved during the decrease of corticosteroids. Oral steroid treatment was discontinued after 4 months, she has been treated with inhaled steroids and no relapse was observed for 5 months.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

000926 | Regular use of nasal powder methyl-cellulose in asthma patients with associated rhinitis reduces asthma exacerbations

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*Presenting author: T. Popov

Background: Allergic rhinitis is the most common comorbidity of asthma with mechanisms in both diseases involving airway inflammation. The nasal mucosa is the primary target for both allergens and viruses to trigger both upper and lower airway inflammation. Exacerbations are major untoward events compromising the control of asthma. Insufflation of powder methyl-cellulose (pMC) in the nose as a non-pharmacological approach to enhance its barrier function has been demonstrated to possess a soothing effect on the inflamed mucosa, to reduce nasal symptoms and to enhance the effect of nasally applied drugs in allergic rhinitis patients. Regular use of pMC by both asthma and allergic rhinitis pateints may possibly reduce the number of asthma exacerbations consequent to interplay between the upper and lower airways.

Method: A real-life open label study followed 33 subjects (16 women, median age 51 years, range [25–73 years]) with perennial moderate asthma with continuous rhinitis symptoms (A+Rh) and 33 subjects with asthma (21 women, median age 51 [28–63 years]) but without or with negligible nasal symptoms (A-Rh) for 3 months during the fall and winter season. Subjects in the A+Rh group were provided pMC (Nasaleze Cold & Flu, Nasaleze LTD, UK) administered twice day in each nostril throughout the study. Both A+Rh and A-Rh subjects received their regular asthma therapy. Patients reported the onset of asthma exacerbations as judged by increase of symptoms requiring prescription of oral corticosteroid.

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Results: There were no significant differences between the demographic and asthma characteristics of the A+Rh group and the A-Rh controls, with Forced Expiratory Volume in 1 second % predicted 70.3 (mean) ±3.1 (s.e.m) vs. 73.7±2.4 respectively *(P = 0.391). At the end of the 3-month observation period the pMC treated A+Rh patients reported a total of 5 exacerbations compared with 14 exacerbations in the A-Rh controls (P = 0.028; Chi square two-sided exact Fisher test).

Conclusion: pMC applied intranasally by patients with perennial A+Rh during the fall and winter season significantly reduced the overall number of asthma exacerbations possibly due to its ability to preclude nasal mucosal contact with allergens, viruses and air pollutants.

Conflicts of interest: The authors did not specify any links of interest.

001500 | Relapsing eosinphilic inflammation in a severe allergic patient on anti-IgE biologic treatment

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*Presenting author: S. Frent

Severe asthma often remains uncontrolled despite optimized treatment with high-dose inhaled corticosteroids and long-acting bronchodilators (ICS/LABA). The rise of biologic treatment in severe asthma represented a major advance for disease management. However, correct phenotyping of severe asthma patients is key to the success of targeted biologic therapy.

We present the case of a 63 years old female, never smoker, diagnosed with asthma at the age of 45 and associated persistent rhinitis, without other notable comorbidities. She was prescribed medium dose ICS/LABA, administered inconstantly in the first years after the diagnosis, with poor overall control of the disease. After several exacerbation episodes, treatment compliance improved, but the control of the disease remained poor despite adding an antileukotriene. In January 2019 she presented another exacerbation episode requiring treatment with oral corticosteroids (OCS) and she was put since on high-dose ICS/LABA and antileukotriene. She was referred for skin allergy test which revealed mild sensitization to Dermatophagoides pteronissinus and farinae, with a total IgE level of 48.3 IU/mL. The blood eosinophils level was 270 cells/mm^3. The lung function was variable, going from mild impairment to severe fixed obstruction during exacerbations. Despite optimized inhaled treatment, good adherence and inhaler technique, and allergen avoidance strategies, asthma control was not achieved and she continued to experience exacerbations requiring OCS. In October 2019 she was initiated on biologic therapy with omalizumab, which allowed asthma control to be achieved and maintained for 18 months, with preserved lung function, good symptom control, no exacerbations and slightly elevated blood eosinophils level (340 – 360 cells/mm^3). In April 2021 she started experiencing exacerbation episodes requiring OCS (3 episodes within 6 months), with progressive increase in blood eosinophils level (up to 710 cells/mm^3), and progressive deterioration of asthma control and lung function, despite continuation of previous therapy. Specific IgE test against Aspergillus was negative and total IgE level was 122.4 IU/mL. In December 2021 the patient was switched from omalizumab to benralizumab. Asthma control was again achieved, lung function improved significantly and the patient did not experience any other exacerbation episodes up today, which allowed for a reduction in ICS dose.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001218 | Asymptomatic and symptomatic allergic sensitisation in adolescence

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*Presenting author: E. Turkalj

Background: There is a strong association between specific IgE antibody responses and atopic diseases (asthma, eczema and rhinitis). However, many individuals with allergic sensitisation do not have any symptoms. We used descriptive statistics to quantify the prevalence of asymptomatic sensitisation and sensitisation associated with atopic diseases at the population level.

Method: In a population-based birth cohort study we assessed IgE-mediated sensitisation at age 16 years using skin prick tests (SPTs) to common inhalant and food allergens. We ascertained the presence of asthma, eczema and rhinitis using validated questionnaires.

Results: The population prevalence of asthma, eczema and rhinitis was 17.9%, 19.2% and 45.1% respectively. Of 632 participants with available SPTs, 322 (51%) were sensitised. As expected, we observed a strong and significant association between sensitisation and asthma (OR 4.42, 95% CI 2.74–7.11, $p < 0.001$) and rhinitis (11.21, 7.69–16.32, $p < 0.001$). However, it was striking that amongst 322 sensitised individuals, 81 (25.1%) had no symptoms of any allergic diseases (i.e., were classified as healthy). Although quantification using the size of SPT wheal increased the specificity to predict symptoms, amongst sensitised individuals it was difficult to use the SPT size as a predictor due to a major overlap between healthy sensitised individuals, and those with symptoms.

Conclusion: A considerable proportion of sensitised individuals (approximately a quarter) have no symptoms of any allergic disease. We urgently need methods to differentiate at a single point of clinical consultation in an individual patient whether sensitisation is an important driver of symptoms, or a finding with little clinical relevance.

Conflicts of interest: The authors did not specify any links of interest.

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001575 | The 4E non-pharmacological factors (environment, eating, exercise, emotion) effects on asthma control among asthmatic patients

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Background: Asthmatic exacerbation is a clinical emergency that has not been fully understood in term of its etiology as the cause of the exacerbation is believed to be multifactorial. There are 4 major external triggers of Asthma exacerbation consist of Environment, Eating, Exercise and Emotion. However, currently there is no study approaching the degree of association of each factor to the exacerbations.
Method: 270 participants, aged between 1 to 80 years with physician-diagnosed Asthma, controlled and uncontrolled, were enrolled from the Center of Excellence for Allergy, Thammasat University Hospital. A questionaire of 52 questions covering 4 domains of the 4E non-pharmacological factors was given to the participants to fill via online platform. The data was converted into a descriptive review with respect to the controllability of the symptoms. Fisher's exact, Independent T-test, Chi-squared test and Phi coefficients were used in the study.
Results: The majority of the participants are considered as controlled group. There is a significant positive association of environmental and exercise factors to the asthmatic control. The Environment factors of past history of cigarette smoking and indoor pet fur allergen exposure associated with asthmatic control with small to medium effect (Phi coefficient value is 0.125 and 0.168 respectively). The Exercise factors also has small to medium effect on asthma control (Phi coefficient value is 0.124). While, Eating and Emotion factors shown no significant association.
Conclusion: From the study, environmental and exercise factors are statistically significantly associated with asthmatic control. The introduction of discussion during patient education on these non pharmacological factors could be clinically beneficial.
Conflicts of interest: The authors did not specify any links of interest.

000858 | Environmental anamnesis and its impact on asthma prevention

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*Presenting author: M. Urrutia Pereira

Background: Biodiversity and global environmental exposures represent a serious threat to children's health, especially allergic and respiratory diseases, including asthma, deserving investigation and action.
Method: Method: Parents ($n = 231$) of elementary school children in rural areas of the municipality of Uruguaiana (September to December 2022) answered the Environmental Anamnesis in Pediatrics (SBP)
Results: Results: The factors positively associated with asthma were living in an area close to plantations with the use of pesticides (40%, $p = 0.04$), staying in the living room for a long time (51.5%, $p = 0.001$), history maternal asthma (15.2%, $p = 0.02$) and personal history of allergic rhinitis (57.6%, $p = 0.01$).
Factors negatively associated with asthma were using LPG gas for cooking (16.7%, $p = 0.04$), using other cleaning products (99.5%, $p = 0.009$), having a water supply at home (28.8%, $p = 0.008$) and having Internet access at home (53.9%, $p = 0.03$).
Conclusion: Conclusions: The Environmental Anamnesis made it possible to identify the unfavorable exposures to which children and adolescents in rural areas were subjected and which may represent serious threats to the development of asthma.
Conflicts of interest: The authors did not specify any links of interest.

000946 | Dupilumab in improving control of severe asthma in real life. Report of two cases

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*Presenting author: P. Leru

Biological therapies targeting different interleukins involved in type 2 inflammation represent a major advance in improving control of severe asthma. The choice of the biological agent is based on the clinical pattern, asthma endotype and biomarkers such as eosinophilia and total serum IgE. Dupilumab is a recent biological targeting IL-4 and IL-13 that proved efficacy in diseases associated with type 2 inflammation mostly severe asthma, chronic sinusitis with nasal polyps (CRSwNP) and atopic dermatitis.
We report two cases of adult-onset severe uncontrolled asthma, with indication for biological therapy according to GINA Step 5 recommendation in whom dupilumab was given for 6 months. The first case is a 51-year-old male patient, diagnosed four years ago with asthma and CRSwNP, with persistent simptoms and frequent exacerbations requiring short courses of oral corticosteroids (OCS) during the last two years, despite good inhalation technique and continous maximal therapy. On admission physical examination and pulmonary function tests showed broncho-obstructive syndrome, laboratory showed mild inflammation, eosinophil count 310/mm3 (after recent OCS) and negative tests for aeroallergenes. We additionally started dupilumab 300 mg every two weeks, which resulted in promptly

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improvement of asthma and naso-sinusal symptoms during the first week and maintained during the six months follow-up period.

The second case is a 53-year-old female patient, diagnosed with adult-onset asthma without CRSwNP in 2018, treated with anti-IgE therapy in our Allergy Department for about 3 years, since 2019. In Spring 2022, she returned for worsening asthma symptoms persistent for two months, requiring OCS despite continous therapy and good adherence. Current evaluation revealed poor asthma control, with asthma control test (ACT) score 13. Laboratory tests showed increased blood eosinophil count 670/mm3 and moderate total serum IgE level. We discontinued omalizumab and initiated dupilumab 200 mg every two weeks, resulting in prompt clinical improvement maintained up to now.

The reported cases illustrate the efficacy and safety of dupilumab in treating uncontrolled severe asthma, with and without CRSwNP, in both biologic-naïve and biologic-experienced patients. In both cases, dupilumab was well tolerated, showing significant clinical improvement during the first month with no asthma attacks and need for OCS until present.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

BASIC IMMUNOLOGY 3

001549 | In vivo kinetics of allergen-reactive T and B cells following oral food challenge and allergic reaction

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*Presenting author: F. Fauchere

Background: Food allergies are frequent and potentially life-threatening IgE-mediated hypersensitivities. Adaptive immunity characterized by type 2 T helper cells (Th2) and IgE-producing B cells play a pivotal role in the induction and maintenance of food allergies. Oral food challenge (OFC) is the gold standard diagnostic test for food allergies. However, the *in vivo* behaviour of allergen-specific T and B cells following allergen exposure are so far not well understood and may trigger adaptive immune responses.

Method: We performed kinetic experiments by flow cytometry monitoring T- and B cells after oral food challenge. Peripheral blood from allergic ($n = 6$) and non-allergic donors ($n = 5$) was drawn at the day of OFC (d0), and weekly for the subsequent 4 weeks (d7, d14, d21, d28). PBMCs were stimulated with peanut extract for 18h and allergen-specific CD40L+41BB+ conventional T cells and CD40L-41BB+ regulatory T cells were in-depth characterized. Ara h2 (a major peanut allergen)-specific B cells were labelled by dual staining and likewise characterized regarding memory distribution and inhibitory receptors. In addition, peanut- and Ara h2-specific antibody titres were monitored.

Results: We observed a decrease by up to 50% of circulating allergen-specific T cells at d7 after OFC in allergic donors, indicating homing to tissues and lymph nodes, followed by an increase to or above baseline levels. In contrast, circulating allergen-specific B cells increased by 2-fold and presented differentiation in plasmablasts. Likewise, antibody titres increased also over those four weeks. HLAD-DR, CD38 in T cells and Ki-67 in B cells were increased at d7 and d14 indicating *in vivo* activation. Furthermore, a differential expression pattern of PD1 and CTLA-4 in CD4 T cells, and CD21 in B cells was observed.

Conclusion: With this *in vivo* monitoring, we reveal dynamics of allergen-specific T, B cells and antibodies following OFC. However, whether and to what extent these OFC-triggered dynamics influence the development of tolerance in the setting of immunotherapy will require further assessments. In addition, monitoring immune responses after OFC could provide biomarkers for outcome prediction of desensitization therapies.

Conflicts of interest: The authors did not specify any links of interest.

000656 | Role of basophils IgE FC receptor FcεRIα expression as predictor of omalizumab (OMA) clinical efficacy in chronic urticaria

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*Presenting author: A. Tsopana

Background: OMA is an anti-IgE monoclonal antibody approved for therapy of symptomatic chronic urticaria patients. We evaluated basophils FcεRIα expression and its role on OMA response.

Method: Between 2019–2022, 30 patients (26 women, average 48-years) diagnosed with spontaneous chronic urticaria (CSU $n = 23$) and chronic inducible urticarial (CIU $n = 7$) resistant to 3-month full doses of antihistamines were treated with monthly 150 mg omalizumab. Clinical response, evaluated after 3, 6 and 12 months, was classified as: total (asymptomatic or ≤4 day-symptoms/month, without additional medication), partial (weekly symptoms reduction and reduction of medication by half) or null (no clinical improvement, no changes in medication). Flow cytometry studies were performed on peripheral blood including CD123, HLA-DR, and FcεRIα (clone AER-37) reagents. Basophil FcεRIα levels were expressed as median fluorescence intensity. Serum IgE levels and antithyroid antibodies were also evaluated.

Results: Pre-therapy flow cytometry studies were performed in 28/30 patients. Three levels of FcεRIα expression were observed: high, intermediate and low. The distribution of FcεRIα levels pre-therapy was heterogeneous, distributed in high (16/28 patients; 57%), intermediate (6/28; 21%), and low levels (6/28; 21%). There was a weak positive correlation between serum IgE and FcεRIα

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expression (r2 = 0.25). Antithyroid antibodies could not predict FcεRIα levels. After 3 and 6-months treatment, the distribution of FcεRIα levels changed to low expression (16/18 patients, 89%). This decrease did not correlate with clinical response. All patients with intermediate-low baseline levels presented clinical improvement (12/12; 100%), as compared to (12/16; 75%) with high levels (p = ns). Regarding the type of urticaria, 6/7 (85.7%) CIU patients and 7/23 (30.4%) CSU patients showed total clinical response (p = 0.024). The 4 patients with null response (1 CIU, 3 CSU) presented high pre-therapy FcεRIα levels. They all improved their clinical response after increase of omalizumab dose to 300 mg/4weeks.

Conclusion: Patients with low/intermediate FcεRIα levels are more likely to develop a favorable clinical response to 150 mg OMA. Further and larger studies are needed to confirm these results.

Conflicts of interest: The authors did not specify any links of interest.

001208 | Assessment of safety of tolerogenic dendritic cells in new onset type 1 diabetes mellitus

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*Presenting author: L. DuBuske

Background: Tolerogenic dendritic cells (tolDC) primed with autoantigens may be used in the treatment of new-onset type 1 diabetes mellites (T1D) to suppress autoreactive T- and B-cells and slow the progression of the disease. The results of the evaluation of the safety and tolerability of tolDCs for the treatment of T1D (NCT05207995) are presented.

Method: 13 patients with T1D were included in the study. Patents had antibodies to GAD65 peptide, but retained residual secretion of beta-cells. The duration of the disease was 3–12 months from the moment of T1D manifestation. 34 doses of tolDCs were prepared and primed with GAD65 peptides. All patients underwent assessment of glucose levels, the average daily dose of insulin and the level of stimulated C-peptide.

Results: Hyperemia or skin rash at the injection site of the tolDCs was not detected. General urinalysis and complete blood count did not reveal deviations by the tolDCs from the normal reference values. The level of glycemia remained without significant changes during 2 months of observation. The glucose level in patients before and during tolDCs therapy did not differ significantly (7.4±2.45 mmol/l). The average daily dose of insulin was 0.56±0.16 U/kg before therapy, and 0.52±0.18 U/kg during therapy. The level of basal C-peptide in patients before the tolDCs treatment was 1.05±0.55 ng/ml, and during the therapy it was 1.36±0.47 ng/ml (p>0.05).

Conclusion: Immunotherapy with tolDCs as a treatment for T1D in a limited population was safe and well tolerated short term. Allergic reactions and other undesirable side effects were not identified.

Conflicts of interest: The authors did not specify any links of interest.

001041 | Non-infectious isolated initial presenting manifestations in patients with inborn errors of immunity (IEI) in a tertiary pediatric hospital

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*Presenting author: D. P. P. Lobo

Background: Inborn Errors of Immunity (IEI) are rare diseases with significant morbimortality and most of their initial manifestations are infectious. However, non-infectious manifestations may be the first clinical manifestation and their recognition may contribute to the early diagnosis of IEI.

The aim of the study was to describe the initial non-infectious presenting manifestations of patients with IEI.

Method: Data were obtained from electronic medical records of patients with diagnosis of IEI followed at a Tertiary Pediatric Hospital between 2018–2022.

Patients were included if they had isolated initial non-infectious presenting manifestations related to diagnosed IEI.

The manifestations were divided in 5 groups, and we reported the specific initial presenting manifestations and their age at onset.

Results: Of the 177 patients (45 male) with diagnose of IEI, 78 patients (44%) reported only non-infectious presenting manifestations. The age at onset were: Before 1 year (n = 53) and between 1 and 5 years (n = 25).

91 non-infectious initial presenting manifestations were reported in the 78 patients as follows:

1. Syndromic Manifestations (n = 48): 30 heart disease, 6 eczema, 5 ataxia 4 facial abnormalities and 3 bleeding.
2. Immune Dysregulation (n = 20): 12 lymphoproliferation, 3 autoimmune cytopenias, 3 hemophagocytic lymphohistiocytosis and 2 inflammatory bowel disease.
3. Blood Count Changes (n = 13): 7 thrombocytopenia, 4 pancytopenia and 2 neutropenia.
4. Family History of IEI (n = 7).
5. Changes in Newborn Screening for IEI (n = 3).

The distribution of age at onset of manifestations in each group was:

1. Syndromic Manifestation: <1 year (38/48) and between 1–5 years (10/48).
2. Immune Dysregulation: <1 year (5/20) and between 1–5 years (15/20).

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3. Blood Count Changes: <1 year (8/13) and between 1–5 years (5/13).
4. Family History of IEI: <1 year (7/7).
5. Changes in Newborn Screening for IEI: 1 year (3/3).

In all manifestations groups (except in immune dysregulations) we observed a predominance of initial non-infectious manifestations in the first year of life.

Conclusion: In this study (performed with patients followed up in a tertiary pediatric hospital) the initial non-infectious manifestations of IEI were frequent and early (mainly in the first year of life). Knowledge of the different clinical features and laboratory findings of patients with IEI are essential for early diagnosis, enabling strategies to improve the prognosis of patients.

Initial presentation of Inborn Errors of Immunity (IEI) specified by groups of non-infectious only manifestations and their specific initial

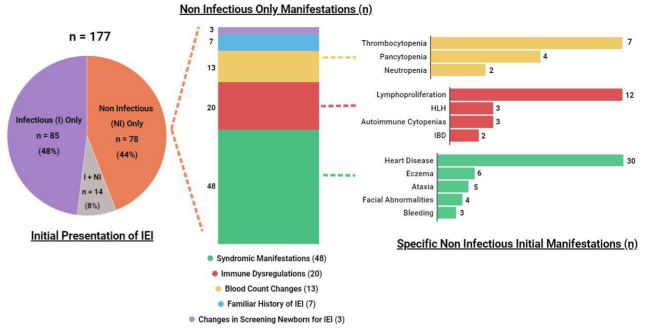

Chart 1: Initial presentation of Inborn Errors of Immunity (IEI) specified by groups of non-infectious only manifestations and these specific initial manifestations. ***I (Infectious); NI (Non Infectious); IEI (Inborn Error of Immunity); HLH (Hemophagocytic Lymphohistiocytosis); IBD (Inflammatory Bowel Disease).***

manifestations. [I (Infectious); NI (Non Infectious); IEI (Inborn Errors of Immmunity); HLH (Hemophagocytic Lymphohistiocytosis) and IBD (Inflammatory Bowel Disease).

Comparison between the age at onset of non-infectious presenting manifestations of Inborn Errors of Immunity (IEI).

	AGE AT ONSET OF MANIFESTATIONS			
	< 1 year	1-5 years	> 5 years	TOTAL
Syndromic Manifestations	38	10	0	48
Immune Dysregulations	5	15	0	20
Blood Count Changes	8	5	0	13
Family History of IEI	7	0	0	7
Changes in Newborn Screening for IEI	3	0	0	3
TOTAL	61	30	0	91

Table 1: Comparison between the age at onset of non-infectious presenting manifestations of Inborn Errors of Immunity (IEI).

Conflicts of interest: The authors did not specify any links of interest.

001164 | **House dust mite proteins are broadly immunogenic in contrast to similarly restricted IgE and IgG4 responses associated with allergy**

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Background: House dust mite (HDM) allergy involves IgE and type-2 T cell responses (TH2) to allergens. Any role of non-TH2 immune pathways such as INF-gamma, IL-17, IgG and IgA in HDM allergy remains to be established. The aim of the present work was to investigate the association between HDM allergy and TH2 and non-TH2 immune pathways.

Method: Immuno-profiling of HDM allergy was done by analyzing the response to 43 HDM-derived recombinant proteins (20 known allergens and 23 novel proteins) in blood samples from 21 subjects with HDM allergy and 16 healthy controls. Proteins were identified by mass spectrometry of aqueous HDM extracts and expressed recombinantly. TH2 and non-TH2 cytokine responses were determined by ex vivo T cell assays: In brief, freshly isolated PBMC were stimulated with 10 mg/ml HDM proteins for 5 days whereafter cytokines in cell supernatants were quantified. Serological antibody responses (IgE, IgG, IgG4 and IgA) were measured by Fluorescence using a custom-made microchip having the 43 HDM proteins arrayed in micro dots. IgE reactivity was confirmed by basophil activation with single HDM proteins in whole blood from the 21 HDM allergic.

Results: HDM proteins were broadly immunogenic independent of allergy, as evident by broad patterns of IgG, INF-gamma and IL-17 responses to HDM proteins in blood samples from allergic and non-allergic donors alike. Overall, there was significant heterogeneity in HDM protein immunogenicity, and limited correlation between cytokines and specific antibody levels. As expected, TH2 responses were strongly associated with HDM allergy. Specific IgE was mainly observed against know allergens, whereas T cells secreted type 2 cytokines to a broader range of proteins. IgE and IgG4 binding patterns were closely linked and predominantly directed to major allergens.

Conclusion: HDM proteins are commonly immunogenic independent of atopic status and a TH2 polarized response is only found in allergic subjects. HDM proteins, including the four major allergens, have distinct immunological profiles. There is no clear linkage between antibody and T-cell responses except for a prominent overlap in specificity of IgG4 and IgE. Thus, broad T cell responses and IgG4 matching IgE in specificity appear to be key additional features of the allergic IgE sensitization.

Conflicts of interest: All authors are employees of ALK

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001297 | Critical window of microbial colonization for shaping innate immunity and its relation to asthma risk

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*Presenting author: K. Draginja

Background: The host microbiome has important functions for the maintenance of human health. The dynamic change of its composition from birth to childhood is considered as a critical window of opportunity for shaping the postnatal development of the immune system. Further, *Haemophilus influenzae* (*H. infl.*) infection in infants has been associated with a higher risk of developing asthma later in life. Yet, whether there is a cause-effect relationship between both events is still unclear. As a first step, we aimed to analyse innate immune cells in gnotobiotic mice colonized from birth or at later age with a highly restricted but entirely defined gut oligo-mouse-microbiota (OMM12).
Method: A multiparameter immune screening of the lungs and bone marrow was performed via flow cytometry (LSRII, BD) in gnotobiotic mice colonised with OMM12 by birth (early colonized) or early adulthood (late colonized). Germ-free (GF) and mice were used as a control. Data are expressed as percentages. Serum IgE levels were measured by ELISA.
Results: GF mice had notably higher serum IgE levels compared to early ($p = 0.003$) and late ($p = 0.03$) colonized groups. First results (4–5 mice/group) showed that percentages of innate lymphoid cells (ILC) type 2 were lowest in lungs of GF mice and in bone marrow of the late colonized group. Lungs of early colonized mice had highest levels of CD38+ILC2 and lowest levels of CD73+ILC2 cells. In both organs, granulocytes were lowest in GF mice. Lung eosinophils gradually decreased from early > late colonized > GF. Dendritic cells were elevated in bone marrow of GF group.
Conclusion: The pilot data indicated distinct immune status between the groups based on the colonization time point. In the next step, late colonization will be performed at later adulthood, to confirm even higher differences between groups. Afterwards, immune screening between groups will be made after intranasal inoculation with *H. infl*, and the asthmatic phenotype will be assessed upon IL-33 challenge.
Conflicts of interest: The authors did not specify any links of interest.

001233 | Assessment of safety of cytokine-induced killer cells in the treatment of metastatic bladder and kidney tumors

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*Presenting author: L. DuBuske

Background: Cytokine-Induced Killer cells (CIKc) are heterogeneous polyclonal T-effector cells with functional and phenotypical properties of both natural killer (NK) and T-cells. CIKc are an attractive approach for cell-based anti-tumor therapy due to cytotoxic activity and secretion of immunoregulatory factors. This study evaluates the safety of CIKc therapy for treatment of metastatic bladder and kidney cancer in addition to standard treatment (NCT05108077).
Method: A total of 18 patients participated in the trial. Peripheral blood mononuclear cells (PBMCs) were obtained from human whole blood by density gradient centrifugation. To obtain CIKs PBMCs were cultured in DMEM medium for 12–14 days with 100 ng/ml INF-γ on the 1th day, then 100 ng/ml IL-2, 50 ng/ml anti-CD3 every 2–3 days following co-culture with autologous mature dendritic cells primed with MUC1, WT1 for 4–5 days. CIKs were identified as CD $45^+CD3^+CD8^+CD56^+CD16^+GranzymeB^+Perforin^+GNLY^+$ cells. An aliquot of $0.5x10^6$ of autologous CIKs per kg of body weight were injected intravenously over 60 minutes.
Results: General reactions such as increased or decreased blood pressure, body temperature, or heart rate were not registered, excluding 1 patient who had a fever for 1 day after therapy. No allergic reactions were detected. A thorough control of the parameters of blood, urine and a biochemical blood tests was performed with no significant changes indicative of hepato-, nephro- and hemato- toxic effects of CIKs application.
Conclusion: Application of CIKc as anti-tumor immunotherapy was safe and well tolerated. Allergic reactions and other general metabolic parameter adverse effects were not detected.
Conflicts of interest: The authors did not specify any links of interest.

001221 | Tolerogenic dendritic cell quality control using a novel convolutional neural network

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*Presenting author: L. DuBuske

Background: Clinical trials of tolerogenic dendritic cells (tolDC) application in the treatment of new-onset type 1 diabetes mellites

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(DM) are ongoing (NCT05207995). TolDC are differentiated from immature DC (iDC), but the quality control of the obtained cells and its classification is difficult. Assessment of the expression of numerous molecules, cytokine production, gene expression and functional tests are performed but may be limited by the number of cells obtained for the therapy. Training a convolutional neural network (CNN) may allow classification of cells in an easier way using less parameters and time.

Method: CNN was trained using AMNIS AI software and 28 reference samples of iDC and tolDC. Cells were assayed using AMNIS ImageStreamX mkII imaging flow cytometer at x60 magnification. Data from 5 channels was recorded: brightfield, darkfield, CD209, CD274, HLA-DR. For further routine DC classification, a minimum of 5000 images per sample were recorded.

Results: A novel CNN for classification of tolDC and iDC was created based on the analysis of reference datasets of images. The newly created CNN allows estimation of the relative numbers of differentiated tolDC and undifferentiated iDC in cell samples withing 5 minutes. The CNN was successfully applied for automatic quality control of tolDC for 10 patients with DM. A minimum of 65% of tolDC was set as a reference value for cell product release and usage.

Conclusion: The newly created CNN allows performance of fast and easy quality control of tolDC which are being used as a biomedical cellular product.

Conflicts of interest: The authors did not specify any links of interest.

BIOLOGICALS 2

001416 | Immediate hypersensitivity reaction to ixekizumab: A case report

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*Presenting author: R. Massaro

Biologic drugs are becoming the mainstay of treatment for many inflammatory and oncologic diseases. They are currently used for moderate-to-severe psoriasis, that is a chronic inflammatory disease with genetic predisposition and autoimmune pathogenic traits involving the skin, joints, or both.

IL-17A inhibitors (ixekizumab and secukinumab) and IL-17 receptor (IL-17R) inhibitors (brodalumab) are humanized monoclonal antibodies approved for treating moderate-to-severe plaque psoriasis and psoriatic arthritis.

We present a case report of a 55-year-old male with a history of psoriasis and psoriatic arthritis who had an immediate hypersensitivity reaction (itchy maculopapular rash of the abdomen which lasted several days) after the fifth ixekizumab subcutaneous administration. In the past, he was previously treated with methotrexate and, recently, with adalimumab; the medical history was negative for allergy.

An allergy work-up (skin prick test, intradermal test, and patch test) was performed for ixekizumab (80 mg/mL) and secukinumab (150 mg/mL, the last to find an alternative treatment) at a concentration of 0.8 mg/mL, 8 mg/mL, 80 mg/mL and 1.5 mg/mL, 15 mg/mL, 150 mg/mL, respectively. It confirmed an IgE-mediated allergy to both molecules.

Both ixekizumab and secukinumab contain polysorbate 80 as an excipient as well as adalimumab (polysorbate 20). However, a possible sensitization was excluded because the patient tolerates in his home therapy drugs that contain that excipient.

Although these drugs are considered safe, efficacious, and tolerable, adverse events can occur. Dermatological ones include injection-site reaction and injection-site erythema. Nevertheless, even if the latter are benign and extremely more frequent, dermatologists should consider possible cutaneous hypersensitivity reactions which can lead to systemic ones if the treatment is not interrupted.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

001632 | Treatment of antituberculosis drug induced dress syndrome with mepolizumab

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*Presenting author: M. Keren

Background: Drug allergy that develops during tuberculosis treatment is important for both patient and public health. A case of DRESS (Drug Reaction with Eosinophilia and Systemic Symptoms) development during tuberculosis treatment and mepolizumab was used in the treatment is presented.

Case: Fifty-seven-year-old male patient. Treatment with isoniazid, rifampicin, ethambutol and pyrazinamide is initiated for smear-positive pulmonary tuberculosis. At the end of the first month of treatment, fatigue, fever and eosinophilia (2500 mm3) and elevated liver function tests develop. It was accompanied by widespread skin rash. The patient's treatment is terminated and methylprednisolone and antihistaminic treatment is started. Corticosteroids cannot be given for a long time due to diabetes and pulmonary tuberculosis. At the end of 1 week, the eosinophil count decreased to 250 mm3. After the steroid was discontinued, the eosinophil count increased to 780 mm3. Skin findings did not regress. Off-label consent was obtained and Mepolizumab 100 mg was administered to the patient. Subsequently, the patient was patch tested with moxifloxacin, linezolid, cyclocerine, amikacin, protionamide and para-amino salisilic acit to be used in the new treatment regimen. The test was found negative. All drugs were started by adding one drug every day. DRESS findings completely regressed in the patient. The patient has been receiving therapy with the new treatment regimen for 3 months and DRESS has not recurred.

Discussion and Conclusion: Cases in which mepolizumab was applied in the treatment of DRESS due to drug reactions have been reported in the literature. This is the first case reported regarding the use of mepolizumab in the treatment of DRESS due to

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antituberculosis drugs. The use of mepolizumab may be considered as an option when the improvement in DRESS treatment, which develops in conditions such as tuberculosis treatment, is prolonged and cannot be adequately treated.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

001519 | Clinical profile of (HAE) from a community allergy clinic in India

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*Presenting author: M. Ahmed

Background: Hereditary angioedema (HAE) can be disastrous if u ndiagnosed and managed in time. Although a high prevalence is predicted in India, very few cases have been diagnosed. In a retrospective study, we present HAE cases identified in our community Allergy clinic in last 6 months.

Method: The case records of 8 patients based on clinical presentations and laboratory reports with due consent from patients are presented. C1 esterase inhibitor (C1 INH) was measured using nephelometry. The relevant data was entered into Microsoft Excel worksheet and analysed.

Results: A total of 8 patients were diagnosed having HAE with low C1 INH levels in all. The median age at diagnosis was 15 years (range 8–27). Family history of HAE was seen in 4 cases i.e., 50% and only 1 reported death in the family with undiagnosed HAE like disease. Orofacial oedema was the most common (100%) presentation. Also 3 cases had extremities oedema with none of them having abdominal symptoms. All patients were put on tranexamic acid out of which 4 (50%) were taking it irregularly and 2 (25%) refused. All were notified about C1 INH inhibitor injection, and all refused the treatment because of cost.

Conclusion: In a short span of six months, we could diagnose 8 HAE cases with consultation regarding the new treatment option available to patients/caregivers. However, spreading awareness about HAE and its diagnosis and management is need of the hour.

Conflicts of interest: The authors did not specify any links of interest.

000962 | The expression of CYSLTR2 is reduced after treatment with benralizumab in severe asthma patients with and without nasal polyposis: A prospective study

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*Presenting author: I. Dávila

Background: In a previous prospective study evaluating transcriptomic changes in asthmatic patients before and after treatment with benralizumab, *CYSLTR2* (Cysteinyl Leukotriene Receptor 2) was one of the most downregulated genes. *CYSLTR2* is a G protein-coupled receptor activated by cysteinyl leukotrienes (CysLTs). CysLT receptors are expressed on many cell types, including airway smooth muscle cells, mast cells, and eosinophils. Activation of CysLT receptors on these cells leads to the contraction of airway smooth muscle and increased production of inflammatory mediators, contributing to asthma symptoms.

This study aimed to validate *CYSLTR2*-gene expression in asthma patients treated with Benralizumab.

Method: Twenty-two asthmatic individuals were recruited. Total peripheral blood was obtained before treatment and approximately six months after administering Benralizumab by subcutaneous injection. In the validation study, total RNA was isolated, cDNA was generated by RT-PCR, and *CYSLTR2*-gene expression was evaluated by quantitative PCR using SYBR Green. The comparative ΔCt method was applied using *GAPDH* as a reference gene. Data were analyzed using the Wilcoxon test.

Results: *CYSLTR2* was found among the most differentially expressed genes in a previous transcriptomic study (fold change -3.14, *p*-value 4.19E-12). These results were validated by qPCR. The pre-treatment (2.85±1.79) and post-treatment (1.01±0.99) *CYSLTR2*-gene expression were significantly different in the global population of asthmatic patients ($p < 0.001$). In addition, statistically significant expression differences were observed between pre- and post-treatment samples in patients with asthma and nasal polyposis (2.27±1.79 vs 1.12±1.21; $p = 0.021$) and in patients with asthma without polyposis (3.85±1.37 vs. 0.82±0.37; $p = 0.008$).

Conclusion: Although further studies are required, the results suggest that *CYSLTR2* gene expression could be further considered a possible biomarker of response to treatment in asthmatic patients with and without polyposis.

Conflicts of interest: The authors did not specify any links of interest.

001152 | The impact of anti-IL5/5R therapies on reducing exacerbations and systemic corticosteroids in severe asthma: A comparison between allergic versus non-allergic asthmatic patients

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*Presenting author: I. Fernandez Concha Llona

Background: T2 severe asthma includes allergic and eosinophilic phenotypes in patients with severe asthma. These patients frequently require treatment with oral corticosteroids (OCS) to maintain control and to treat asthma exacerbations. Monoclonal antibodies targeting Interleukin (IL)-5 or its receptor (IL-5R) (anti-IL5/5R) are

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effective in reducing exacerbations and the need of corticosteroids in patients with eosinophilic asthma. However, their effect on patients with allergic asthma is more limited.

Method: The objective was to describe the clinical characteristics of allergic (AP) and non-allergic patients (NAP) with severe asthma, treated with anti-IL5/5R therapy, in the severe asthma Unit at the Hospital La Paz, and to compare the effect of these therapies in reducing the use of OCS and exacerbations in the first year of treatment.

Retrospective study. Clinical characteristics and different asthma outcomes were recorded at two time-points: a year before the start of treatment with anti-IL5/5R (T1) and after one year of treatment (T2).

Results: A total of 65 patients were analyzed, 41 AP, 24 NAP. Clinical characteristics and treatment used in both groups are available in Table 1. With all 3 anti-IL5/5R there was a reduction in the number of patients that had exacerbations (reslizumab from 6 to 1; mepolizumab 16 to 10, and benrazilumab 9 to 7) and the number patients that needed OCS as maintenance therapy (reslizumab from 2 to 0; mepolizumab 17 to 9, and benrazilumab from 10 to 6).

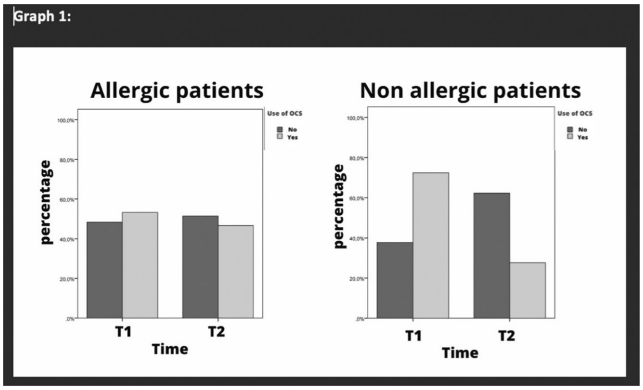
Between T1 and T2, 12.5% ($n = 3$) of the NAP and 31.7% ($n = 13$) of the AP stopped using OCS as maintenance therapy ($p = 0.025$). (Graph 1)

Conclusion: Both groups have a reduction in the number of exacerbations, however AP treated with anti-IL5/5R respond with a greater reduction in the use of OCS as maintenance treatment compared to NAP. More studies are needed to show that anti-IL5/5R are more efficient in reducing OCS in AP versus NAP.

Table 1: Clinical characteristics and response to anti-IL5/5R treatment

	Allergic patients (n=41)	Non allergic patients (n=24)
Gender	48.8% Female (n=20), 51.2% male (n=21)	75% Female (n=18), 25% male (n=6)
Obstructive sleep apnea/hypopnea syndrome	14.6% (n=6)	8.3% (n=2)
Obesity	12.2% (n=5)	4.2% (n=1)
Eosinophilic Granulomatosis with Polyangiitis	19.5% (n=6)	4.2% (n=1)
Chronic obstructive pulmonary disease	19.5% (n=8)	25% (n=6)
Smokers	61% (n=25)	50% (n=12)
NSAIDS exacerbated respiratory disease	26.8% (n=11)	37.5% (n=9)
Nasal polyposis	58.5% (n=24)	62.5% (n=15)
Reslizumab (n=7) (8.8%)	12.2% (n=5)	8.3% (n=2)
Mepolizumab (n=36) (45%)	53.7% (n=22)	58.3% (n=14)
Benralizumab (n=22) (27.5%)	34.1% (n=14)	33.3% (n=8)
Mean number of exacerbations the year before starting anti-IL5/5R treatment	2.09 ± 2.08	1.71 ± 1.46
Mean number of exacerbations after 1 year of anti-IL5/5R treatment	0.44±0.74	0.25±0.61
Number of patients that required OCS the year before starting anti-IL5/5R treatment	21	10
Mean dose of prednisone (in mg) the year before starting anti-IL5/5R treatment	8.4 ± 12.7	10 ± 8.5
Number of patients that required OCS after 1 year of anti-IL5/5R treatment	8	7
Mean dose of prednisone (in mg) after 1 year of anti-IL5/5R treatment	7.9 ± 22.1	3.1 ± 4.1

Graph 1:



Conflicts of interest: The authors did not specify any links of interest.

001209 | Phenotypical distribution according to asthma age of onset in patients evaluated for biologic therapy prescription in a reference center at high altitude

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Background: In asthma, early onset of respiratory symptoms has been more frequently associated with an allergic phenotype whereas late onset has been associated with the eosinophilic phenotype and their comorbid conditions. Our aim was to describe the distribution of phenotypes according to the age of onset of asthma symptoms in adult patients evaluated at the interdisciplinary board of severe asthma of the Fundación Neumológica Colombiana, a national reference center for the diagnosis and treatment of lung and respiratory pathologies located in Bogota, city at 2,600 m above the sea-level

Method: Descriptive cross-sectional study. The total number of patients evaluated in the severe asthma board since 2019 was included. Early was defined as onset of asthmatic symptoms at age 12 or younger and onset after that age as late. The following definitions were used to classify the phenotype: (1) Eosinophilic: serum eosinophils ≥300/μL; (2) Allergic: total IgE ≥100 IU/mL and positive allergy tests to clinically relevant allergens. A descriptive statistical analysis was conducted. For comparisons between groups, the Chi-square tests and the Wilcoxon Rank Sum Test were used.

Results: 163 patients were evaluated during the study period. 66.8% patients were female, 122 (74.8%) had late onset. There were no differences in sex or age according to the type of onset. The only comorbidity that showed differences by group was allergic rhinitis, being more frequent in the early-onset group ($p = 0.035$). Median serum eosinophils were significantly higher in late-onset patients (533 IQR 732 vs 310 IQR 410 $p = 0.002$), conversely IgE levels were significantly higher in early-onset patients (342 IQR 804.5 vs 232.5 IQR 420.7 $p = 0.023$), however, there were no differences between groups by prick test positivity, although sensitization to house dust

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mites (Der p, Der f and Blo t) was more frequent among those with early onset. Remarkably, the prescription of biologics was more frequent in late-onset patients ($p = 0.017$) and according to the type of onset, prescription patterns were observed.

Conclusion: The age of onset of asthmatic symptoms is a variable of great clinical relevance in the evaluation of patients with severe asthma for the decision-making to start biological therapy; prospective studies in which the relationships identified here will be validated are necessary to be able to develop best assessment and prediction models in severe asthma.

Conflicts of interest: The authors did not specify any links of interest.

001524 | CD62L^{low} eosinophils proportion correlates with clinical parameters of asthma and chronic rhinosinusitis and in vivo/in vitro effect of mepolizumab on eosinophil subpopulations

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Background: In mice model, eosinophils are distinguished in subpopulations that differs in CD62L expression level on surface membrane. Even in human, two different eosinophil subphenotypes are identified in peripheral blood (PB) and nasal polyp (NP) tissue of Severe Asthma (SEA) patients. These two subpopulations differ in CD62L expression level, in particular inflammatory eosinophils (iEos) show a CD62L^{low} phenotype, while resident eosinophils (rEos) a CD62L^{bright} phenotype, based on flow cytometric analysis.

Method: We recruited 51 SEA patients never exposed at any biological treatment and 19 patients longitudinally analysed before and after treatment with Mepolizumab.

Peripheral blood (PB) cells were collected and extracted cells were labeled with fluorescent antibodies for the identification of eosinophil subpopulations through flow cytometry. Percentage of CD62L^{bright} and CD62L^{low} eosinophils was analysed.

Finally, extracted eosinophils from 3 healthy donors were cultured in vitro with rhIL-5 (10 ng/ml), rhIL-5 + Mepolizumab (1 µg/ml) and rhIL-5 + mouse IgG1k isotype control (1 µg/ml). Expression of CD62L^{low} eosinophils was analyzed before and after 1 hour of in vitro culture.

Results: A significant negative correlation between the percentage of CD62L^{low} eosinophils and ACT ($p < 0.01$) and a positive correlation of these cells and ACQ5 ($p < 0.01$) was observed. Concerning the CRS score a positive correlation between CD62L^{low} cells and SNOT22 ($p < 0.01$) was observed. Moreover, we observed a positive correlation ($p < 0.01$) between CD62L^{low} eosinophils and the number of asthma exacerbations in the year before enrollment. In mepolizumab treated patients we observed a decrease of CD62L^{low} eosinophils subpopulation percentage ($p < 0.0005$).

Finally, we observed an increase of CD62L^{low} eosinophils after rhIL-5 stimulation ($p < 0.01$) and a restoration of unstimulated conditions after Mepolizumab addition ($p = n.s.$).

Conclusion: The percentage of PB CD62L^{low} eosinophils is correlated with asthma and CRS severity parameters. The decrease of PB eosinophils and specifically of inflammatory CD62L^{low} cells after Mepolizumab treatment represents a possible rationale for the efficacy of the drug in SEA patients. In vitro stimulation with rhIL-5 suggests an important role of this cytokine in eosinophil subpopulation switch. The addition of Mepolizumab shows a reduction of IL-5 effect on CD62L^{low} percentage, reflecting the action of the drug in vivo.

Conflicts of interest: The authors did not specify any links of interest.

001026 | Mepolizumab use in the treatment of various eosinophilic disorders: Single-center in Greece real-life data

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Background: Mepolizumab is an anti-IL-5 monoclonal antibody that is used as a maintenance treatment of patients with severe eosinophilic asthma, chronic rhinosinusitis with nasal polyps (CRSwNP), eosinophilic granulomatosis with polyangiitis (EGPA), or hypereosinophilic syndrome (HES). The choice of treatment with mepolizumab is based on the severity of symptoms, the inadequacy of previous therapeutic treatments to alleviate symptoms, or the suitability of mepolizumab for each specific patient phenotype according to the current bibliography.

Method: We reviewed the files of all patients in our center that were treated with mepolizumab. We collected data regarding their primary medical issue; asthma, chronic rhinosinusitis with or without nasal polyps or HES. Sensitization to aeroallergens based on skin prick tests or specific IgE results as well as previous treatment with other biological agents were also reviewed in patients with asthma and/or chronic rhinosinusitis.

Results: After reviewing 49 patient cases (53% females), it was deduced that the most common medical reason for mepolizumab treatment was a combination of asthma and CRSwNP (53%), followed by asthma alone (27%). The combination of asthma and CRSwNP was associated with aspirin hypersensitivity in 4 patients, forming Samter's triad. Overall, 44/49 patients had asthma and/or chronic rhinosinusitis. Sensitization to aeroallergens was found in 15/44 patients with asthma and/or chronic rhinosinusitis (34%). The most common aeroallergen is parietaria, followed by house dust mites, olea, grasses and cat epithelium. Before the start of mepolizumab treatment 11 of these patients (4%) were already receiving treatment with omalizumab. Most of these (9/11) suffered from a

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combination of asthma and CRSwNP, in which omalizumab was replaced by mepolizumab in order to achieve a better clinical outcome.
Conclusion: Treatment with mepolizumab in most cases in our center concerns patients that suffer from a combination of asthma and CRSwNP. A minority of patients with asthma and/or chronic rhinosinusitis is sensitized to aeroallergens, but the pattern is similar to that of aeroallergen sensitization in southern Greece. Last but not least, mepolizumab replaced omalizumab in cases of severe disease, in which it was considered more suitable.
Conflicts of interest: The authors did not specify any links of interest.

001226 | Clinical and biomarkers characteristics of severe asthma patients who initiated biologic therapy: A Colombian single center experience

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Background: Biologic therapy is indicated in patients with uncontrolled T2 severe asthma. Recently, it has been documented that the biomarkers (IgE, Eosinophils, and FeNO) used to guide biological choice are not sufficient and that, based on these, up to 68% of patients could be candidates for receiving two different types of monoclonal antibodies. Our objective was to describe the clinical characteristics and biomarkers in adult patients who were prescribed biological therapy by the Severe Asthma Board (SAB) of the Fundación Neumológica Colombiana.
Method: A descriptive cross-sectional study was carried out. All patients referred to the board for severe asthma since 2019 were included, and clinical variables, comorbidities, lung function, and biomarkers (highest value) were recorded: blood eosinophils, FeNO, serum IgE levels and skin prick tests (SPT). Descriptive statistical analysis of the collected variables was performed and comparisons were made using Chi-square tests and Kruskal–Wallis test.
Results: A total of 163 patients were evaluated by the SAB during the study period; Of these, 115 (70.5%) were prescribed biological therapy with the following distribution: 18(15.6%) Omalizumab, 32(27.8%) Benralizumab, 15(13.1%) Mepolizumab, and 50(43.5%) Dupilumab. We did not document differences between prescription groups for age, sex, BMI, smoking, asthmatic attacks during the previous year. The proportion of patients with early onset of symptoms was higher in the Omalizumab group, in addition, urticaria was also more frequent in these patients. Nasal polyposis was more frequent in the Dupilumab group, followed in frequency by Benralizumab, AERD was more frequent in the Dupilumab group. Regarding biomarkers, there were no differences between prescribed treatment groups for FeNO, impaired lung function, IgE, and positive SPT results. On the other hand, serum eosinophil values were significantly higher in patients who were prescribed anti-IL5/IL5R.
Conclusion: In a real-life setting, blood eosinophils were the only biomarker that showed a significant difference between the groups of patients prescribed anti-IL5/IL5R; while the presence of comorbidities and the age of onset of asthma symptoms were predominant in those who were indicated Anti IgE and anti IL4/13. Local and real-life studies are necessary to confirm the usefulness of the biomarkers currently proposed by the clinical practice guidelines for the selection of biological therapy.
Conflicts of interest: The authors did not specify any links of interest.

001232 | Clinical and immunological characterization of patients with chronic urticaria treated with omalizumab from 2018 to 2022. Real life experience at the Ramón y Cajal allergy department

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Background: Chronic Urticaria is classified based on the role of definite triggers, as inducible (CIU) or spontaneous (CSU) with an autoimmune context. The objective was to describe the clinical and immunological features in patients with CSU/CIU treated with omalizumab and to identify differences between groups according to total Immunoglobulin-E (tIgE).
Method: A retrospective-descriptive analysis of patients with CSU/CIU treated with omalizumab (2018–2022) was performed. CSU were classified into two groups according to tIgE: High IgE > 40 kU/L (H-IgE-CSU) and Low IgE≤40 kU/L (L-IgE-CSU). Their demographics, clinical and immunological characteristics were related to omalizumab response (300 mg/4 weeks), according to UAS7/UCT scores. Statistical tests were used for the association of variables.
Results: A total of 39 patients with CSU/CIU received treatment with omalizumab (See Table 1). Only two patients had isolated CIU and were therefore analyzed separately. Total IgE>40 (kU/L) was presented in 28/37 patients with a median of 189 (range 81–338.5) and in 1/2 of CIU patients. The group with low tIgE associated elevated C-reactive protein, angioedema and eosinopenia; also, showing a significant association between IgG anti-TPO positive levels and eosinopenia. This was correlated with the need to receive more omalizumab doses than the overall median to reach UCT>12. This also were observed in patients with low basophils count, nevertheless, basopenia and other characteristics as overweight or sensitization to food as wheat was not significant between groups.
Conclusion: Clinical and immunological characterization of patients with CSU/CIU has been useful to identify differences between our population, the course of their disease and the duration of their biological treatment. However, it is clear that further studies to identify biomarkers and more tools, are needed to enable accurate diagnosis and treatment.

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Table 1. Demographic, clinical and immunological characteristics in patients with CSU and CIU.

	H-IgE CSU (n=28)	L-IgE CSU (n=9)	Isolated CIU (n=2)
Demographic features			
Age in years, median (range)	52.1 (35.4-69.3)	58.4 (42.9-58.7)	44.5 (44.3-44.7)
Age symptom onset, median (range)	42.4 (28.4-63.7)	46.9 (40-55.9)	34.6
Gender = female, % (n)	67.9% (19)	77.8% (7)	100% (2)
Overweight = BMI ≥25, % (n)	57.1% (16)	66.6% (6)	0% (0)
Clinical features			
Angioedema, % (n)	42.9% (12)*	88.9% (8)*	50% (1)
Food sensitization (Wheat)[a], % (n)	0% (0)	NP	50% (1)
CIU associated, % (n)	42.9% (12)	44.4% (4)	---
Type of CIU, % (n)			
Delayed pressure urticaria	66.7% (8)	50% (2)	0% (0)
Cholinergic urticaria	16.7% (2)	0% (0)	0% (0)
Cold urticaria	8.3% (1)	0% (0)	100% (2)
Heat urticaria	8.3% (1)	25% (1)	0% (0)
Symptomatic dermographism	0% (0)	25% (1)	0% (0)
Immunological features[b]			
IgG anti-TPO positive (>25 IU/mL), % (n)	28.6% (8)	44.4% (4)	0% (0)
Basopenia (<0,1 x10^{3}µL), % (n)	75% (21)	88.9% (8)	50% (1)
Eosinopenia (<0,05 x10^{3}µL), % (n)	7.1% (2)*	55.6% (5)*	50% (1)
Elevated CRP (>5 mg/L), % (n)	14.3% (4)*	77.8% (7)*	50% (1)
Disease control features			
UAS7 prior to omalizumab, median (range)	34 (29-34)	30 (24-34)	---
UCT>12 with omalizumab, % (n)	96.4% (27)	77.7% (7)	50% (1)
Doses to achieve UCT>12, median (range)	2 (1-3.5)	4 (1-5)	10

Abbreviations: BMI Body Mass Index; CIU Chronic Inducible Urticaria; CRP C- reactive protein; H-IgE-CSU: High total IgE in Chronic Spontaneous Urticaria; L-IgE-CSU Low total IgE in Chronic Spontaneous Urticaria; NP not performed; TPO thyroperoxidase; UAS7: 7-day-urticaria activity score; UCT: urticaria control test.
[a]Medition was performed in 13/39 patients. [b]Prior omalizumab.
Statistical significance of differences are indicated as *p <0.05

Conflicts of interest: The authors did not specify any links of interest.

001667 | A cohort of chronic disease: Identifying patterns of allergic, thyroid and systemic inflammation in persistent CSU

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Background: Chronic spontaneous urticaria (CSU) may be associated with autoimmune thyroid disease and systemic inflammation. Studying patients with persistent CSU might uncover patterns in thyroid autoimmunity with presence of anti-thyroglobulin Ab (anti-TG) anti-thyroid peroxidase Ab (anti-TPO) and CRP and ESR as markers of systemic inflammation. Their presence may connect persistent CSU to autoimmunity.

Method: We evaluated individuals with persistent CSU (pCSU) with investigations to assess presence of thyroid autoantibodies, ESR and CRP. Anti-TG (>40 UNITS), anti-TPO (>35) were recorded in addition to IgE (>100), CRP (>5) and ESR (>30). Impact on control of pCSU with antihistamines (AH1) and omalizumab therapy were compared in this population at a single allergy centre.

Results: Data was collected from Feb 2021 to Feb 2023. pCSU was investigated with bloodwork in 120 of 469 chronic urticaria patients. A total of 30 pCSU patients (25%) had abnormal thyroid function confirmed with presence of anti-TG ($n = 12$) and anti-TPO ($n = 13$) and combined anti-TG/TPO (5). IgE was elevated in 56 (47%). Only 8 had combined thyroid autoantibodies and elevated IgE (7%). CRP positivity was found in 30 (25%). ESR was elevated in 8 (7%). AH1 controlled pCSU in 94 (78%) patients. Omalizumab was required in 26 pCSU (22%) patients, 5/26 with thyroid disease, 7/26 with elevated IgE, 10/26 with elevated CRP and 4/26 with elevated ESR. Twenty-one of the omalizumab pCSU patients had combined elevated anti-TPO, anti-TG, TSH, IgE, ESR and/or CRP, representing strong presence of inflammation with allergy. One pCSU patient's thyroid investigation uncovered thyroid cancer leading to definitive treatment.

Conclusion: Patients with pCSU had a significant rate of thyroid autoimmune presence (25%) in addition elevated IgE in nearly 50%, reflective of autoimmune and allergic disease. The majority were controlled on AH1; yet a fifth of pCSU required omalizumab. Nearly half of the omalizumab (12/26) were characterized by elevated levels of both thyroid/IgE and fully with combined elevated ESR/CRP. Biomarker evaluation of the pCSU cohort is useful in both its identification and responsive treatment to omalizumab.

Conflicts of interest: The authors did not specify any links of interest.

000568 | Development in medicine consumption of omalizumab when transition from hospital treatment to home self-administration

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Background: Omalizumab (anti-IgE) therapy is a well-established add-on third-line treatment for chronic urticaria (CU).

This descriptive retrospective observational study aimed to investigate if there is an observable change in omalizumab consumption when patients change from hospital treatment to home self-administration.

We studied omalizumab consumption during hospital treatment and home self-administration in CU patients connected to the tertiary referral centre for allergies at the Department of Respiratory Diseases and Allergy, Aarhus University Hospital, Denmark, from January 2020 to January 2021.

Method: Patients included had a diagnosis of CU (incl. chronic spontaneous and chronic induced urticaria) as the primary indication for treatment; were aged ≥18 years; were given omalizumab as home self-administration preceded by hospital treatment, and have had a minimum of one medical check-up after starting self-administration. A total of 72 patients were included. Medical records were accessed to extract baseline information and record the duration of hospital and self-administration treatment, dosage, dose interval, and the total number of syringes of 150 mg omalizumab given and dispensed for each treatment period.

As an estimate for omalizumab consumption, the calculated unit *mg/day* was chosen, since this allowed comparison independent of patients' individualized treatment plans.

For the statistical analysis patients served as their own controls with the assumption that spontaneous recovery had an insignificant impact i.e., the cohort was assumed to be so chronic, that any

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recovery achieved in home self-administration would be due to the self-administration and not the nature of the disease.

Results: Under these premises, a paired t-test was run on a sample of 72 patients with CU and there was no significant change (P-value = 0.468) in omalizumab consumption when patients changed from hospital treatment to home self-administration.

Conclusion: Self-administration is timesaving and advantageous for patients and physicians/nurses: the treatment plan is more easily altered when patients prolong dose intervals unassisted, thus administrational delays, by waiting for an outpatient clinic appointment, are removed. This allows patients to be on the smallest treatment dose which provides desirable symptom control. For the physicians/nurses, home self-administration provides a release in clinic capacities, when patients are only seen for check-ups every 3rd month instead of every 4th week.

Conflicts of interest: The authors did not specify any links of interest.

001122 | Case report: Use of prophylactic subcutaneous C1 esterase inhibition for hereditary angioedema in pregnancy

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Background and Aims: Hereditary angioedema, a condition resulting from deficiency or reduced function of plasma C1 inhibitor, causes episodes of mucosal and subcutaneous oedema. With a prevalence of 1 in 50,000, affected females experience greater frequency of clinical episodes, often with further increases in pregnancy, complicated by limited licensed management options.[1]

We present a case report of successful use of subcutaneous plasma-derived C1-inhibitor concentrate (pdC1-INH) during pregnancy.

Methods: A 33-year-old patient with hereditary angioedema taking prophylactic tranexamic acid became pregnant. Tranexamic acid was stopped during early pregnancy, resulting in increasing clinically significant flares of angioedema. Intravenous pdC1-INH was started at 9 weeks gestation. Due to challenging intravenous access, this was switched to twice weekly subcutaneous administration. Informed patient consent for case presentation was obtained prior to submission.

Results: Prophylactic twice weekly pdC1-INH 1500 units significantly reduced frequency of angioedema attacks, from weekly flares to only two mild episodes at the start of pdhC1-INH prophylaxis and no attacks for the remainder of pregnancy. She delivered a healthy baby at term without complication.

Conclusions: This case demonstrates successful use of subcutaneous pdC1-INH during pregnancy, supporting existing data. The use of subcutaneous pdC1-INH offers an easier form of administration to patients. The case also demonstrates that lower doses of subcutaneous pdC1-INH can be very effective in pregnancy. There is limited data on treatments for hereditary angioedema in pregnancy and further research would be beneficial.

Reference

1. Caballero T, Canabal J, Rivero-Paparoni D, Cabañas R. Management of hereditary angioedema in pregnant women: a review. Int J Womens Health. 2014 Sep 9;6:839–48. doi: 10.2147/IJWH.S46460. PMID: 25228822

JM case reports session: 18243.

Conflicts of interest: PY has received consulting fees, honoraria and/or support for attending meetings from Biocryst, CSL Behring, Pharming and Takeda.

DERMATOLOGY 3

001108 | Berotralstat provides sustained reduction in HAE attack rates and improvement in quality of life in adolescent patients: A subgroup analysis from APeX-S

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Background: Long-term HAE prophylaxis aims to normalize patients' lives by reducing attacks and improving quality of life (QoL). Berotralstat, a first-line oral once-daily prophylactic treatment for HAE, demonstrated sustained reduction in HAE attack rates and improvements in QoL in the APeX-2 and APeX-S trials (NCT03485911; NCT03472040).[1,2] Here we report the 96-week efficacy, safety, and QoL data of berotralstat in adolescent patients with HAE enrolled in the APeX-S study.

Method: Patients received open-label berotralstat 110 mg or 150 mg. Long-term safety (primary objective) and efficacy (secondary objective) were evaluated. QoL (secondary objective) was assessed using a validated AE-QoL instrument; a decrease in scores indicates an improvement in QoL. The minimal clinically important difference (MCID) is a 6-point reduction in total score.

Results: Twenty-eight adolescents (ages 12–17 years) received a mean (SD) of 439.5 (345.9) days of berotralstat. The mean (SEM) attack rate was 0.5 (0.15) attacks/month from Week 0 to Week 24 ($n = 28$) and continued to improve through 96 weeks of berotralstat with the mean (SEM) reducing to a rate of 0.3 (0.14) attacks/month from Week 25 to 48 ($n = 22$), and 0.2 (0.11) from Week 49 to Week 96 ($n = 17$). Similar results were observed with the median attack rate, namely, 0.2 attacks/month from Week 0–24 reduced to 0.1 attacks/month from Week 25–48 and 0.0 attacks/month from

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Week 49–96. The percentage of attack-free days remained consistently high while on berotralstat. Overall, patients remained attack-free a total of 97% of days (9922/10262) during the 96 weeks of treatment. Clinically meaningful improvements were observed in all domains of AE-QoL from baseline to Week 96, with the largest improvement seen in the Fear/Shame domain (28.5-point improvement in the mean). The most common adverse events (occurring in ≥10% of patients) were abdominal discomfort, abdominal pain, diarrhea, influenza, sinusitis, upper respiratory tract infection, and headache.

Conclusion: In the APeX-S adolescents subgroup, berotralstat long-term daily prophylaxis was generally well-tolerated, resulted in a sustained reduction in HAE attacks, and improved patient-reported QoL. These data suggest that berotralstat can help reduce disease burden across all domains of QoL measures in this patient population.

Conflicts of interest: Bhavisha Desai: employee of and owns stock in BioCryst Pharmaceuticals.Dianne Tomita: employee of and owns stock in BioCryst Pharmaceuticals (and Amgen).Douglas T. Johnston: employee of BioCryst Pharmaceuticals.Jonathan A. Bernstein: Advisory boards for, and consultancy fees and grants from, BioCryst Pharmaceuticals, BioMarin Pharmaceutical, CSL Behring, KalVista Pharmaceuticals, Ionis Pharmaceuticals, Pharming, and Takeda; role in Allergists for Israel (Chair), American Academy of Allergy, Asthma & Immunology (President Elect), Angioedema Centers of Reference and Excellence / Urticaria Centers of Reference and Excellence (joint task force), Interasma (board of directors), and World Allergy Organization (board of directors); and speaker for Astria Therapeutics, BioCryst Pharmaceuticals, BioMarin Pharmaceutical, CSL Behring, Escient Pharmaceuticals, Ionis Pharmaceuticals, KalVista Pharmaceuticals, Ono Pharmaceutical, Pharming, and Takeda.Marcin Stobiecki: Research funding from BioCryst Pharmaceuticals.Andrew M. Smith: Consultant for AstraZeneca, Takeda, Optinose, BioCryst Pharmaceuticals, and Pharming.H. James Wedner: Advisory boards for Amgen and AstraZeneca; consultancy fees from BioCryst Pharmaceuticals, CSL Behring, KalVista Pharmaceuticals, and Takeda; grants from Allergy Therapeutics, Astria Therapeutics, BioMarin Pharmaceutical, CSL Behring, Ionis Pharmaceuticals.Avner Reshef: Research grants and consulting honoraria from CSL Behring, Stallergenes Greer, Teva, Pharming, BioCryst Pharmaceuticals, Pharvaris, SIS Shulov, Takeda (Shire), and Ionis Pharmaceuticals; served as an advisor for CSL Behring.

001212 | Correlating skin clearance/clinician reported outcomes (CROs) with patient reported outcome (PROs) measures in atopic dermatitis

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Background: Atopic dermatitis severity and improvement is largely measured by clinician reported outcomes (CROs). While CROs provide an objective view of the disease progress, it does not include the subjective experience of the patient. A lot of emphasis is placed on CROs in the real-world clinic environment and ignores the need for more patient-centric measures as a tool to evaluate improvement in atopic dermatitis severity. Incremental changes seen in CROs may not be reflected in the same degree of change in PROs. There have been cases of significant improvement in CROs, but still significant disease burden reported in the patient reported outcomes (PROs). This signifies a need to place more emphasis on patient-centric measures and to evaluate the discrepancies between PROs and CROs.

Method: A retrospective chart review of 70 pediatric patients seen in the Multidisciplinary Atopic Dermatitis Program at an American Tertiary Academic Children's Hospital was conducted to correlate CROs and PROs via a Kendall Tau B Correlation. The following outcomes were analyzed: Eczema Area Severity Index (EASI), Body Surface Area (BSA), Validated Investigator Global Assessment (vIGA), Patient Oriented Eczema Measure (POEM), Children's Daily Life Quality Index (CDLQI), and Pruritus Numeric Rating scale (NRS).

Results: The strongest correlation between a CRO and PRO was between vIGA and pruritus ($r = 0.542$, $p < 0.001$). The weakest correlation was between BSA and CDLQI ($r = 0.372$, $p < 0.001$). The average correlation between all CROs and all PROs was $r = 0.428$, $p < 0.001$. CROs correlated strongly with each other with the strongest being between vIGA and EASI ($r = 0.795$, $p < 0.001$). The strongest correlation between PROs was between POEM and Pruritus ($r = 0.563$, $p < 0.001$).

Conclusion: On average CROs and PROs do not have a strong correlation. PROs correlate more strongly to other PROs and same for CROs. This shows a need to place more emphasis on patient-centric outcomes as CROs alone do not provide a robust enough evaluation of atopic dermatitis severity and improvement.

Conflicts of interest: The authors did not specify any links of interest.

001511 | Divergent patients' and physicians' perceptions of chronic urticaria disease control: An urticaria voices study outcome

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Background: The impact of chronic urticaria (CU) on patients' personal, social, and work life is well documented. However, little is known about the cumulative life impact of CU and potential differences between patients' and physicians' perceptions of the disease burden and treatment expectations. Discordance between perceptions may lead to suboptimal disease management and dissatisfaction with care.

Method: Urticaria Voices was a multinational (USA, Canada, UK, Germany, France, Italy, Japan) cross-sectional, online survey for CU patients and treating physicians (Feb-Sep2022). The study aimed to assess patients' and physicians' perceptions on the burden of CU, treatment, and management to identify potential misalignment, miscommunication, unmet needs and opportunities to improve CU care. Eligible adult patients should have had a self-reported clinician-provided diagnosis of chronic spontaneous urticaria (CSU) or chronic inducible urticaria (CIndU) and be symptomatic despite current treatment. Eligible physicians (dermatologists and allergists/immunologists) were currently treating CU patients. The surveys were designed with questions enabling comparisons between patient and physician responses and customized questions on shared decision making. Patients also completed the Urticaria Control Test (UCT) and other validated patient-reported outcomes measures (PROMs).

Results: A total of 1127 patients (64% women; mean[SD] age, 42.6[12.1] years; disease duration, 9.8[10.6] years) and 862 physicians were interviewed online. Only 6% of patients had a UCT score of 16 (complete control). While 52% of patients believed that complete control was achievable for them, physicians believed that ~65% of their patients could achieve complete control. Consequently, physicians aimed to achieve complete control of CU in ~70% of their patients and considered that they achieved this goal. In total, 78% of patients reported to be currently inadequately controlled, which contrasts physicians' assessment of only 23% of patients inadequately controlled.

Conclusion: Complete urticaria control is an important treatment goal for both patients and physicians. However, there is discrepancy between patients' and physicians' perceptions on the real-world achievement of this state, particularly when PROMs are used. Clear communication between patients and their physicians is imperative for management of CU which can be facilitated by consistent use of urticaria-specific PROMs, such as the UCT.

Conflicts of interest: Pedro A. Laires, Maria-Magdalena Balp, Laura Christen, Nico Janssen and Serge Smeets are employees of Novartis Pharma AG, Basel, Switzerland; Karsten Weller reports grants from Novartis and Takeda outside the submitted work and personal fees from Biocryst, Biomarin, CSL Behring, Novartis, Moxie, Takeda outside the submitted work. Tonya Winders reports GAAPP receives funds from unbranded disease awareness & education from Novartis, AstraZeneca, Sanofi-Regeneron, Amgen, Roche & Genentech outside of the submitted work; Jonathan A. Bernstein reports grants from Novartis, Astra Zeneca, Sanofi-Regeneron, Amgen, Roche, Allakos, Celldex, CSL Behring, Takeda/Shire, Biocryst, Pharming, Ionis, Biomarin and Genentech outside the submitted work. Personal fees from Novartis, Astra Zeneca, Sanofi-Regeneron, Amgen, Roche, Allakos, Celldex, CSL Behring, Takeda/Shire, Biocryst, Pharming, Ionis, Biomarin and Genentech outside the submitted work; Mihai Dricu and Sandra Flierl are employees of Ipsos SA, Basel, Switzerland and confirm no conflicts of interest.

001413 | Two cases of generalized bullous fixed-drug eruption triggered by etodolac

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Introduction/Background: Fixed-drug eruption(FDE) is the common form of an allergic reaction to medications, and characteristically recurs at the same skin site by each use of the offending drug. It is characterized by well-defined red to purplish macular lesions. Rarely urticarial, bullous, targetoid, and purpuric lesions are observed. Generalized bullous fixed drug eruption (GBFDE) is a rare variant; toxic epidermal necrolysis(TEN) and Steven-Johnson syndrome (SJS) are the main diseases that need to be differentiated. Etodolac, a pyranocarboxylic acid, is known as a cyclooxygenase-2 selective inhibitor and its cutaneous side effects vary between pruritus to severe bullous reactions.

Case 1: A 72-year-old female patient was admitted to the hospital with the rashes after etodolac use. On examination, small erythematous plaque on the palate, intact bulla, and partially eroded areas on her neck, trunk, and extremities were observed. Her medical history revealed frequent NSAIDs intakes for dental problems and three attacks of erythematous eruption on her body, which regressed with hyperpigmentation over the past 15 months. She was on etodolac medication until finally admitted to us. Her medical history and clinical manifestations led to the diagnosis of GBFDE as she mentioned that each time she used etodolac the lesions recurred at the same body sites. Causality assessment was done by using Naranjo adverse drug reaction probability scale, and the score was 6. The adverse reaction was categorized as "probable". The patient was treated with systemic methylprednisolone and discharged with faded lesions at the end of three weeks.

Case 2: 76-year-old female patient takes etodolac-containing analgesic and admits to the hospital due to bulla formation on her foot and re-inflammation in the body sites areas where she previously had drug reactions. She revealed that on her first attack she had disseminated erythematous-purplish plaques and bullae on her entire body after taking analgesia even years ago. The lesions regressed with leaving hyperpigmentation on erythematous areas and postinflammatory hypopigmentation on the sites of bullae. Histopathological examination demonstrated mild spongiosis, vacuolar interface dermatitis with many necrotic keratocytes, pigment incontinence and eosinophil predominant mixed infiltration in perivascular area of papillary dermis (Figure 1). The lesions are taken under control through

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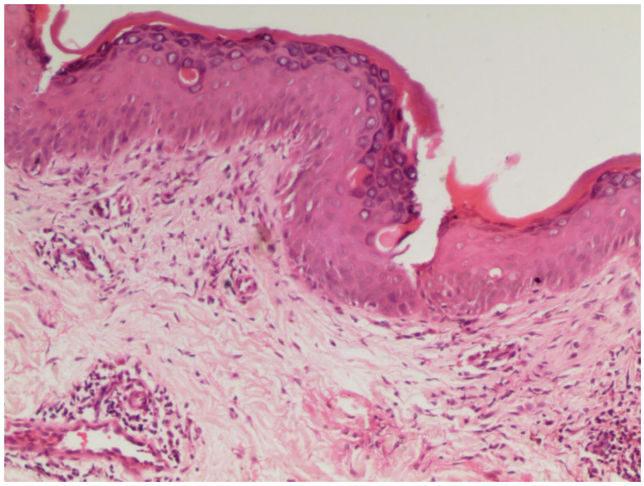
systemic steroid. When compared with the previous attacks, the intensity of pruritus and shortening of the time interval between drug intake was reported by the patient. Naranjo's probability scale score was 7 and categorize the adverse reaction as "probable".

Conclusions: GBFDE is rare and a few etodolac-related FDEs and a GBFDE cases were reported in literature. As a result, Etodolac was the probable cause for the adverse drug reaction based on the Naranjo scale in two GBFDE cases we reported here. The patients constituted the sample for self oral provocation test with recurrent uses of the responsible drug. We wanted to emphasize the importance of early recognition, removal of causative drugs and preventability of severe clinical presentations through quickly started suitable treatment.

JM case reports session: 18243.



Conflicts of interest: The authors did not specify any links of interest.

001066 | Drug reaction with eosinophilia and systemic symptoms – Looking for a culprit

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Background: A large proportion of drug reaction with eosinophilia and systemic symptoms (DRESS) cases are due to a few high-risk drugs including allopurinol, aromatic antiepileptic agents and sulfonamides. Beta-lactams are considered to be lower-risk drugs; in up to 20% of cases the strength of drug causality is in a gray zone. Some series have also reported association with iodinated contrast media (ICM) administration, with a latency phase as short as 2 days. The diagnosis may be established with basis on clinical criteria included in the Registry of Severe Cutaneous Adverse Reactions (RegiSCAR) scoring system. We report a case of probable DRESS following exposure to multiple drugs with a different risk profile.

Case report: A 50-year-old woman developed a probable DRESS (RegiSCAR total score = 5) four weeks after admission with an acute exacerbation of ulcerous colitis. During the hospital stay, she was exposed to multiple drugs, including piperacillin+tazobactam (Pip/Taz), linezolide, sulfametoxazol+trimethoprim (CMX) and iopromide. Suspected antibiotics were suspended and oral prednisolone was initiated. At this point, no additional contrasted imaging was required. Progressive clinical and analytical abnormalities' improvement allowed discharge after 23 days.

Five months later, 2 hours after a contrasted CT scan (with iopromide), she developed generalized malaise, headache and arthralgias, followed by a generalized pruriginous exanthema, fever and adenomegalies (axillary/inguinal). Analytically leukocytosis, eosinophilia and inflammatory parameters' elevation were observed. Prednisolone and antihistamine were prescribed with gradual symptoms' resolution.

Following referral to the Allergy and Immunology Department, a lymphoblastic transformation test was performed using increasing dosages of Pip/Taz, CMX and iopromide (linezolide was not tested due to insufficient sample), revealing probable sensitization to Pip/Taz (stimulation index (SI) of 22.6 for 100 μg/mL) and no sensitization to the others (SI <2). Therefore, avoidance of Pip/Taz and other penicillins was advised (except amoxicillin+clavulanate, which she meanwhile tolerated), as well as CMX and linezolide. Despite the somewhat atypical latency period, the 2nd episode was interpreted as DRESS and ICM avoidance was also recommended.

Conclusion: Early recognition of DRESS, with immediate cessation of the suspected drug and supportive treatment initiation, is crucial to reduce the associated acute and long-term morbidity and mortality. Considering that drug challenge is absolutely contraindicated, combined input from anamnesis and *in vitro* tests is essential to guide avoidance recommendations.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

000651 | Relationship between clinical and biophysical factors and natural history of infantile eczema

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Background: Eczema is an inflammatory skin disease that usually manifests within 6 months of age with diverse pattern for persistence. It may resolve with age or endure in a relapsing and persistent course. Factors predicting such changes in disease status remain unclear. This study aimed to identify clinical and biophysical factors that predicted the development and persistence of infantile eczema.

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Method: 166 Chinese infants recruited at birth regardless of their family history of allergy were assessed at 1, 3, 6 and 12 months of age. Subjects were diagnosed as 'eczema ever' (EE) and 'eczema never' (EN) by physicians; those with EE were subclassified into 'transient eczema' (ET) and 'persistent eczema' (EP) based on eczema status at 12 months. Eczema severity was defined by SCORAD. Skin hydration (SH) and trans-epidermal water loss (TEWL) were measured over left and right antecubital fossae (LAF and RAF). Demographics and early-life exposures were collected by validated questionnaires. Skin prick test (SPT) was performed at 12 months to define atopic status. Associations between eczema outcomes and clinical and biophysical factors were analyzed by logistic regression. Longitudinal SH and TEWL measurements were analyzed by generalized estimating equations.

Results: Eighty-one (49%) subjects were males, and 44% of subjects had maternal history of allergy and 44% had paternal history of allergy. Seventy-one (43%) subjects had eczema, which resolved in 38 (54%) of them by 12 months. EE occurrence was associated with atopy (aOR 3.0, $P = 0.012$). Eczema severity was associated with disease persistence ($P = 0.010$). Patients in EP had significantly higher SCORAD (median 19.0 vs 8.8, $P = 0.015$). No significant difference was found for SH or TEWL among different groups by eczema status. SH (9.6 vs 37.5, $P<0.001$) and TEWL (6.4 vs 9.4, $P<0.001$) were significantly lower at baseline and steadied since 1 month. TEWL measured over LAF was significantly lower than over RAF (8.0 vs 9.0, $P<0.001$), with difference associated with time (aOR 0.8, $P = 0.007$).

Conclusion: Eczema is common in Chinese infants. Eczema ever is associated with atopy at 12 months. Moderate-to-severe eczema is associated with persistent eczema. SH and TEWL measured within 48 hours after birth is lower than the stable measurements since 1 month. These findings represent probable predictive biomarkers for the natural history of early-onset eczema. (funded by Health and Medical Research Fund [ref. no. 06170466])

Conflicts of interest: The authors did not specify any links of interest.

001113 | Contact dermatitis and oral allergic syndrome due to white perilla seed sensitization: A case report

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Background: The white perilla (Ocymoides linn) is a seed that comes from a plant cultivated in Eastern countries (Afghanistan, India, China…), which is commonly used for bird food because of the benefits it brings, being rich in protein and low in carbohydrates. So far, there are no publications describing allergic reactions to this type of seed.

Methods: This is a case report of a 70-year-old patient with a personal history of liver cirrhosis, liver transplant, diabetes, dyslipidemia and hypertension, who was referred for suspected food allergy. The patient reported having birds at home for years, sometimes eating different components of birdseed without incident. In recent months he began to notice itching in his hands when handling bird food, on one occasion, while eating white perilla seeds, he noticed pharyngeal itching and foreign body sensation, which resolved after the administration of corticosteroids. On the other hand, a few months ago, the patient began to experience self-limited oral itching after eating seeded bread and bakery products such as croissants.

Skin prick tests (SPT) were performed with perilla (prick by prick) and perilla extract. Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) immunoblotting and Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry (MALDI-TOF MS) were used for protein identification.

Results: SPT result was positive, perilla 22 mm, perilla extract 18 mm, histamine 8 mm, saline 0 mm. The blood test showed a total IgE of 568 KU/L. The IgE results were negative for barley, wheat, soya, rye, gluten and Prup3. SDS-PAGE IgE immunoblotting assays revealed IgE reactivity with two bands of 15 and 10 KDa in the perilla extract. The two protein bands were identified as 2s albumin in the proteomics study.

Conclusion: White perilla seed allergy may be increasingly common in patients in contact with birds. Diagnosis could be made by conventional techniques such as SPT or in vitro techniques such as specific IgE or immunoblotting. A storage protein (2s albumin), so far not described in the literature in white perilla allergic patients, has been identified in the proteomics study.

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Conflicts of interest: The authors did not specify any links of interest.

001536 | Quaternary ammonium associated contact allergic dermatitis

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We report a contact allergic dermatitis due to quaternary ammonium compounds such as benzoxonium chloride and investigated the cross reactivity within the quaternary ammonium group.

A 17-year-old woman presented herself in our allergy department with a history of erythematous itchy papules and plaques with vesicles on the site of a previous orthopaedic surgery on the right foot. The surgeon suspected a possible contact allergy to the implanted metal plate. After its removal the skin rash persisted. It was only after a topical treatment with mometasone that the skin eruption disappeared. Further investigation revealed that she was consequently using Merfen® aqueous solution, Verfora SA containing benzoxonium chloride (quaternary ammonium) and chlorhexidine for disinfection.

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We performed allergy testing with patch testing including a standard of most-common allergens, preservatives, metals and antiseptics recommended by the DKG (Deutsche Kontaktallergie-Gruppe). After 72 hours benzalkonium chloride showed a positive reaction according to the DGAKI (Deutsche Gesellschaft für Allergologie und Immunologie) with + (reaction with papules and erythema), the rest including chlorhexidine was negative. To investigate a possible cross reactivity of the quaternary ammonium compounds we performed a repeated open application test once daily on the left volar forearm with Merfen® aqueous solution, Verfora SA, containing benzoxonium chloride. The patient showed a positive reaction after 48 h with itchy erythematous papules and vesicles. The test was therefore discontinued.

Benzoxonium chloride and benzalkonium chloride are quaternary ammonium compounds with antibacterial, antiviral and antimycotic properties. They are strong irritants but have been described as possible allergens. In the last years an increase of quaternary ammonium compounds such as domiphen bromide, cetylpyridinum chloride etc. has been seen in personal care products, as well as eye drops, disinfectants and cleaning solutions for surfaces and surgical instruments. To date little is known about the cross reactivity within the quaternary ammonium group, whereas the similar chemical structure could favour cross reactivity. Since benzalkonium chloride was positive in the patch test and the repeated open application test was positive for benzoxonium chloride a cross reactivity may exist. Further investigation revealed, that the patient was using eye drops containing benzalkonium chloride for her allergic conjunctivitis as possible sensibilization.

We recommend in prolonged wound healing or worsening of the wound with accompanied dermatitis to investigate for a possible contact allergy to allergens contained in disinfectants. This could be performed using a recommended test panel as well as the used substances.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

001588 | Cold urticaria and schistosomiasis: A case report

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*Presenting author: M. Beigi

Background: Cold urticaria (ColdU) is a chronic inducible urticaria characterized by an outbreak of itchy wheals and/or angioedema after cold exposure. The diagnosis can be confirmed using different cold stimulation tests (ice cube test, TempTest®). ColdU is potentially associated with autoimmune or lymphoproliferative disease, certain drugs, and infections. Autoinflammatory disease and cryoglobulinemic vasculitis are important differential diagnoses in ColdU. The clinical picture may persist for several years and holds a risk of life-threatening anaphylaxis. Treatment of ColdU includes avoidance of the trigger and treatment with second-generation H1-antihistamines. In non-responsive patients, therapy with anti-IgE monoclonal antibody omalizumab can be applied.

Here, we present a rare case of ColdU associated with schistosomiasis.

Case report: A 60-year-old male presented with a 10-year history of wheals, arising shortly after contact with cold water. In contrast, cold drinks and food did not induce wheals or systemic reactions. There was no history of spontaneous episodes or more severe anaphylaxis. Antihistamines only partially reduced the symptoms. No other diseases were present except a previously diagnosed Raynaud's phenomenon. Our patient had lived in Nairobi and Ethiopia for several years before the onset of symptoms. The diagnostic work-up showed a slightly positive serology for schistosomiasis (Schistosoma Adult Antigen ELISA, 0.23 OD; Schistosomiasis IFAT (indirect immunofluorescence antibody test)), indicating a past or still active schistosomiasis infection. Therapy with praziquantel 60 mg/kg was administered for two days. After this treatment, our patient displayed no further wheals after cold exposure.

Conclusion: Given that the ColdU resolved upon anti-parasitic treatment, we assume that schistosomiasis participated in the induction of ColdU in our patient. Our case suggests that screening for parasite infections should be included in the diagnostic work-up in patients with longstanding ColdU and a positive travel history.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

001194 | Aquagenic urticaria: Case report and mini-review of the literature

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Background: Aquagenic urticaria (AU) is a rare subtype of chronic inducible urticaria in which contact with water triggers pruritus and wheals. It manifests with various clinical features, including erythema, folliculocentric rashes, and wheals with erythematous flares. Characteristically, AU presents within 30 minutes after exposure to water of any temperature and persists for 30 to 60 minutes. Besides the cutaneous manifestations, some patients also develop systemic symptoms, including headaches, lightheadedness, wheezing, and respiratory distress. The diagnosis of AU is based on the patient's history and results of provocation testing. At present, the pathogenesis of AU is largely unclear, and publications on clinical manifestations and treatment outcomes are sparse (1,2).We present a rare case report on a 15 year-old boy with a two-year history of AU and to provide an overview on the current literature on clinical features, treatment options, and outcomes in AU.

Method: We took a detailed medical history and carried out a clinical examination in our patient with AU. A water challenge test at different temperatures was performed. Additionally, articles published within the last two years were systematically searched in the electronic database PubMed using the term “aquagenic urticaria.”

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Results: Our patient presented with wheals and intense itching within 5 minutes of contact with water, regardless of its origin or temperature. Prophylaxis with an H1-antihistamine of the second generation was not effective.

Conclusion: Our literature search revealed 10 articles reporting on different treatment options in AU (Table 1). In these articles, 50% of the patients with AU responded to H1-antihistamine therapy. Conversely, our patient did not benefit from this treatment. Therefore, we have now planned to initiate therapy with omalizumab. In the literature, omalizumab revealed a good response in 40% of patients with AU. It is essential to mention that AU can also be associated with familial disease and hematopoietic syndromes like polycythemia vera and Bernard-Soulier syndrome, a bleeding disorder associated with abnormal platelets. Differential diagnoses like aquagenic pruritus, cholinergic urticaria (cold or heat urticaria), and exercise-induced anaphylaxis should also be considered in patients with AU.

Table 1. Literature on different treatment options and its outcome in patients with AU (n=10)

Treatment options	Articles, n (%)	Outcome
H1-antihistamine - 1st generation	1 (10)	No response
H1-antihistamine - 2nd generation	5 (50)	Good response
H2-antihistamine	n/a	n/a
Omalizumab	4(40)	Good response

Conflicts of interest: The authors did not specify any links of interest.

001155 | Loss-of-function mutation in the FLG gene is associated with a complex atopic phenotype with hyper-IgE

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We presented the case of 7 years old boy who was followed at the Pediatric Clinic in Pavia for atopic dermatitis, allergic rhinitis, and recurrent episodes of asthma exacerbation requiring therapy with salmeterol/fluticasone. In the past, he was hospitalized for one episode of pneumonia. Laboratory tests showed a value of total IgE > 5.000 KU/L that was confirmed at subsequent blood tests, the last of which revealed levels of IgE up to 17.560 KU/L. The blood eosinophil count was 2200/mL.

Allergic tests (skin prick tests and specific IgE) showed sensitization to Dermatophagoides farinae and Dermatophagoides pteronyssinus (specific IgE > 100 KU/L). Clinical examination revealed scoliosis with maximum curvature of 10°-14°, and moderate eczema (EASI 15). Concomitant parasitic infections were excluded; thyroid function and tryptase levels were normal, and anti-transglutaminase IgA levels were not suggestive of celiac disease. Other investigations (mitogen stimulation test, response to vaccines, and lymphocyte function test) were normal. Abdominal ultrasound was also performed, and no signs of parasitic liver infection or intestinal inflammation were detected. The (Hyper-IgE Syndrome -HIES) score was 23, a value considered indeterminate (HIES score 20–40). Although the HIES score was doubtful for the Hyper-IgE syndrome, we performed a genetic test with exome sequencing focused on a panel of genes related to Hyper-IgE. The analysis showed the presence of heterozygous "loss-of-function" (LOF) variant c.2282_2285delCAGT in the FLG gene.

The FLG gene, mapping on the 1q21 chromosome, encodes a key protein responsible for epidermal differentiation and maintenance of skin barrier function. It was shown that two independent LOF genetic variants in the FLG gene strongly predispose to atopic dermatitis. Moreover, these LOF mutations are also responsible for Ichthyosis Vulgaris; in addition, a highly significant association with c.2282_2285delCAGT in FLG gene has been found, and extrinsic atopic dermatitis, allergic sensitization, high total IgE level, and asthma – occurring in the context of atopic dermatitis.

This report highlights the importance of genetic analysis in diagnosing complex and severe allergic cases.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001468 | The characteristics of chronic urticaria in the overseas department of reunion island

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Background: It is estimated that approximately 20% of the population have an urticarial illness at some time in their live. Chronic urticaria (CU) is defined as itchy wheals lasting 6 weeks or more. Most of the data about CU come from western countries and very little information available about CU in tropical countries.

Aim: To assess clinical characteristic of CU in Reunion Island, a tropical region in Indian ocean

Method: We investigate medical records of 126 patients seen from January 2015 to December 2022, in whom a diagnosis of CU was made.

Results: 73 (58%) patients were women, average age was 35.8 (range, 16–80 years). Most of the patients had onset of the disease in their 20s and 35s. 32% had more than one lifetime episode of CU, late-onset (27% of patients) developed first onset of CU after the age of 45 years. 30 (24%) patients had also suffered from hay fever, asthma or atopic eczema or chronic rhinosinusitis with nasal polyposis or more than one of the conditions. The disorder was deemed idiopathic in 53 (42%) patients. 15 (12%) patients had physical urticaria and 23 (18%) patients had both idiopathic and physical urticaria. 6 (5%) patients reported intolerance to salicylate or similar drugs.

All patients were treated with second generation H1-antihistamines (H1-AH), but the standard dose was sufficient in only 22% of case. Higher doses (up to 4 times the standard dose) achieved control of

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CU in 70% of the patients studied. 10 (8%) patients failed to respond to second generation H1-AH and required
a monoclonal antibody against interleukin (IL-4) and (IL-13) receptors (DUPILUMAB) and respond favourably (100%).

Conclusion: When compared with previous published surveys, our study shows a lower proportion of intolerance reactions. Dose of H1-AH higher than the standard dose are required in most cases to achieve control of CU. DUPILUMAB may be an effective alternative option for patients with CU, failing to respond to second generation H1-AH.

Conflicts of interest: The authors did not specify any links of interest.

000624 | A case of macrolides-induced acute localized exanthematous pustulosis (ALEP)

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Background: ALEP is a rare localized form of acute generalized exanthematous pustulosis (AGEP) characterized by the onset of non-follicular, pinhead-sized, sterile pustules, usually on the face and 2–4 days after taking a drug (mostly b-lactams)[1,2].

Its pathogenesis is probably related to a drug-specific T-cell-mediated and neutrophilic immune process (type-IVd-reaction)[3,4,5]. Diagnostic tools include cutaneous, oral provocation, and in vitro lymphocyte transformation tests.[4,5]

We describe a case of a 36-year-old woman that reported 2 episodes of delayed skin reactions after taking clarithromycin and azithromycin for upper respiratory tract infections. She developed erythema and slightly itchy pustules on the face, neck and décolleté (no other systemic symptoms or fever) 48 hours after ending therapy. She was treated with betamethasone 1 mg/day for 3 days and she healed after 12 days with mild skin desquamation.

Method: A macrolides-induced ALEP was suspected, so we proceeded with allergy skin tests and oral provocation test (OPT) 3 months after the reaction.

Results: Patch test with azithromycin and clarithromycin (10% in pet) resulted negative at 48 and 72 hours; skin prick test (SPT, 0.05 mg/ml) and intradermal reaction (ID, 0.005 mg/ml) for clarithromycin and for azithromycin (SPT 0.01 mg/ml and ID 0.001 mg/ml) resulted negative at 48 and 72 hours. Therefore, azithromycin OPT (increasing doses, cumulative dose of 500 mg) was carried out without immediate reactions; 48 hours after the challenge, the patient presented the same cutaneous reaction previously described. Skin culture test of lesions was negative; blood count, inflammation, liver and kidney function tests were normal. We treated the patient with prednisone 25 mg/die tapering over 10 days; symptoms relapsed at 5 mg/die: slower tapering was recommended with resolution in 25 days. Avoidance of macrolides was advised.

Conclusion: We described the first case of ALEP induced by macrolides and confirmed by OPT (only one similar case was reported but no allergy tests were performed)[6]. Drug patch tests were described as positive in other cases[7]. Hypersensitivity reactions related to drug metabolite or hapten-drug complex may cause false-negative skin tests like in our case. So we highlight the diagnostic relevance of OPT when skin tests are negative. ALEP usually resolves spontaneously within a few days; our patient showed a more prolonged and intense skin reaction after OPT, probably for the closed drug re-exposure.

1. Safa I. et al. Acute localized exanthematous pustulosis: Clinical features, pathophysiology, and therapy. Dermatol Ther. 2021.

2. Ryder ENC et al., Acute localized exanthematous pustulosis: case report, review of the literature and proposed diagnostic criteria. Australas J. Dermatol. 2018.

3. Girardi M et al. Comparison of patch-test and lymphocyte proliferation responses in patients with a history of acute generalized exanthematous pustulosis. Am J Dermatopathol. 2005.

4. Kabashima R et al. Increased circulating Th17 frequencies and serum IL-22 levels in patients with acute generalized exanthematous pustulosis. J Eur Acad Dermatol Venereol. 2011.

5. Betto P, Germi L, Bonoldi E, Bertazzoni M. Acute localized exanthematous pustulosis (ALEP) caused by amoxicillin-clavulanic. acid. Int J Dermatol.2008.

6. Zweegers J, et al., Een vrouw met huidafwijkingen rond de mond [A woman with skin abnormalities around the mouth]. Ned Tijdschr Geneeskd. 2012.

7 Navarro Triviño FJ et al. Acute localized exanthematous pustulosis (ALEP) induced by iomeprol (Iomeron 350): A diagnostic challenge. Contact Dermatitis. 2021.

Written informed consent was obtained from the patient for the publication of clinical details and/or clinical images.

Conflicts of interest: The authors did not specify any links of interest.

001276 | (ACD) to 3-o-ethyl ascorbic acid in skin-lightening cosmetics

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*Presenting author: E. Penalver de la Puente

Background: Allergic contact dermatitis (ACD) is a type IV or delayed hypersensitivity reactionthat occurs after exposure of an individual's sensitized skin to the allergen.VitaminC and its derivates, such as 3-o-ethyl-l-ascorbic acid, are topical agents widelyused for anti-aging and skin-lightening purposes.Despite being infrequent, therehave been reported cases of ACD to vitamin c and its derivatives.We report a case of contact dermatitis caused by two skin-lightening cosmeticproducts containing 3-o-ethyl-l-ascorbic acid.

Case presentation: A 46-year-old atopic women presented with a 6-month history of relapsingeczema, with edema and erythematous rash affecting her face including folds, eyelids and peri-oral area.(Image 1) The patient started applying, three months prior to the skin symptoms, twoproducts (face cream and serum) containing 3-o-ethyl-l-ascorbic acid (enhancedform of vitamin C) in search of its brightening and glowing effects.Allergic contact dermatitis to patients cosmetic was suspected and Patch testwere performed with the European standard, cosmetic, and fragrance series, aswell as with 5 of the patients' own products. Patches were applied to the upperback, occluded for 2 days and read on day(D) 2 and D4 according to ICDRG.

Case results: There were positive reactions to both cosmetic products containing 3-o-ethyl-l-ascorbic acid: serum (D3 +; D5 ++) and face cream (D3 +; D5 ++). (Image 2).

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In a second step, patch tests with the ingredients of both creams provided by themanufacturer were performed with a positive result to 3-o-ethyl-L-ascorbic acid10% in water (D3, ++; D5 ++) (Image 3). Five controls were negative to the of 3-o-ethyl-L-ascorbic acid acid 10% in water.Complete healing of eczema was achieved after discontinuing use of both VitaminC creams.

Conclusions

- We report a case of allergic contact dermatitis to 3-o-ethyl ascorbic acid in brightening facial cosmetics.
- Our patient must avoid contact with cosmetics containing Vitamin C (3-o-ethyl-L-ascorbic acid).
- It is important to consider Ascorbic acid's derivatives as potential skin allergens due to its increasing use in cosmetic products.

JM case reports session: 18244.

IMAGE 1

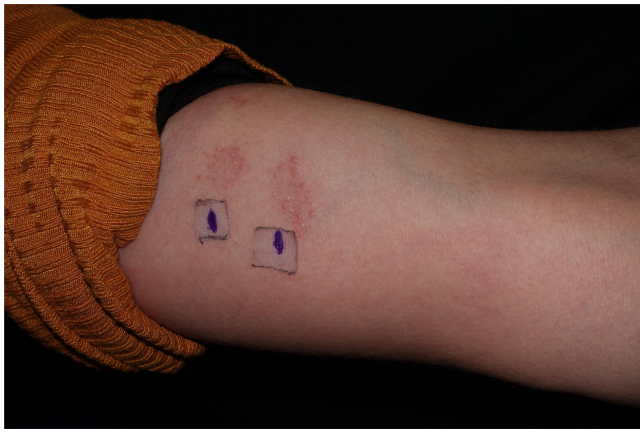

IMAGE 2

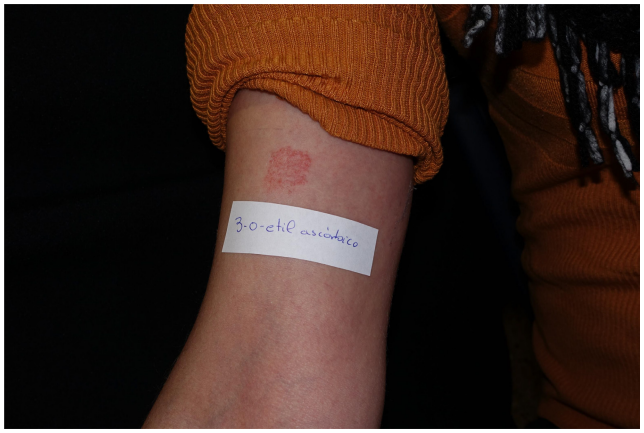

IMAGE 3

Conflicts of interest: The authors did not specify any links of interest.

001286 | Efficacy of second-line treatments in chronic urticaria refractory to standard dose antihistamines

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Background: The prevalence of chronic urticaria (CU) is increasing in worldwide and it imposes a major burden on patients. Few studies have evaluated the efficacy of second-line treatments of CU, particularly for patients being considered for costly third-line treatments such as omalizumab. We compared the efficacy and safety of second-line treatments of CU refractory to standard doses of non-sedating H_1-antihistamines (nsAHs).

Method: This 4-week, prospective, randomized, open-label trial divided patients into four treatment groups: 4-fold updosing of nsAHs, multiple combination of four nsAHs, switching to other nsAHs, and adjunctive H2-receptor antagonist. The clinical outcomes included urticaria control status, symptoms, and rescue medication use.

Results: This study included 109 patients. After 4 weeks of second-line treatment, urticarial was well-controlled, partly controlled, and uncontrolled in 43.1%, 36.7%, and 20.2% of patients, respectively. Complete control of CU was achieved in 20.4% of patients. Among the patients with high dose nsAHs, the proportion with well-controlled status was higher compared to the patients who received standard doses (51.9% vs. 34.5%, $p = 0.031$). No significant difference was observed in the proportion of well-controlled cases between the updosing and combination treatment groups (57.7% vs. 46.4%, $p = 0.616$). However, increasing the dose of nsAHs 4-fold was associated with a higher rate of complete symptom control compared to multiple combination treatment with four nsAHs (40.0% vs. 10.7%, $p = 0.030$). Logistic regression analysis confirmed the higher

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efficacy of updosing of nsAHs for complete control of CU compared to the other treatment strategies (OR = 0.180; $p = 0.020$).

Conclusion: In patients with CU refractory to standard doses of nsAHs, updosing of nsAHs 4-fold and multiple combination treatment with four nsAHs both increased the rate of well-controlled cases without causing significant adverse effects. Updosing of nsAHs is more effective for complete CU control than combination treatment.

Conflicts of interest: The authors did not specify any links of interest.

001202 | Is it always NSAIDs fault? – A case report

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Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) are one of the leading causes of hypersensitivity reactions, with an overall prevalence of reported hypersensitivity ranging from 0.6 to 6%. Hypersensitivity reactions can lead to a spectrum of clinical manifestations, ranging from cutaneous symptoms (urticaria and/or angioedema) or respiratory symptoms (rhinitis, dyspnea, and severe bronchoconstriction) to anaphylactic reactions, and can occur within few minutes after drug exposure. However, they are also known to act as cofactors and may not be the culprit in some situations.

Case report: A 35-year old woman, with a previous unconfirmed history of a hypersensitivity reaction to naproxen characterized by an urticarial rash, was admitted to the emergency department for generalized maculopapular non-pruritic skin lesions that started less than 30 minutes after taking cough drops, that contain flurbiprofen, due to odynophagia.

Endovenous antihistamine (clemastine 2 mg) and corticosteroids (methylprednisolone 125 mg) were administered without any clinical improvement over a 6-hour period. During this period, she presented two episodes of food vomiting.

Due to the lack of clinical improvement, collaboration was requested from Allergy and Immunology for evaluation and patient guidance. The physical examination highlighted the presence of generalized skin lesions, including face and palms, with a confluent violaceous aspect and an infiltrative appearance.

A decision to perform a skin biopsy was made and the patient was hospitalized for monitoring. Considering her atypical lesions, the previous odynophagia report and her gastrointestinal symptoms, a respiratory virus detection test was performed, with the isolation of respiratory syncytial virus.

Skin biopsy showed no alterations. The patient was medicated with symptomatic therapy showing clinical improvement and being discharged within 3 days.

Nine weeks later, at the Allergy and Clinical Immunology Department, oral provocation drug challenges were performed with flurbiprofen and then with naproxen, both with a negative result.

Discussion/Conclusion: NSAIDs are usually associated with hypersensitivity reactions and that evidence is known by most physicians. In this case NSAIDs may have acted as a cofactor in the development of the skin lesions but the main culprit was a viral infection.

If not for the allergist's assessment of skin lesions and differential diagnostic hypotheses, a misdiagnosis of NSAIDs allergy could have been sustained into this patient's life.

Infections, mainly those caused by viruses, can, alone or with cofactors, be responsible for a generalized skin condition and it is important to be alert to this diagnostic hypothesis.

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001273 | Real life efficacy and in vitro effect of cannabidiol in the treatment of inflammatory dermatitis

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Background: Cannabidiol (CBD) is a non psychoactive component of cannabis which is being used for the treatment of rare forms of epileptic seizures such as Lennox-Gastaut syndrom, as well as immune mediated neurological diseases such as multiple sclerosis. CBD exerts its immuno-modulating effect by acting on 2 receptors of the endocannabinoid system: CB1 and CB2. Particularly, CB2 is expressed on the membrane of immune cells such as T cells, B cells, NK cells, monocytes and neutrophils. Our present work aims at analysing i) the efficacy of topical preparations containing CBD for the treatment of contact dermatitis and atopic dermatitis; ii) the effect of CBD on the proliferation of B and T cells in an *in vitro* assay.

Method: We enrolled 25 patients suffering from contact dermatitis, itchy syndrome and inflammatory dermatitis. All patients received CBD Dermohemp barrier cream once a day for 30 days, in combination with 0.05% clobetasol propionate once a day for 20 days. For the monitoring of the symptoms, Urticaria Activity Score (UAS) was used.

For the assessment of the effect of CBD on lymphocyte proliferation, PBMC were isolated from blood, stained with Carboxy Flurescein Succinidimyl-Ester (CFSE), and cultured for 5 days with increasing concentrations of CBD, together with the mitogenic PhytoHemaglutinine A (PHA). Then cells were stained with fluorochrome-coupled anti CD3 and anti CD19 antibodies, for the detection of T and B cells respectively, then analysed by flow cytometry to quantify proliferating B and T cells.

Results:

1. Treatment with CBD and clobetasol induce a significative reduction of the itchy symptoms and clinical improvement: pretreatment UAS7 = 12 versus UAS7 = 2 post-treatment.

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2. PHA induces a strong proliferation of both B and T cells in vitro, while the addition of CBD inhibits their proliferative capacity in a dose-dependent manner.

Conclusion: This present study suggests the clinical efficacy of CBD as an adjuvant to common steroid-based therapies. Moreover, our in vitro results suggest a potential use of CBD in other T cell mediated diseases.

Conflicts of interest: The authors did not specify any links of interest.

DRUG ALLERGY 2

000097 | Delabelling beta-lactam allergy in inpatients. Cost comparison between beta-lactams and alternative antibiotics

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*Presenting author: R. Castillo Loja

Background: Patients with a penicillin allergy label have increased adverse antibiotic events and higher hospitalization costs.

The objective was to compare costs before and after the allergic evaluation in patients labelled as allergic to beta-lactams (BL).

Method: We prospectively evaluated 3,564 admissions from April 1st, 2021, to March 31st, 2022. One hundred seventy-seven inpatients labelled with BL allergy underwent a delabelling study. We calculated the treatment cost savings by comparing antibiotics administered before and after an allergy study. We also compared the costs of patients treated with alternative antibiotics during admission (control group) and the cost of patients who changed to beta-lactam antibiotics after the allergy study (experimental group). We calculated the admission days in those groups.

Results: Of 177 patients, 34 (19.2%) were confirmed as allergic to BL. Of them, 24 (70.6%) had immediate and 6 (17.6%) non-immediate reactions. One hundred and thirty-six (76.8%) received antibiotic treatment during hospital admission before the allergy study, with a mean cost of the prescribed antibiotics of €203.07±318.42. Of them, 26 (19.1%) were confirmed as allergic, 83 (61%) as non-allergic, and 27 (19.9%) dropped out of the study. After allergic evaluation, 85 (62.5%) were switched to beta-lactams, and mean costs decreased to €142.07±200.50 ($p < 0.001$). Six patients (7%) were confirmed as allergic, and 79 (92.9%) were not. Six patients confirmed as allergic received an alternative beta-lactam: meropenem (3), piperacillin-tazobactam (1), cefazoline (1), and cefditoren (1).

When comparing the mean costs before and after the allergy study in 85 patients whose treatment was changed, they reduced from €188.91±351.09 to 91.31±136.07 ($p < 0.001$).

Comparing 51 patients in whom treatment was not changed and the remaining 85 who changed to a beta-lactam antibiotic, mean costs reduced from €226.66±256.43 to €91.31±136.07 ($p < 0.001$).

The mean number of days of admission (±SD) in the control group was 11.69 ± 8.95 days, and in the experimental group, 10.61 ± 9.70 days ($p = 0.144$).

Conclusion: Delabelling hospitalized patients represents a cost saving compared to those who continue with alternative antibiotics. Moreover, most patients are multipathological and require outpatient treatments and repeated hospital admissions, so delabelling will be efficient.

Conflicts of interest: The authors did not specify any links of interest.

000538 | Characterization of patients with hypersensitivity to rituximab and the role of desensitization: A single fourth center experience

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*Presenting author: V. Pardo

Background: Rituximab is a monoclonal antibody, which is mainly used to treat oncological and autoinflammatory conditions. It is a drug that commonly generates reactions from mild to severe. When the underlying pathology indicates it, desensitization to the drug is recommended. Although there are studies that described different aspects of desensitization's to rituximab, to our knowledge there are few studies focused on the studding of the clinical characteristics. We present the clinical characteristics of 68 patients with a history of hypersensitivity to rituximab, who underwent a rapid drug desensitization (RDD).

Method: A retrospective, cross-sectional and descriptive study was conducted. Patients with immediate hypersensitivity to rituximab who underwent a RDD protocol were included. Patients were evaluated at the Fundación Valle de Lili between November 2012 and July 2022.

Results: The study included 68 patients. Median age was 41 years (10–86). Fifty-eight (85.2%) were women. A total of 273 RDDs were performed. Similar to previous reports, cutaneous symptoms were the most frequent in thirty-nine patients (57.3%), followed by respiratory symptoms in thirty-five patients (51.4%). Thirteen (19%) Patients reported mixed reactions (cutaneous and respiratory symptoms) and severe reactions were reported in nine patients (13.2%). Fifty-three patients (77.9%) experienced hypersensitivity reactions during the first exposure, but 15 (22%) experienced the reaction during subsequent cycles. All the patients were evaluated by allergology and taking into account the urgency for the drug administration, desensitization was performed using the 12-step institutional protocol, with adequate tolerance in all patients.

Conclusion: Results from this study show that most of the patients with rituximab hypersensitivity were middle-aged women and most of reactions occurred during the first cycle of the drug. The most affected organs were the skin and the respiratory system. All the patients completed desensitization without complications, being a useful, safe, and effective procedure in this cohort.

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Conflicts of interest: The authors did not specify any links of interest.

000876 | Anestesiologist preventive management of perioperative hypersensitivity reactions in allergy anestesia unit of Hospital Central de la Cruz Roja Cruz Roja

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*Presenting author: J. J. Laguna Martinez

Background: Perioperative hypersensitivity reactions (POH) are difficult to diagnose, and collaboration between allergist and anesthesiologist is essential.

Guidelines recommend giving antibiotic prophylaxis prior to inducing anesthesia, therefore in the case of POH, this would simplify the etiological diagnosis.

We aim to track the implementation of this recommendation in our center.

Method: We analyzed all POH investigated in our center, in the previous 2 years. After obtaining informed consent, we conducted allergology workup following EACCI POH recommendations: skin tests (ST) (skin prick and intradermal test), specific IgE, serum tryptase, and drug provocation testing (DPT) when the other tests were negative. We also routinely tested latex and chlorhexidine.

Results: We investigated 39 patients for suspected POH. The antibiotic was the culprit drug in 13 (33.3%) of the cases. Cefazolin accounted for ten of them (76.9%); and one clavulanic acid (7.7%), gentamicin (7.7%), and ciprofloxacin (7.7%) Of those, POH occurred in the preoperative area in 8 (61.5%) of the cases (group 1) and in the operating room in 5 (38.5%) (group 2). We performed ST and DPT with the antibiotic involved, latex, and chlorhexidine for group 1, while group 2 also needed to rule out the rest of the inducing agents. As a result, the allergology workup was simpler and faster in group 1 compared with the other group.

Globally, in 8 cases (61.5%), all of which involved beta-lactams, they were all diagnosed by ST (5 group 1; 3 group 2), for the remaining 5 (38.5%), DPT was required (3 group 1; 2 group 2).

In all the cases, the skin prick tests, specific IgE were negative to latex and chlorhexidine.

Conclusion: The administration of antibiotics prior to anesthesia induction was followed in 61.5% of the cases in our unit. Our allergy study was simplified and more efficient after following this recommendation.

In 38.5% of the cases, the antibiotic was given in addition to other anesthetic medications, which enhanced us to perform educational programs to implement the guidelines for improving POH management. Antibiotics were the most common cause of POH in our unit, with Cefazolin responsible for more than 70% of antibiotic-related reactions.

Conflicts of interest: The authors did not specify any links of interest.

000558 | Cross-reactivity of cyclooxygenase-2 (COX-2) inhibitors in non-steroidal anti-inflammatory drugs (NSAID) allergy – a systematic review

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*Presenting author: A. Wang

Background: Evidence on safety of cyclooxygenase-2 (COX-2) inhibitors in patients with prior non-steroidal anti-inflammatory drug (NSAID) allergy or hypersensitivity is often conflicted. This systematic review aimed to evaluate the evidence and summarize the safety of COX-2 inhibitors when used in patients with prior NSAID hypersensitivity.

Method: Searches were conducted in PubMed and Embase to retrieve English studies, published before 1 July 2022, on adults with history of prior NSAID allergy, who had received at least one dose of celecoxib, etoricoxib, or parecoxib. Two reviewers independently screened the search results for inclusion, extracted data and assessed the risk of bias. Any disagreement was resolved through consnsus with a third reviewer. After reviewing the studies, reclassification of patients' history demographics into three NSAID hypersensitivity groups was done. Sensitivity analysis was conducted based on the NSAID allergy history and also type of COX-2 inhibitor.

Results: Forty-eight studies were identified and further divided into 74 sub-studies with a total of 1,991 patients and 2,546 challenges. A wide range of cross-reactivity were reported in the various studies (0–100%). Most allergic reactions observed were mild and tolerable, or resolved with treatment, and with severe allergy reactions occurring less than 0.4% of the reports. The overall risk of allergic reactions to COX-2 inhibitors in patients with previous NSAIDs allergy was low at 4.75%. Cross-reactivity across the three different NSAID allergy history re-classifications were heterogeneous, with the lowest being in patients with clear history of immunologic-mediated reactions to NSAIDs (Group 1) at 2.17%, and highest rate of 6.57% in patients where there was mixed or unclear history of NSAID allergy reaction (Group 3). Across the indirect comparisons, celecoxib had a higher rate of cross-reactivity of 6.51%, compared to etoricoxib's rate of 3.21%. Of the limited studies, no allergic reactions were observed in the parecoxib studies.

Conclusion: Use of COX-2 inhibitors is associated with a higher incidence of allergic like reaction(s) in patients with NSAID allergy, and the rate varied widely depending on the NSAID allergy history, and type of COX-2 inhibitor used.

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000214 | First reported case in a adolescent child – moxifloxacin ophthalmic solution induced Stevens-Johnson Syndrome (SJS)

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Moxifloxacin Ophthalmic Solution induced Stevens-Johnson Syndrome in an adolescent girl

Introduction: Stevens-Johnson syndrome (SJS) in children is a complex immunological syndrome requiring high index of suspicion for prompt early diagnosis and treatment. Moxifloxacin Ophthalmic solution (MOS) rarely cause SJS and is very seldom reported in children. MOS is used very commonly in children for bacterial conjunctivitis with few side effects. We herewith report the first case of MOS as a cause of SJS in a child.

Case report: A 14-year girl presented with painful erosions over the lips and inner buccal mucosa with patchy exudates for 3 days. She was on treatment for conjunctivitis for 3 days with MOS. There was history of contact with another child with conjunctivitis. There was no personal/family history of drug allergy or any other allergies, recurrent infections, and recurrent oral ulcers. There was no skin, eye and urogenital mucosal involvement at admission. She was nutritionally normal. Her vital parameters recorded on the day of reporting were as follows: blood pressure 120/80 mm Hg, pulse rate: 103 beats/min and respiratory rate 18 breaths/min. Initial tests revealed hemoglobin 12 g/dl, normal white cell count (7420 cells per mm^3), normal platelet count (2,92,000 cells per mm^3), C-reactive protein 20 mg/dl, ESR 20 mm/hour. Liver enzymes and renal parameters were normal. Tzanck smear was negative. Viral PCR was negative for Ebstein-Barr virus, Herpes, Adenovirus, Mycoplasma, Influenza, Chlamydia and SARS-CoV-2. She was negative for HLA-B*15:02. On ruling out other causes of similar oral lesions a diagnosis of Stevens-Johnson syndrome was made after expert dermatological consultation. Moxifloxacin was immediately omitted. She was treated with oral prednisolone 1 mg/kg/day, saline soaks, topical buccal anesthetic and topical oral steroids. Oral lesions healed over a period of 2 weeks. ER assessment as per Naranjo's scale was 7, suggestive of probable adverse drug reaction. During treatment, there was no new involvement of skin and other mucosal surfaces.

Conclusion: Moxifloxacin ophthalmic solution can cause SJS in children, though very rare. Knowledge about the adverse event and prompt avoidance after identification can prevent progression of SJS to toxic epidermal necrolysis.

KEYWORDS – MOS (Moxifloxacin Ophthalmic Solution)

JM case reports session: 18243.

Conflicts of interest: The authors did not specify any links of interest.

001213 | Aspirin dosing response during oral challenges in patients with NSAID hypersensitivity

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Background: Adverse reactions to nonsteroidal anti-inflammatory drugs (NSAIDs) are frequently reported in the general population, with a prevalence of 1.5% to 3.5%. Aspirin challenge has been established as the most reliable method to confirm the diagnosis of NSAIDs hypersensitivity. However, different protocols reaching diverse maximum doses are used in clinical practice. Therefore, we sought to evaluate the threshold acetylsalicylic acid (ASA) dosage at which patients reacted during oral drug provocation test (DPT).

Method: We conducted a descriptive study of patients over 16 years old who had an adverse reaction during ASA DPT. Individuals with NSAID exacerbated respiratory disease and cutaneous exacerbated disease were excluded. After obtaining the written informed consent, patients underwent oral aspirin challenges, starting with 25 and 75 mg (day 1), 125 and 250 mg (day 2), and 500 and 500 mg (day 3) at 1.5 h intervals on non-consecutive days. The doses and clinical features of adverse reactions during DPT were analyzed.

Results: A total of 23 patients (mean age 39 years; 65% male) were included in the study. Twenty-one patients were classified as cross-intolerance NSAID hypersensitivity and 2 patients were diagnosed as single NSAID–induced reactions. Eight out of 23 (35%) patients reacted to a provoking dose lower than 375 mg, 11 (48%) patients reacted to doses from 375 to 500 mg, and 4 (17%) patients to doses over 500 mg. Eighteen (78%) patients experienced urticaria/angioedema during oral challenge, 3 (13%) had rhinoconjunctival /respiratory symptoms, and 2 (9%) presented anaphylaxis.

Conclusion: About two-thirds of the patients reacted to doses over 375 mg during oral aspirin challenges; with 2 of the 23 patients having anaphylactic symptoms.

Conflicts of interest: The authors did not specify any links of interest.

000356 | Basophil histamine release test for the diagnosis of cefaclor allergy

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Background: Cefaclor is a common cause of IgE-mediated allergic reaction. The diagnosis of cefaclor allergy is mainly based on skin prick and intradermal test (skin test) and/or specific IgE antibodies to cefaclor (sIgE). However, a subset of patients with cefaclor allergy show negative response both to skin test and to sIgE test. In this case, the diagnosis can be confirmed by oral provocation test (OPT), but it is very risky. This study was performed to evaluate the clinical

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value of basophil histamine release test (HR) in the diagnosis of cefaclor allergy.

Method: Patients with cefaclor allergy who were confirmed by OPT or by unquestionable clinical features were enrolled. Skin test, sIgE, and HR were conducted for all patients. For HR, isolated peripheral blood basophils were stimulated with cefaclor, and released histamine was determined by liquid chromatography-tandem mass spectrometry.

Results: A total of 28 patients with cefaclor allergy were enrolled. Among them, 8 (28.6%) showed positive response to skin test, 20 (71.4%) to sIgE, and 6 (21.4%) to HR. One patient reacted positively only to HR, but not to skin test and to sIgE. Cefaclor allergy was diagnosed in 20 of 28 (71.4%) based on the results of both skin test and sIgE, but the positive rate was increased to 78.6% by adding HR to these tests.

Conclusion: This study suggests that sIgE test is the most useful method for diagnosing cefaclor allergy, and that addition of HR to sIgE and skin test has only limited value in the diagnosis of cefaclor allergy.

Conflicts of interest: The authors did not specify any links of interest.

000562 | Allergy to azithromycin with positive specific IgE and tolerance to other macrolides

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Background: Azithromycin is an antibiotic drug belonging to the macrolide family, antimicrobial agents that can be used to treat a variety of infections. Macrolides are, in general, well-tolerated drugs, but in recent years the number of allergic reactions has increased as a result of their increased use. In the diagnosis of allergic reactions to macrolide antibiotics, reliability of skin tests is very low. The determination of specific IgE in vitro, in published cases, has usually been negative. Therefore, controlled exposure test stands out as the gold standard test in azithromycin allergy diagnosis.

Method: A 36-year-old female had been prescribed azithromycin 500 mg/24 h for respiratory infection, and 60 minutes following the first dose, she developed itching in back and chest and, progressively, local rash. She did not develop angioedema, dyspnea, stomach pain or other systemic symptoms. She continued the treatment for one day more and the rash got worse. On the second day of treatment, she went to emergencies and was treated with antihistamines and intramuscular corticosteroids, improving completely in 2 days with oral antihistamines. Specific IgE, skin prick test and single blind placebo controlled oral challenge with azithromycin, erythromycin and clarithromycin were performed.

Results: Skin prick tests (10 mg/ml) and intradermal skin test (0.01 mg/ml) with azithromycin were negative. Azithromycin-specific IgE: 0.436 KUA/L. The oral challenge with azithromycin was positive, 45 minutes after the second dose; she developed generalized urticarial. The total accumulative dose was 250 mg. Specific IgE, Skin prick test, intradermal skin test and oral challenge with erythromycin and clarithromycin were negative.

Conclusion: We describe a patient with allergy to azithromycin, acute urticaria following oral challenge test, with positive azithromycin-specific IgE test; negative intradermal skin and skin prick tests; and good tolerance to erythromycin and clarithromycin, discarding cross reactivity between said macrolides. Skin tests with azithromycin were not useful in our patient. Azithromycin-specific IgE can be a useful tool for the diagnosis of mediated IgE hypersensitivity in immediate allergic reactions to azithromycin despite negative skin tests, thus avoiding the risk of oral tolerance tests.

JM case reports session: 18244.

Conflicts of interest: The authors did not specify any links of interest.

000967 | Rapid desensitization to intravenous immunoglobulins

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Background: Intravenous immunoglobulins (IVIGs) have been extensively used as a replacement therapy in primary and selected secondary immunodeficiency diseases. IVIGs are an effective therapy for neurological diseases including Guillain-Barré syndrome and chronic inflammatory demyelinating polyradiculoneuropathy.

There are scarce reports of desensitizations performed on patients with hypersensitivity reactions to IVIGs.

Method: Throughout a period of 6 years, 4 patients were referred for an immediate adverse reaction to IVIG to the Department of Allergy at Hospital 12 de Octubre. Prior to the allergy workup, written informed consent were obtained. The evaluation included clinical history, skin testing and the desensitization procedure. Skin tests included undiluted skin prick tests (SPTs) and intradermal tests (IDTs) at 1/1 and 1/10 dilutions with immunoglobulins. The desensitization procedure consisted of a 3-solution 12-step protocol with Plangamma®, Flebogamma® or Privigen®, administered at fixed intervals every 15 minutes until the target dose was reached.

Results: The initial adverse reactions reported were cutaneous symptoms (urticaria and erythema) in all patients, and hypotension in 1 patient. All SPTs performed were negative. Undiluted IDTs yielded a positive result with Plangamma® (50 mg/ml) in 1, and Flebogamma® (50 mg/ml) in 1 out of 4 patients. Desensitizations were performed in Patient #1 and Patient #2 to Plangamma®; in Patient #3 to Flebogamma®; and in Patient #4 to Privigen®. Patient #4 switched to Flebogamma® (after two administrations) due to the lack of supply of Privigen® (after performing negative SPT and IDTs). All desensitizations were tolerated and a total of 48 rapid desensitizations were successfully administered.

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Conclusion: A rapid desensitization procedure to IVIG has shown to be safe and effective in patients with a hypersensitivity reaction to immunoglobulins.

Conflicts of interest: The authors did not specify any links of interest.

001345 | Allergy due to sugammadex

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Clinical case: We report the case of a 39-year-old woman with no previous medical background who went through an interventional knee surgery with general anesthesia. Anesthetic induction and maintenance of anesthesia were performed without incident with propofol, midazolam, fentanyl, dexamethasone and rocuronium. After the procedure, within 30 min after the administration of sugammadex, a generalized urticarial rash with small and erythematous wheals was presented in the postanesthesia recovery unit. The clinical picture was treated with intravenous antihistamines and corticosteroids. In addition, a serum tryptase level was obtained during the episode (7.8 µg/L) and, within 24 h, a baseline tryptase serum (6.6 µg/L) was also obtained.

Few weeks later, the patient was attended in our department where tests were carried out with the different drugs administered during the procedure (propofol, midazolam, fentanyl, dexamethasone, rocuronium and sugammadex).

Material and methods: We performed skin test with the drugs involved.

Results:

- Intradermal test with sugammadex (0.1 mg/ml): positive (wheal 10 × 10 mm; erythema 50 × 50 mm). Controls were carried out on healthy people with negative results
- Intradermal test with rocuronium (0.01 mg/ml): negative
- Intradermal test with fentanyl (0.005 mg/ml): negative
- Intradermal test with propofol (1 mg/ml): negative
- Intradermal test with midazolam (0.1 mg/ml): negative
- Intradermal test with dexamethasone (0.4 mg/ml): negative
- Prick test with latex: negative

Conclusions: Intraoperative anaphylaxis is the most common cause of complications under anesthesia, unrelated to surgery, anesthetic treatment or prior comorbidities. Most cases of peri-and intraoperative anaphylaxis are more often reported with neuromuscular blocking agents, followed by latex and antibiotics. However, an increase has been observed in the number of reported cases of other agents as sugammadex hypersensitivity over the last few years.

We present a case of hypersensitivity suggestive of an IgE-mediated mechanism to sugammadex.

This synthetic dextrin derivative is used for selective binding to reserve the action of thesteroid neuromuscular blocking agent molecule (rocuronium or vecuronium). Therefore, we would like to emphasise the importance to study any drug implicated inperioperative anaphylaxis.

JM case reports session: 18243.

Conflict of interest: The authors did not specify any links of interest.

000246 | A shortening strategy for uneventful desensitization in cancer chemotherapy

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Background: The hypersensitivity reaction occurs in 3-30% of patients with cancer chemotherapy such as cisplatin, carboplatin, oxaliplatin, docetaxel, and paclitaxel. The first thing to do in patients experiencing a hypersensitivity reaction is to stop the causative drug and use an alternative. However, desensitization is often considered first in cancer chemotherapy, which is essential for the survival of the affected patients due to ineffectiveness and toxicity of the next line chemotherapy. Despite its benefit, desensitization has a major limitation in being used widely, given that it takes a long time to perform and requires a lot of labor. To improve the limitation of desensitization, desensitization steps were shortened if breakthrough reaction (BTR) did not occur twice in a row. The outcomes of the desensitization shortening and conventional desensitization, and analyzed risk factors inhibiting shortening of desensitization.

Method: A retrospective cohort study was performed on 319 cases of 63 patients with positive skin test among 1300 cases of 290 patients of platin-based chemotherapy for 4 years from Jan.1, 2018 to Dec. 31, 2022.

Results: We compared 159 cases of 29 patients who underwent shortening of desensitization and 159 cases of 34 patients of conventional desensitization without shortening. The incidence of BTR in the shortening group was 6.9 % (anaphylaxis 2 cases, angioedema 1 case, urticaria 2 cases), whereas that conventional desensitization 55.3% (anaphylaxis 10 cases, angioedema 5 case, urticaria11 cases). Successful shortening resulted in an average of 27.2% shorter desensitization time than conventional one.

Conclusion: Shortening of desensitization protocol is safe and beneficial by reducing the burden of nursing care.

Figure 1. An example of desensitization shortening. Increased infusion rate according to the shortening of desensitization steps.

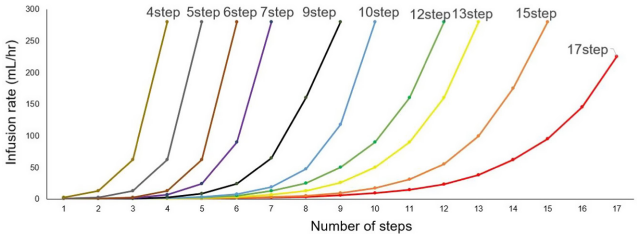

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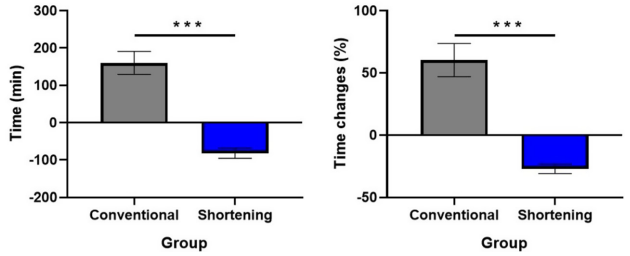
Figure 2. The effect of reducing time on initial desensitization time



Conflict of interest: The authors did not specify any links of interest.

000060 | Dress syndrome induced by secukinumab in a patient allergic to adalimumab

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Background: Drug Reaction with Eosinophilia and Systemic Symptom (DRESS) syndrome is a rare, complex, potentially life-threatening drug-induced hypersensitivity that is considered a severe cutaneous adverse reaction (SCAR) to drugs. It is characterised by skin eruption, hematologic abnormalities, lymphadenopathy, and internal organ involvement. Drug exposure is clearly related in approximately 80%, many drugs have been described as causing this syndrome, but there are no reports of IL-17 inhibitors as secukinumab.

Case report: A 30-year old white man with a history of axial spondyloartritis and HIV infection. He received treatment with etanercept and methotrexate without archiving adequate control of the disease. In 2019, he started treatment with 40mg of subcutaneous adalimumab and prednisolone. After 3 years of treatment, after adalimumab administration he developed an itchy and intense erythematous exanthema characterized by hives over the trunk, back and arms without mucosal involvement, pustules nor blisters. There were no other symptoms like fever, angioedema, swallowing throat, abdominal or respiratory symptoms. Skin lesions lasted less than 24 h with no residual hyperpigmentation or desquamation. He presented at the emergency department where he received oral prednisone and antihistamines for 5 days and skin lesions resolved in 5–7 days. The initial differential diagnosed included viral rash or drug induced toxicordermia confirmed by skin biopsy. Adalimumab was discontinued. Allergologic workout confirmed immediate hypersensitivity reaction with positive intradermal skin test to adalimumab at 5mg/ml. An alternative treatment with secukinumab (mAb against IL-17) was prescribed at December of 2021; he received a weekly dose during a 4 weeks period. After 7 days of the last dose, he developed high spiking fever (38.5°C), extensive skin rash, lymphadenopathy, eosinophilia, in association with polyarthralgias, pulmonary involvement (acute interstitial pneumonitis) and reactivation of human herpesvirus. He was admitted to hospital for multidisciplinary management.

Results The patient was evaluated by the allergy department during hospitalization. Secukinumab was discontinued owing to the suspicion of a SCAR applying the Spanish Pharmacovigilance System Algorithm. The symptoms resolved in 10 days with anti-histamines, emollients and intravenous corticosteroids.

Conclusion: We present the first report of DRESS induced by secukinumab in a rheumatologic patient previously allergic to adalimumab.

JM case reports session: 18243.

Conflict of interest: The authors did not specify any links of interest.

000206 | Risk factors associated with hypersensitivity reactions during penicillin desensitization in pregnant women with syphilis

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Background: The increase in the prevalence of syphilis in pregnancy has increased the demand for Penicillin desensitization in patients with a history of hypersensitivity reaction to beta-lactams, since Benzathine Penicillin is considered the only effective drug in the treatment of congenital syphilis

Method: Objective: To describe the factors associated with hypersensitivity reactions during desensitization with oral penicillin in pregnant women with syphilis treated at an Allergy and Immunology Outpatient Clinic. Methods: Cross-sectional, retrospective study including all pregnant women with syphilis and history of penicillin allergy who underwent penicillin desensitization. Factors associated with reactions during the procedure were described

Results: Nine of 69 desensitized pregnant women who presented an immediate reaction were included, with a mean age of 27 ± 4.41 years, mean of 16.77 weeks of gestational age, with the reaction occurring at 14 ± 7.96 years of age. 7 reactions occurred with benzathine penicillin and 2 with amoxicillin. Only one had a positive intradermal test for penicillin. 3 were asthmatic and one was a former smoker. 3 had anaphylaxis treated with adrenaline and 2 had a biphasic reaction. The other reactions were cough and skin and oropharyngeal pruritus. Of the 60 desensitized patients who did not react, 2 had a positive test, none of whom had asthma. Gestational age and reaction onset time were similar.

Conclusion: Desensitization proved to be safe, but skin test was not sensitive and could not identify a higher risk of reaction. Asthma was an important factor associated with a higher risk but it was not associated with the risk of biphasic reaction.

Conflict of interest: The authors did not specify any links of interest.

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000573 | Allergy to methylphenidate after Covid infection with positive basophil activation test

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Background: Methylphenidate is a psychostimulant drug currently used for treating attention deficit hyperactivity disorder, narcolepsy, and postural orthostatic tachycardia syndrome. It is a drug derived from piperidine that increases the levels of dopamine and norepinephrine in the brain. Even though it is generally well tolerated, it can cause numerous side effects, the most frequent being decreased appetite, insomnia, tachycardia, headache and stomach pain, irritability and mood swings, nervousness, weight loss, and tics. Skin or allergic reactions are rare and there are hardly any cases described in the literature. Viral infections, especially if severe, facilitate the expression of allergies.

Method: A 20-year-old male treated with methylphenidate 54 mg, 1 tablet a day, since 2018 with a diagnosis of attention deficit hyperactivity disorder. In October 2022, he presented a Covid infection with fever, muscle aches, hoarseness, cough with phlegm, and dyspnea with 91% oxygen saturation. He went to the emergency room and was diagnosed with bilateral pneumonia, for which he required hospital admission for 5 days. Three days after hospital discharge and 90 min after taking 54 mg methylphenidate, she presented itchy whey rash on the face and arms; no edema or other associated symptoms. He completely improved in 6–8 h after taking 1 tablet of loratadine 10 mg. The following 2 days the same thing happened after 40–60 min of taking methylphenidate 54 mg. He stopped methylphenidate intake and the previous episodes did not happen again. Basophil activation test, skin prick test and single blind placebo controlled oral challenge with methylphenidate were performed.

Results: Skin prick test using methylphenidate dissolved in saline was negative. Basophil activation test to methylphenidate was 35% (negative <30%). The oral challenge with methylphenidate was positive as 45 min after the last dos, he developed generalized urticarial. The total accumulative dose was 54mg.

Conclusion: We describe a patient, after Covid infection, with allergy to methylphenidate, acute urticaria following oral challenge test, with positive basophil activation test to methylphenidate; negative skin prick tests. Skin test with methylphenidate was not useful in our patient. Basophil activation test to methylphenidate can be a useful tool for the diagnosis of mediated IgE hypersensitivity in immediate allergic reactions to methylphenidate despite negative skin test, thus avoiding the risk of oral tolerance tests.

JM case reports session: 18244.

Conflict of interest: The authors did not specify any links of interest.

000905 | The antibiotics as a cause of perioperative hypersensitivity reaction: Our experience

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*Presenting author: J. J. Laguna Martinez

Background: The diagnosis of perioperative hypersensitivity reactions (POH) is complex. Patient are exposed to numerous agents during the perioperative period (anesthetic drugs, antibiotics, NSAIDs, latex, antiseptics, etc.). Although neuromuscular blocking agents are traditionally described as the most common culprit drugs, antibiotics have been identified as the main culprit drug in some countries.

Method: We analyzed the perioperative hypersensitivity reactions studied in our unit, the Unit of Allergy-Anesthesia of Cruz Roja Hospital Madrid Spain in the last 2 years.

Detailed clinical history evaluation was made by the allergologist and anesthesiologist team. After obtaining patient´s inform consent, we performed allergologic study: skin tests (skin prick and intradermal test), specific IgE were available, and tryptase was determined. Single blind drug provocation test was done, according to the results.

Results: We studied 39 perioperative hypersensitivity reactions over the last 2 years. In 13 cases (33.3%) the cause was the antibiotic administered as prophylaxis. Ten of them (76.9%) were cefazolin, the remaining cases involved were: one clavulanic acid, one gentamicin, and one ciprofloxacin.

The diagnosis was made with a skin test in 8 cases (61.5%), all of them beta-lactams. A challenge test was needed for the remaining 5 cases.

In all the cases the skin prick tests with latex were negative, specific IgE latex <0.35 ku/L, and the handling test with latex gloves were negative.

Conclusion: Antibiotics were the most common cause of POH in our hospital. ß-Lactams, particularly cefazolin, were the most frequent culprit drug, as previously described in other Spanish series. We also found other antibiotics not frequently described in the perioperative setting.

Conflict of interest: The authors did not specify any links of interest.

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000414 | Nonimmediate hypersensitivity reaction to innovational drugs: Elexacaftor/tezacaftor/ivacaftor desensitization

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*Presenting author: M. Bragança

Cystic fibrosis (CF) is a multisystemic disease caused by mutations in the CF transmembrane conductance regulator (CFTR) protein. The elexacaftor (ELX)/tezacaftor (TEZ)/ivacaftor (IVA) association directly targets defective CFTR and is an innovative CF therapy, improving lung function, decreasing pulmonary exacerbations, and reducing sweat chloride levels. Non-immediate hypersensitivity reactions (NIHR) to ELX/TEZ/IVA have been described and desensitization protocols have been successfully applied.

We report a case of a 49-year-old woman with CF (Phe508del and IVS85T/7T), chronic spontaneous urticaria and contact dermatitis, referred to our Allergy Department due to an exanthema during ELX/TEZ/IVA treatment. She was under oral contraceptive, that was suspended prior to starting ELX/TEZ/IVA treatment. She had been on ELX/TEZ/IVA for 11 days, already showing symptomatic improvement for CF, when she developed a pruritic exanthema limited to the malar, retroauricular and nape areas, showing cephalocaudal progression during the following day despite self-medication with bilastine. In the next day, she had an erythematous micropapular exanthema, with no wheals, blisters, scaling or skin detachment, involving the aforementioned cervicofacial areas, and the trunk and limbs, resembling a typical delayed-type maculopapular exanthema. She denied other symptoms, and the remaining physical examination and blood workup were unremarkable. The ongoing ELX/TEZ/IVA was suspended, and topical betamethasone 0,5 mg was added to oral bilastine 20 mg. A skin biopsy was performed, and the histopathology showed a mononuclear superficial perivascular infiltrate. Resolution of the exanthema occurred within 10 days. Patch tests with IVA and ELX/TEZ/IVA (both at 30% in petrolatum) were performed in the interscapular area 1 week after resolution of the exanthema and were negative.

An 8-week-long desensitization protocol (Table 1) was initiated following a wash-out period of 11 weeks, without preventive allergic medication. The patient reported a self-limited facial erythema on the first day and generalized pruritus during the first 3 days, that subsided with oral antihistamine. Still, the desensitization protocol was completed with no further reactions.

ELX/TEZ/IVA is a highly effective CFTR modulator combination therapy that may cause NIHR, which may be managed through tailor-made desensitization protocols.

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Table 1 - Oral desensitization protocol to elexacaftor/tezacaftor/ivacaftor (ELX/TEZ/IVA). ELX/TEZ/IVA consists of 2 tablet formulations - ELX/TEZ/IVA 100/50/75 mg and IVA 150 mg. Goal dosing is 2 ELX/TEZ/IVA tablets in the morning and 1 IVA 150-mg tablet in the evening.

Week	ELX/TEZ/IVA, morning	Ivacaftor, evening
1	25/12.5/18.75 mg	37.5 mg
2	50/25/37.5 mg	75 mg
3	75/37.5/56.25 mg	112.5 mg
4	100/50/75 mg	150 mg
5	125/62.5/93.75 mg	150 mg
6	150/75/112.5 mg	150 mg
7	175/87.5/131.25 mg	150 mg
8	200/100/150 mg	150 mg

Conflict of interest: The authors did not specify any links of interest.

000362 | Hypersensitivity to erythritol in a 7-year-old boy

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Introduction: Erythritol is a 4-carbon sugar alcohol, which sweetness is equal to 70% of the sucrose sweetness and has a minimum caloric content (0.2 kcal / g). In the European Union, it was approved for use as a safe food additive in 2003 by EFSA (European Food Safety Authority). Hypersensitivity reactions to erythritol are rare, with an incidence of less than 1:1,000,000. In recent years, the widespread use of erythritol has increased significantly, which may increase hypersensitivity reaction frequency.

Objective: To discuss the clinical view and diagnostic process of hypersensitivity to erythritol in a 7-year-old boy.

Case report: A 7-year-old boy was admitted to the Department of Paediatrics, Allergology, and Gastroenterology CM NCU in Bydgoszcz after an anaphylactic reaction caused by the consumption of homemade cake. The child remained under allergological care due to atopic dermatitis, without accompanying allergies to food and airborne allergens. In June 2021 within minutes of eating homemade cake, the boy developed generalized urticaria, vomiting, weakness, and shortness of breath. The symptoms were self-limiting. In October 2021 urticaria appeared on the face and trunk 30 min after eating a homemade cake containing maltitol (an erythritol derivative). Rupatadine was used in the treatment, resulting in the disapear of skin lesions. After analyzing the composition of the cake consumed by the patient a hypersensitivity reaction to erythritol and maltitol was suspected. Skin prick tests and intradermal tests with erythritol were performed with negative results. An oral challenge with erythritol in increasing doses of 250 mg, 500 mg, and 1000 mg every 30 min was performed. A few minutes after administration of the third dose generalized urticaria and cough were observed. The symptoms disappear after the administration of rupatadine and hydrocortisone. The test was considered positive. It was recommended to eliminate sweeteners from the diet.

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Conclusions: When looking for the causative agents of anaphylactic reactions to food, one should remember food additives, including the commonly used erythritol. This is of particular importance in the developmental age population, as erythritol is sometimes used as a sweetener in syrups.

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Conflict of interest: The authors did not specify any links of interest.

000113 | Adverse drug reactions in a regional hospital in Jeju, Korea

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Background: Adverse drug reactions (ADRs) closely result in increased morbidity and mortality, prolonged hospitalization and higher cost of care. The purpose of this study is to estimate the incidence, clinical features, and actual reporting status of ADRs, for improving current ADR reporting system and preventing recurrent ADRs in a hospital.

Method: In a regional referral hospital, a retrospective study was performed. Patients who diagnosed as ADRs from 2009 for 5 years were recruited. The diagnosis of ADR was defined as either of ADR related diagnosis in a patient's medical record or ADRs registered through in-hospital ADR reporting system. The incidence, culprit drug, clinical manifestation, source of reporting, severity, related management and recurrence rate were assessed.

Results: In 1112 patients, 1375 ADR events were collected, estimated as 0.06% of total patient-visits. Diagnostic contrast agents (46.4%) were most common as culprit drugs, followed by antibiotics (22.0%), non-steroidal anti-inflammatory drugs (9.9%), and opioids (4.5%). Skin reactions (67.5%) such as rash and hives were the most frequent manifestations. Additional medical attentions related to ADRs were necessary in two thirds of cases. One hundred and eighty events (13.1%) were categorized in severe ADRs and 19 patients (1.4%) experienced re-exposure to the culprit drugs. Four (0.3%) were fatal related to ADRs. Physicians were the most frequent ADR reporter using in-hospital ADR reporting system.

Conclusion: A large proportion of ADRs events might be ignored and the re-exposure events to the culprit drug are not rare. Continuous educations and systems for reporting ADRs and preventing recurrent ADRs may be necessary.

Conflict of interest: The authors did not specify any links of interest.

000360 | Hypersensitivity reactions to antibiotics in Polish children

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Introduction: It is estimated that 3–17% of parents report that their child had an adverse reaction after the administration of at least one drug. However, the frequency of clinically confirmed drug allergies is below 4%. In the pediatric population, hypersensitivity is most often observed after beta-lactam antibiotics and non-steroidal anti-inflammatory drugs administration. The key method of proceeding is to exclude these drugs from use during the treatment process. This often results in the necessity of choosing alternative therapeutic methods, increased treatment costs, and in the case of antibiotics may increase risk of developing multidrug-resistant strains.

Objective: To discuss a clinical view and diagnostic process of hypersensitivity to antibiotics in a group of Polish children living in the Kuyavian-Pomeranian Voivodeship.

Case report: The analysis included 12 children aged 2-17 y.o. hospitalized at the Department of Paediatrics, Allergology and Gastroenterology CM in Bydgoszcz NCU in Toruń between 2017-2022 because of probable hypersensitivity reaction to antibiotics. Four patients (33.3%) reported symptom presence after treatment with more than one antibiotic. A total of 22 potential hypersensitivity reactions were found among the examined children. Drug-induced symptoms were most often associated with the use of beta-lactams, especially amoxicillin (54.5% of cases). In the medical history isolated skin symptoms (urticaria, papular rash, angioedema) were the most often reported. We found three cases of anaphylaxis (13.6%) and one case of Stevens-Johnson Syndrome (4.5%) in the analyzed group of patients. Extensive diagnosis of hypersensitivity to antibiotics was performed in the examined children, including determination of asIgE against antibiotics, skin prick tests, intradermal tests, atopic patch tests with solutions of antibiotics, and drug provocation tests. Hypersensitivity to antibiotics was finally confirmed in 4 (33.3%) children - two children were allergic to cefuroxime, one child to amoxicillin, and one child to trimethoprim with sulfamethoxazole.

Conclusions: Most of the clinical adverse reactions associated with the administration of antibiotics in children are random and do not result from an allergic reaction. Therefore, it is crucial to conduct reliable diagnostics, including drug provocations, to verify the need to avoid the administration of selected antibiotics in the future.

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Conflict of interest: The authors did not specify any links of interest.

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000392 | Can lypoglycopeptides be an alternative to glycopeptides antibiotics in delayed hypersensitivity reactions? A case report

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Background: Vancomycin is a glycopeptide antibiotic used to treat gram-positive infections. It is recommended as a first-line agent for treating infections caused by *methicillin-resistant Staphylococcus aureus*. The newer lipoglycopeptides dalbavancin, telavancin, and oritavancin have a central glycopeptide core with additional structural modifications that add lipophilic side chains. These changes confer improved bactericidal activity, broader spectrum, and extended half-life.

Non-immediate reactions to glycopeptides have been rarely described, and cross-reactivity with other glyco- and lipoglycopeptides is unknown.

Method: A 17-year-old adolescent hospitalized for brain access received treatment with metronidazole and cefazolin, which were changed after 2 days to ceftriaxone and vancomycin. He received both antibiotics for 14 days. At the end of treatment, he developed a non-pruritic maculopapular exanthema on the neck, face, thorax, and upper limbs. The hemogram displayed 1400 eosinophils/microliter. Ceftriaxone and vancomycin were withdrawn, and the patient was treated with systemic corticosteroids. Lesions disappeared within 15 days with mild cutaneous desquamation on the face and back.

We performed an allergy evaluation 8 weeks after recovery. Skin prick tests (SPT) with immediate readings and intradermal tests (IDT) with immediate and delayed readings were performed with a standard battery of beta-lactams plus ceftriaxone. In addition, we implemented SPTs and IDTs with glyco- and lypoglycopeptides at the following concentrations: vancomycin (0.05-0.005 mg/ml), teicoplanin (100-1 mg/ml), and dalbavancin (100-1 mg/mL). When negative, single-blind placebo-controlled challenge tests (DPT) were performed.

Results: Skin tests with all antibiotics were negative. The patient tolerated ceftriaxone. A DPT with vancomycin (500 mg IV) caused erythema in the hands and facial edema 24 h later, needing treatment with topical and oral corticosteroids for 1 week. A DPT with teicoplanin (400 mg IV) was also positive, showing erythema in both antecubital flexures that spontaneously resolved. The patient tolerated a DPT with dalbavancin 500 mg IV.

Conclusion: We present a non-immediate hypersensitivity reaction to vancomycin with cross-reactivity to teicoplanin (glycopeptide) and tolerance to dalbavancin (lipoglycopeptide). All this could be due a.o. to structural differences between lipoglycopeptides and classical glycopeptides. Hence, lipoglycopeptides might be an alternative in delayed reactions to glycopeptides, although further cross-reactivity studies are needed.

Conflict of interest: The authors did not specify any links of interest.

000426 | Successful one-bag desensitization protocol to rituximab in systemic mastocytosis associated to waldestrom macroglobulinemia: A case report

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Background: Hypersensitivity reactions to biological agents are common, and usually not IgE-mediated. Desensitization protocols have allowed their safe administration.

Method: A 75-yr-old woman with no relevant previous medical history, showed in 2021 a mild anemia (10 g/dl hemoglobin) in a routine test. A serum IgG monoclonal component (2780 mg/dl) was observed, with free kappa and lambda light chains of 326.9 mg/dl and 72.8 mg/dl, respectively. An imaging study showed retroperitoneal adenopathies.

Bone marrow biopsy revealed a lymphoplasmacytic lymphoma (Waldestron macroglobulinemia). Rituximab and bendamustine were recommended. Despite standard premedication, 90 min after the 1st rituximab administration, she developed an itchy trunk rash and chest tightness with oxygen desaturation (91%). Rituximab dosis could be completed after symptomatic treatment, although at a slower infusion rate.

A second rituximab infusion was performed 1 month later, showing a similar adverse reaction, but adding low blood pressure (70/40). Meanwhile, bendamustine was well tolerated in all cycles. An allergy study was requested.

Results: Skin-tests with rituximab (prick-test at 10 mg/ml and intradermal-test at 1 mg/ml) were negative. Serum basal tryptase was 32.5 µg/L. Bone marrow biopsy was reviewed, showing an increased number of spindle-shaped mast cells with hypogranulated cytoplasm, and a kit-mutation at molecular study, consistent with a diagnosis of systemic mastocytosis.

A 12-step one-bag desensitization protocol with rituximab was performed, starting with a 0.15 ml/hr infusion rate. Premedication with montelukast, acetylsalylic acid, acetaminophen, hydrocortisone, and dexchlorpheniramine was used. In this way, rituximab was well tolerated.

Lymphoma remission was achieved after 3 additional cycles of antineoplastic treatment, using this desensitization protocol. Nevertheless, serum tryptase levels were still high (21.4 µg/L)

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Conclusion: We present a patient with Waldestrom macroglobulinemia associated with a systemic mastocytosis.

A one-bag desensitization protocol with rituximab was effective in this patient.

In our opinion, mast cell disorders should be ruled out in patients with lymphoproliferative syndromes who present hypersensitivity reactions to drugs.

Conflict of interest: The authors did not specify any links of interest.

000506 | Fixed drug exanthem due to cotrimoxazole

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Background: Fixed Drug Exanthem (FDE) is a delayed toxicoderma with cutaneous-mucosal involvement mediated by T-CD8+ lymphocytes. Characteristically, the lesions usually appear in the same location after further administrations of a given triggering agent. They may be single or multiple and persist up to 2–3 weeks after withdrawal of the drug.

We describe the clinical case of a patient with a diagnosis of fixed drug exanthem after taking Cotrimoxazole.

Method: A 52-year-old male with a history of neurogenic bladder with repeated urinary tract infections.

He was referred to our office for presenting several episodes of multiple episodes of multiple erythematous, slightly pruritic erythematous edematous plaques on the wrist, arm and back without presenting mucosal lesions.

During anamnesis directed by drug exposure, she reported having completed several courses of antibiotics with Ciprofloxacin and later with Cotrimoxazole. After the last tablet of Cotrimoxazole, after 24 h he started with the described symptoms.

Previously, the patient reported that he had presented on two different occasions, lesions of similar characteristics in the same locations with residual macula and subsequent hyperpigmentation that disappeared in 1 month without treatment.

Since then he has avoided Ciprofloxacin and Cotrimoxazole. She has subsequently tolerated Amoxicillin Clavulanic acid without incident.

Results: Given the patient's history and the need for antibiotic treatment, an allergological study with Ciprofloxacin and Cotrimoxazole was performed. The skin tests with Ciprofloxacin: prick test at 1 mg/ml and intradermal reaction at 2 mg/ml in addition to the controlled oral exposure test were negative.

At 3 weeks, it was decided to perform skin tests with prick test with Cotrimoxazole at 80 mg/ml and intradermal reaction at 1/100 being the result immediately negative so controlled oral exposure test was performed, presenting at 10 h after the last dose erythematous pruritic plaques in the same locations previously described.

Conclusion: FDE by Cotrimoxazole was confirmed, indicating to the patient the avoidance of sulfonamides as appropriate.

The etiological diagnosis of FDE is mainly clinical or by biopsy, however, controlled exposure tests can help to confirm the diagnosis.

Conflict of interest: The authors did not specify any links of interest.

000734 | Bradykinergic angioedema due to ACEI resistant to acute treatment. A case report and review of the literature

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Background: Bradykinergic AE is frequently caused by angiotensin-converting-enzyme-inhibitors (ACEI), which causes increased plasma BK levels. Acute treatment includes icatibant acetate, or a C1-inhibitor analogue as a second option if the former is not available. We present the case of a patient with a history of bradykinergic angioedema due to ACEI who, due to the lack of this information in the electronic medical record, was administered enalapril in the postoperative period due to a hypertensive peak, presenting rapidly progressive lingual angioedema that required intubation for 72 h due to lack of clinical improvement.

Method: This is a 74-year-old man with a known history of hypertension, diabetes mellitus, atrial fibrillation, and infrarenal abdominal aortic aneurysm. He was admitted for scheduled endovascular aneurysm repair surgery, without incident. After surgery, the patient presented a hypertensive peak in which enalapril was administrated. Subsequently, he presented lingual angioedema so IV corticosteroid therapy was administered, with no subsequent improvement. AE-ACEI was suspected and icatibant was administered, with no response, requiring orotracheal intubation to ensure airway protection. He received two units of fresh frozen plasma (FFP) and a second dose of icatibant without efficacy. Another two units of PFC and tranexamic acid (TA) were administered with subsequent slight improvement, but persistence of angioedema. A second dose of TA was required, after which significant improvement was observed, so 72 h later, the patient could be extubated.

Results: Acute treatment includes icatibant acetate, or a C1-inhibitor analogue as a second option if the former is not available. The use of other drugs such as FFP or TA is anecdotal and is reserved for situations where the first therapeutic options are not available or have not been effective. Our patient required alternative treatment with FFP and TA up to two times until resolution of the symptoms. As relevant data in this case, a telephone call was made to the family which highlighted a personal episode of the patient with AE-ACEI 18 years ago that was not described in the electronic record, so the incident could not be foreseen.

Conclusion: We present a case of rapid worsening of ACEI-induced-angioedema causing airway obstruction who did not respond to the available treatments to date; enforcing the reality that more

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research in new and effective treatments for acute and severe cases is needed. As an alternative, the reminder of how rapidly ACEI-induced-angioedema progresses should alert medical staff not to hesitate in protecting the airways.

Conflict of interest: The authors did not specify any links of interest.

000756 | A successful desensitization protocol for horse-derived anti-thymocyte globulin in paediatric age

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Anti-thymocyte globulin (ATG) is the 1st choice of treatment for patients with aplastic anemia who do not have HLA matched donor. Hypersensitivity reactions to ATG are rare and generally described as IgE-mediated. Drug desensitization is the only alternative that allows maintaining ATG after severe hypersensitivity reactions.

The authors present a case of a 5-year-old boy, diagnosed with idiopathic aplastic anemia in May 2021. Due to the lack of blood marrow HLA matched donor, in June 2022, he started a 5-day immunosuppression protocol with rabbit-derived ATG, cyclosporine and corticosteroids. On the 3rd day of infusion, approximately 2 h after starting ATG, he presented with generalized urticaria, face and lips angioedema, hypotension and lipothymia. The infusion was stopped and i.m epinephrine, hydrocortisone and clemastine were administered, with total recovery. Immunoallergology evaluation was requested given the need to reintroduce ATG, due to the lack of alternatives. Specific IgE to rabbit epithelia/meat were negative. Skin tests were not performed because he was on daily antihistamines. The patient was then desensitized to horse-derived ATG with a 10-step protocol (adapted 12-step protocol from Mariana Castells) for a cumulative dose of 850mg (40mg/Kg), with premedication with clemastine and montelukast. One hour into the last step, at an approximate cumulative dose of 48mg, painful right plantar angioedema was observed. Clemastine was administered without suspending the infusion, symptom with resolution in 30 min. He started oral desloratadine every 12 h in a quadruple dose. After an approximate cumulative dose of 814mg of ATG, he presented lip angioedema and administration of desloratadine was anticipated without suspending the infusion, with complete resolution during the following hour. A continuous infusion of 850 mg/day of ATG was successfully maintained at a rate of 36cc/hour for 4 days in order to complete the planned treatment, with no further reactions.

This case demonstrates the safety and efficacy of this desensitization protocol in paediatric patients, allowing the completion of the ATG cycle, at the recommended doses.

JM case reports session: 18244.

Conflict of interest: The authors did not specify any links of interest.

EPIDEMIOLOGY 2

001093 | Trends in pediatric referrals to an allergy department: Shift in a decade (trade study)

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Background: The incidence and prevalence of allergies among children has become an increasing problem in the last few decades and health care systems should accompany this trend. We aimed to characterize the referral of pediatric patients to an Allergy and Clinical Immunology department of a tertiary hospital a decade apart.

Method: Demographic data, characteristics of referral and the main final diagnosis of patients under 18 years old, referred to our outpatient clinic in 2009 and 2019, were collected in the last trimester of 2019. Statistical analysis was performed using IBM SPSS Statistics 28® and results were considered significant for $p < 0.05$.

Results: A total of 1640 patients were included. There was a 65% increase of referrals, from 619 in 2009 to 1021 in 2019. The mean age (SD) decreased from 10 (5) to 9 (5) years old ($p < 0.001$). Most referrals were from primary health care in both years, 60% in 2009 and 77% in 2019 ($p < 0.001$). No statistical difference regarding sex was found (50% females in 2009 and 47% in 2019, $p = 0.29$).

The most common reasons for referral in 2009 were rhinitis (40%), asthma/recurrent wheezing (27%), drug allergy (6%), urticaria (4%) and food allergy (2%). In 2019, the top 5 reasons were rhinitis (40%), asthma/recurrent wheezing (19%), drug allergy (15%), urticaria (6%) and atopic dermatitis (4%). There was a significant increase of the absolute referrals for asthma, drug allergy and food allergy ($p < 0.001$) in this 10-year interval.

From all referrals related to rhinitis (624), the main diagnosis in 76% was allergic rhinitis, whereas asthma/recurrent wheezing referrals (331) were confirmed in 63% cases. Atopic dermatitis was established in 69% of the 51 referred for this motive, and urticaria was the diagnosis in 47% of the 77 referred for this reason. From 183 referrals for drug allergy, only 25% finished the study (10% confirmed and 15% excluded), whereas in 109 patients referred for food allergy, 57% concluded diagnostic work-up (40% confirmed and 16% excluded).

Conclusion: Allergic diseases are amongst the fastest growing chronic public health issues in developed countries. In our study, we've showed an overall increase of referrals in pediatric ages and a decrease of age, very important to influence the atopic march. Characterization of other subsets of the whole TRADE study sample will be depicted in other presentations.

Conflict of interest: The authors did not specify any links of interest.

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001627 | Significant bronchodilator response in oscillometry and spirometry in relation to asthma and wheeze

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*Presenting author: A. Malinovschi

Background: Impulse oscillometry is a pulmonary function testing technique that requires minimal patient cooperation and is thought to better reflect peripheral airways function than spirometry. We have recently validated cut-offs for significant response to bronchodilator in resistance at 5 Hz (R_5) and reactance at 5 Hz (X_5) (Johansson *et al*. ERJ 2021). We aimed to study the prevalence of significant response to bronchodilation in forced expiratory volume during first exhalation second (FEV_1), R_5 and X_5 in relation to asthma, wheeze, exhaled nitric oxide (FeNO) and blood eosinophils.

Method: A total of 3469 middle-aged participants (age range 50-64 years, 1694 females) from the population-based Swedish CArdioPulmonary bioImage Study (SCAPIS) Uppsala had performed impulse oscillometry and spirometry before and 15 min after administration of 400 micrograms salbutamol.

Results: A total of 263 (7.6%) of the participants had signficant response in FEV_1 (≥12% and ≥200 mL). Similar proportions were found for significant response in R_5 (7.6%) and X_5 (6.8%). A significant response in both FEV_1 and R_5 was found in only 73 individuals. The highest likelihood (odds ratio (OR) (95%CI)) of having asthma and wheeze were found if having both significant response to FEV_1 and R_5: 5.9 (3.5, 9.8) and 9.7 (5.8, 16.2). Odds ratios below 3 for asthma and below 4 for wheeze were found if having only significant response to FEV_1 or R_5. An independent effect of significant response in FEV_1 (OR 2.7 (1.9, 3.8)) and R_5 (OR 1.9 (1.4, 2.8)) could be found for reporting asthma. Similarly, an independent effect of significant response in FEV_1 (OR 3.9 (2.7, 5.6)) and R_5 (OR 2.1 (1.4, 3.2)) could be found for reporting wheeze. Subjects with both significant response in FEV_1 and R_5 had similar levels of FeNO, but higher levels of blood eosinophils than individuals with significant response only in FEV_1 or R_5. A significant response in both FEV_1 and X_5 was found in only 61 individuals. Having both significant response to X_5 and FEV_1 related to odds ratios of 4.5 (2.5, 8.1) for having asthma and 9.1 (5.2, 15.9) for reporting wheeze.

Conclusion: In conclusion, significant bronchodilation response in spirometry and oscillometry differs and only a smaller proportion of individuals show significant response according to both methods. Subjects showing significant response in both FEV_1 and R_5 or both FEV_1 and X_5 had a higher likelihood of having reported asthma and wheeze. Interestingly higher levels of blood eosinophils, but not FeNO, appear to differentiate subjects with significant bronchodilator response both in spirometry and oscillometry from subjects with signficant response in only one of the methods. This needs to be further studied in clinical populations and in relation to optimal treatment.

Conflict of interest: The authors did not specify any links of interest.

000784 | Cat exposure, IgE and IgG4 antibodies to cat allergens, and asthma in a birth cohort; the modified TH2 response revisited

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Background: In Project VIVA, a pre-birth cohort with no eligibility criteria related to allergy or asthma, we sought to better understand the impact of a cat in the house on isotype specific antibodies and the associated risk of asthma.

Method: We performed a cross-sectional analysis on serum from 630 participants at the early adolescent visit (mean age 13 ± 2 years), measuring specific IgE (sIgE) and IgG4 (sIgG4) Ab to cat dander extract (cat) using ImmunoCAP assays. We additionally measured sIgE and sIgG4 Ab to specific cat allergens Fel d 1, and Fel d 4 in 276 participants. Current asthma, (asthma) was defined as a physician diagnosis of asthma and either asthma symptoms or treatment in the last year. A subgroup of the 86 asthma cases was defined as moderate/severe asthma (MSA) ($n = 45$) on the basis of 2 or more episodes of acute asthma in the last year. sIgE values >0.35 kU/L and sIgG4 ≥0.07 µg/mL were considered positive. In order to calculate IgG4:IgE ratios, IgE and IgG4 values were expressed in ng/mL.

Results: Presence of sIgE to cat was strongly associated with asthma; odds ratio (OR) 3.1 (95% CI 1.9-4.9), $p < 0.001$. This ratio was equally strong for sIgE to Fel d 1, which had a stronger relation to MSA; OR 6.1 (95% CI 3.3-11.5), $p < 0.001$. Cat ownership was associated with significantly increased prevalence and titer of sIgG4 antibodies to Fel d 1, but not to Fel d 4. In keeping with this, many of the subjects had both sIgE and sIgG4 to cat dander, and ratios of sIgG4:sIgE ranged from >1000:1 to <1:1. Among the cat owners who had positive sIgG4 and sIgE to cat and a ratio <50:1, 13/27 (48%) had asthma. By contrast, of those with a ratio >50:1, 2/20 (10%) had asthma, $p < 0.01$. Furthermore, of the 13 with asthma and ratio <50:1, 10 (77%) had MSA. Among subjects living in a house with a cat, both the prevalence and titer of sIgE to Fel d 4 were increased but neither the prevalence nor the titer of sIgG4 to this allergen was influenced by cat ownership. In keeping with that, the presence of sIgE to Fel d 4 was strongly associated with asthma.

Conclusion: As with many previous cohorts, cat ownership was not associated with an increased prevalence of asthma. However, cat ownership was a strong risk factor for higher levels of sIgG4 to cat extract and Fel d 1. Low ratios of sIgG4:sIgE for cat, Fel d 1 or Fel d 4 were significantly associated with asthma. Thus the balance between two Th2 related isotypes in the response to cat allergens is an important predictor of the relationship to asthma.

Conflict of interest: The authors did not specify any links of interest.

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001070 | Risk for respiratory allergy depends on earliness and multiplicity of allergic sensitization, involved allergens, and allergen-specific IgE levels

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Background: Relations between natural history of allergic sensitization and development of allergic diseases in childhood need to be clarified. This study aimed to identify patterns of allergic sensitization and of allergic morbidity during the first 8 years of life.
Method: The study was conducted in the on-going population-based prospective *Pollution and Asthma Risk: an Infant Study* (PARIS) birth cohort. Sensitization profiles based on allergen-specific IgE levels measured twice in childhood (at ages 18 months and 8/9 years) and morbidity profiles based on symptoms, symptom severity, treatments, and lifetime doctor-diagnoses of asthma, allergic rhinitis, and atopic dermatitis and on lower respiratory infections before 2 years, were identified by unsupervised clustering.
Results: Five sensitization and 5 allergic morbidity patterns were established in 714 children. Thus, children not sensitized, or with isolated and low allergen-specific sensitization were grouped together (76.8%). Children strongly sensitized (≥3.5 kU_A/L) to house dust mite at 8/9 years (9.0%) had the highest risk of asthma and allergic rhinitis. Children early and persistently sensitized (4.1%) had an increased risk of atopic dermatitis and respiratory allergic diseases.
Conclusion: Allergic disease risk assessment should rely on earliness and multiplicity of sensitization, involved allergens, and allergen-specific IgE levels, and not only on allergen-specific sensitization considered as a dichotomous variable.
Conflict of interest: The authors did not specify any links of interest.

000343 | Risk of autoimmune diseases in people with hidradenitis suppurativa: A population-based cohort study with 10-year follow up

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Background: Autoimmune comorbidities of hidradenitis suppurativa (HS) has been long discussed. However, real-world evidences were insufficient to determine the incidence and hazard ratio of autoimmune diseases in HS patients. Thereby, we conducted a propensity score matched cohort study to evaluate the association.
Method: Data from the TriNetX Research Network (US collaborative network) were retrieved. As a global federated researching platform, electronic medical records including diagnosis, medication, procedures and BMI information were available. From 2013 to 2022, HS participants were enrolled and 1:1 propensity score matching was performed to determine the HS-free control cohort. All participants with previous history of autoimmune diseases and cancer were excluded from further analysis. Matching covariates included age at index date, gender, race and social economic status. The risk of autoimmune diseases was followed-up for 10 years.
Results: The mean age of HS and control cohort was 35.2 years old. In both cohorts, 74.8% of the participants were female. After adjusting for age gender, race and social economic status, comparing with non-HS control cohort, the adjusted hazard ratio (aHR) of alopecia areata in HS patients were 1.546 (95% CI, 1.127-2.121); the hazard ratio of other autoimmune diseases including systemic lupus erythematosus (aHR, 1.572; 95% CI, 1.239-1.995), Sjögren syndrome (aHR, 1.493; 95% CI, 1.081-2.060), rheumatoid arthritis (aHR, 2.097, 95% CI, 1.776-2.477), ankylosing spondylitis (aHR, 3.565; 95% CI, 2.128-5.975), vasculitis (aHR, 2.140; 95% CI, 1.758-2.604), noninfective enteritis and colitis (aHR, 1.365; 95% CI, 1.281-1.455) also showed statistically increase in the 10-year follow-up.
Conclusion: According to the results of this cohort study, in HS patients, risk of developing future autoimmune comorbidities was high and should not be neglected. These autoimmune comorbidities should be recommended for screening while caring HS patients. Future studies are warranted to evaluate the actual interaction between the mechanisms of HS and autoimmune diseases.

Figure 1. Forest plot of autoimmune disease risk in HS patients.

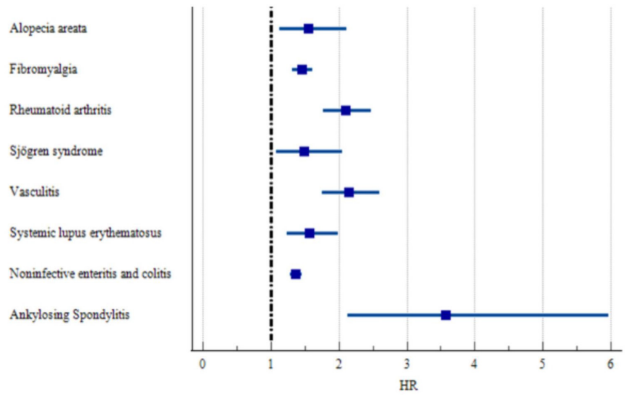

Table 1. Risk of outcomes among hidradenitis suppurativa cohort compared to control cohort*

Outcomes	Adjusted hazard ratio (95% Confidence interval)**
	10-year follow up
Alopecia areata	1.546 (1.127-2.121)
Fibromyalgia	1.450 (1.309-1.606)
Rheumatoid arthritis	2.097 (1.776-2.477)
Sjögren syndrome	1.493 (1.081-2.060)
Vasculitis	2.140 (1.758-2.604)
Systemic lupus erythematosus	1.572 (1.239-1.995)
Noninfective enteritis and colitis	1.365 (1.281-1.455)
Ankylosing Spondylitis	3.565 (2.128-5.975)

HS: hidradenitis suppurativa
*Data present here were the value of follow up from 90 days after index date to 10 y.
**Propensity score matching was performed on age at index, gender, race, and social economic status (problems related to housing and economic circumstances, persons with potential health hazards related to socioeconomic and psychosocial circumstances)

Conflict of interest: The authors did not specify any links of interest.

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000643 | Detailed analysis of the occurrence of antibodies sIgE in the blood serum to allergen molecules as a way to determine risk groups for the existence of allergic diseases in the Polish pediatric population

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Background: One of the allergy diagnostic tools is the determination of specific antibodies (sIgE) in the patient's blood serum. In the case of allergic diseases (AD), the diagnosis can be made if a positive result of sIgE in the blood serum correlates to clinical symptoms. However, even the mere presence of these antibodies without concomitant symptoms allows us to create groups of people at risk of developing AD.

Aim of the study: Identification of allergens, risk groups and creating a map of allergy hazards in the study population based on the presence of sIgE in the blood serum.

Method: The study group consisted of 3,062 children with suspected allergies diagnosed at the Department of Allergology and Pneumonology at the Institute of Tuberculosis and Lung Diseases in Rabka-Zdrój, the Children's Memorial Health Institute in Warsaw and in the Diagnostyka S.A. laboratory network in 2019-2022. The most advanced 3rd generation ALEX® test on the market (Macro Array Diagnostics Gmbh Vienna, Austria) was used to determine sIgE in blood serum. The study group was tested for 296 allergen extracts and molecules.

Results: The study group consisted of 42% girls (1,281) and 58% boys (1,781). The mean age was 7.0 years (±4.3). The most common sIgE-positive results were pollen of silver birch - rBet v 1 (39%), timothy - rPhl p 1 (39%), ryegrass - n Lol p 1 (37%). The highest mean sIgE results were obtained for the following allergens: *Dermatophagoides farinae* - rDer f 2 (average = 27.60 kU/l), *Dermatophagoides pteronyssinus* - rDer p 2 (27.48 kU/l), *Dermatophagoides pteronyssinus* - rDer p 21 (26 .35 kU/l). In the case of food allergens, the highest percentage of sIgE positive results were found in the age group up to 12 months (average 13.2% of positive results), and in the case of inhalant allergens, the highest percentage was found among children aged 5 to 13 years (11.2%) and from 13 to 18 years (13.2%).

Conclusion: In the study population, the most sensitizing agents were proteins from the PR 10 group (Bet v 1 of birch and Mal d 1 of apple and Cor a 1.0401 of hazelnut). The second group of the most sensitizing proteins in the Polish pediatric population were β-expansins (Phl p 1 of timothy and Lol p 1 of ryegrass). The distribution of sIgE concentrations towards molecules of food and inhalant allergens coincides with the typical picture of the allergic march.

Conflict of interest: The authors did not specify any links of interest.

000822 | Who wants to be in a phase 3 clinical trial for allergy immunotherapy? - ILIT.NU

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Background: Allergy affects 20% of the western population and allergen immunotherapy is the only available treatment with long-term effect. Designing a successful clinical trial, one needs to enroll subjects as close to the target population as possible. ILIT.NU is an international phase 3 DBPCRCT testing efficacy of intralymphatic immunotherapy (ILIT) for grass pollen allergy (EudraCT 2020-001060-28, BASEC Nr 2021-023001). We characterized the individuals interested to enter the trial.

Method: The total population of 2274 patients comprised interested individuals from Denmark ($n = 2102$) and Sweden ($n = 112$), and all included individuals from Switzerland ($n = 60$). All patients completed the RHINE III questionnaire, provided retrospective RTS and ACT scores, and answered general health-related questions. In total, the patients answered ca. 280 questions. Descriptive statistics were used to characterize the population cohorts. Education was reported as short (7-9 years of school), medium (high school or vocational education of maximum 3 years, or longer (university degrees or similar).

Results: Few reported current smoking (10% DK, 2% SE and 15% CH). Of these, 22% (CH), 70% (DK) or 100% (SE) reported that at least one parent smoked regularly during childhood. In Denmark, 65%, while in Sweden and Switzerland, 75% reported longer education. For all countries, less than 4% reported short education. More than 80% reported being employed, the most common occupations being "Office, IT or media" (28-30%), "Doctors, hospitals or child care" (23%), and "education or research" (13-22%). Few trial-interested individuals reported growing up on farms (7% in DK, 6% in SE and 3% in CH) with most individuals growing up in small towns (38% DK, 40% SE and 15% CH) or suburban areas (28% DK, 29% SE and 20% CH). Of note, 50% of the Swiss participants grew up in a rural village. Finally, a majority of the trial-interested individuals reported living with indoor pets during childhood (66% DK, 52% SE and 63% CH).

Conclusion: People signing up to participate in a clinical trial for allergy immunotherapy were generally around 30 years of age, non-smoker, with longer education, and growing up in small towns or suburban areas.

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Table 1	Denmark	Sweden	Switzerland
Interested individuals (n=2274)	2102	112	60
Female ratio (%)	52	51	47
Median age (yrs)	31.7	34.2	28.7
Mean RTSS (0-18)	12.9	11.9	12.2
Current smokers (%)	10	2	15
Currently employed (%)	85	82	88

Conflict of interest: The authors did not specify any links of interest.

000320 | Long-term exposure to $PM_{2.5}$, PM_{10} and lung function in adult asthma based on land-use regression

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Background: In 2019, the World Health Organization (WHO) summarized that approximately 99% of world population currently living in areas with exceeding air quality guideline levels. Air pollution have become the major global health crisis worldwide. As the largest industrial area Kaohsiung City, southern Taiwan, with the highest population density and factories, it has rapidly expanded economic development. However, it has inevitably resulted in serious damage to the environmental air quality. There is global concern regarding the long-term deleterious impact of polluted air on the respiratory health of public especially the asthma patients. In this study, we aimed to investigate the effect of air pollution to the lung function and inflammatory indicators among asthma patients in Kaohsiung.
Method: All measurement of air pollutants included ozone (O_3), particulate matter with aerodynamic diameter ≤ 10 μm (PM_{10}) and 2.5 μm ($PM_{2.5}$), and nitrogen oxides (NO_x) comprising nitrogen dioxide (NO_2) and nitric oxide (NO) were performed during the period 2014 to 2016 by 12 monitoring stations located in the Kaohsiung area. These concentrations were used to build the land use regression (LUR) models for exposure assessment. In addition, multiple linear regressions were applied to estimate the effects of exposure to air pollutants on the lung function and inflammatory biomarkers for 347 adult asthmatic patients in Kaohsiung Chang Gung Memorial Hospital.
Results: We found evidence of positive association between long-term exposure to PM_{10} and impairments in lung function, especially for forced expiratory volume in first second (FEV_1) and maximal mid-expiratory flow at 25-75% ($MMEF_{25-75}$) ($b = -3.113$, 95% CI = −5.56, −0.65 by LUR; $b = -5.232$, 95% CI = −8.59, −1.86 by LUR, respectively). Moreover, $PM_{2.5}$ was significantly associated with poor lung function using Cumulative Ordinary Kriging (COK) interpolation methods. However, exposure to PM_{10} and $PM_{2.5}$ were no statistically significantly associated with the neutrophils and eosinophils.
Conclusion: Our results confirmed that the increasing concentrations of air pollutants in the Kaohsiung area may significantly lead to impaired lung function in adult asthmatic patients, suggesting that exposure to long-term air pollutants negatively affect lung function in asthmatic patients.
Conflict of interest: The authors did not specify any links of interest.

000350 | The impact of normalized difference vegetation index (NDVI) and air pollution (NO_2, NO, NO_X) on inflammation indicators and human respiratory health using geographic information system and land use regression model

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Background: Nitrogen oxides, which are classified as gaseous pollutants should not be ignored, especially in Taiwan where industry is flourishing. The concentration of outdoor air pollution has risen rapidly due to industrial and vehicle emissions, therefore the prevalence of asthma and allergic are also increasing.
Method: This study will use geographic information system (GIS) and land use regression model (LUR) to predict the concentrations of nitrogen oxides, and included other explanatory variables in model, such as transportation routes, industrial areas, thermal power plants, ports, etc. This study mainly predicts NO_2, NO, NO_X in Kaohsiung from 2015 to 2019, and discusses the correlation between geo-spatial factors and pollutants' concentrations.
IL-6 and IL-8 are known to play a vital role in acute inflammation, which can evoke lung damage due to environmental factors. The different ethnic groups are affected by air pollution depends on distinct environmental factors. We examined asthma patient's lung function and blood to assess the impact of air pollution on human lung function and inflammation indicators, IL-6 and IL-8 concentrations.
Results: The results showed that, according to land use regression model of predicting NO_2, NO, NO_X with 90% adjusted R^2, 562 asthma patients were analyzed, including 289 males (51.4%) and 273 females (48.6%). The adjusted regression analysis showed that NO significantly increased basal metabolic rate (BMR) in men and decreased lung function indicators in women, including MMEF25-75% predicted value (%), MEF25%(L), MEF50%(L), MEF50% predicted value (%), MEF75%(L), and BMI increased significantly. The increase of NO_2 will significantly increase BMR and WHR in males, significantly decrease MMEF25-75% predicted value (%) and FVC(L) in females, and increase total body fat (kg) significantly. The significantly negative associations between NO_X and female lung function indicators MMEF25-75% predicted value (%) and FVC(L) were observed.
Conclusion: This study suggested that the increased concentrations of NO_2, NO, NO_X will significantly reduce some lung function indicators, especially in women, such a trend can be observed. No significant findings were found for the inflammatory indicators.

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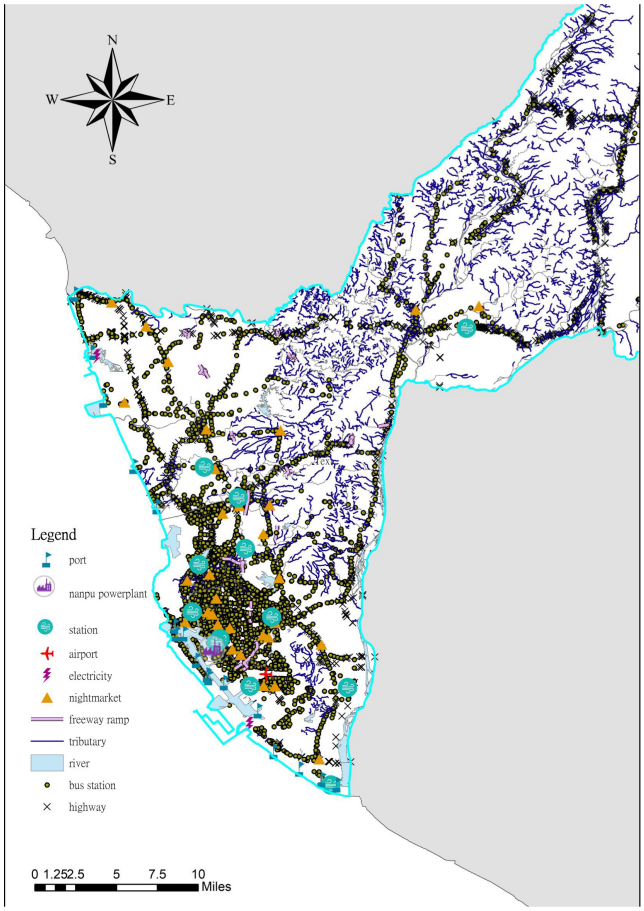

Conflict of interest: The authors did not specify any links of interest.

001156 | Incidence of perioperative hypersensitivity reactions in the allergy-anesthesia unit of Hospital Central de la Cruz Roja

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*Presenting author: J. J. Laguna Martinez

Background: Perioperative hypersensitivity reactions (POH), which are life-threatening and rare, occur in 1:353 to 1:18,600 anesthetic procedures (AP). In Spain, four studies found a highly variable incidence ranging from 1/10,263 to 1/385 AP.

Different anesthetic practices, study methodologies, the ratio of reported POH to the total number of occurrences, or the quality of data gathered by anesthesiologists may all be responsible. We aim to assess the incidence of POH in our unit.

Method: Patients with suspected POH during anesthesia were evaluated prospectively in 2022. Our unit integrates data from three hospitals: Hospital Central de la Cruz Roja (HCCR), Hospital Universitario de Mostoles (HUM), and Hospital Universitario Santa Cristina (HUSC). We have been working together for 3 years, using the same referral form and acute tryptase collection protocols.

After obtaining the patient´s informed consent, all cases were evaluated by the allergologist/anesthesiologist team. Skin tests (skin prick and intradermal test), specific IgE, acute and basal serum tryptase measurement, and drug provocation testing (DPT) are performed in accordance with EACCI POH recommendations.

EAACI POH severity classification was used.

Results: During this time, 23 patients were referred for investigation (7 HCCRS, 9 HUM, and 7 HUSC); their mean age was 49.2 (SD 19) years, and 15 (65.2%) were men. Atopy was present in 10 (45.5%) cases. PHO was found in nine cases (39.1%) during pre-anesthesia, eight (34.8%) during surgery, three (13.7%) during emergence, and three (13.7%) during post-anesthesia recovery.

The severity of the reaction was grade I in seventeen (73.9%) cases, grade II in two (8.7%%) cases, and grade III in four (17.4%) cases. We obtained tryptase samples from 22 patients, and it was elevated in 7 (31.8%) Tryptase elevation and treatment with adrenaline were statistically more frequent in reactions higher than grade I ($p < 0.032$).

In this period, 37632 anesthetic procedures were performed in our unit

Antibiotics were the most common culprit, accounting for seven cases (4 cefazolin, one clavulanic acid, one ciprofloxacin, one gentamicin, and one daptomycin).

Conclusion: The incidence of POH in our hospital was 1 in 1636,2 (37632/23) anesthetic procedures.

In our series, cefazoline was the most frequently identified drug (17.4%)

Conflicts of interest: The authors did not specify any links of interest.

000363 | Prevalence and risk factors for asthma among adults in an East African country - Tanzania

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*Presenting author: H. Mwanga

Background: Limited information exists on the burden of asthma and the associated risk factors in Africa. This study investigated the prevalence and risk factors for asthma in an adult population from an East African country – Tanzania.

Method: A cross-sectional study of 968 adults, randomly recruited from urban and rural areas in 4 Tanzanian regions, was conducted. Each participant completed an interviewer-administered modified European Community Respiratory Health Survey (ECRHS) questionnaire. Current asthma was defined as having an asthma attack, current use of asthma medication or being woken up by an attack of shortness of breath, in the past 12 months. Asthma outcomes (asthma symptom score, current asthma and doctor-diagnosed asthma) were analysed using multivariable regression models.

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Results: The median age of this population was 43 years, 50% were female with a median body mass index (BMI) of 27. History of cigarette smoking was reported in 12% (6% current smokers and 6% ex-smokers). The prevalence of current asthma was 10%, while 4% reported doctor-diagnosed asthma. The prevalence of hay fever was 10%, eczema was reported in 4% and 9% reported a family history of allergy. Risk factors associated with ≥2 asthma symptoms included hay fever (OR = 4.98; 95%CI: 2.90 – 8.54), eczema (OR = 3.17; 95%CI: 1.46 – 6.89), family history of allergy (OR = 2.36; 95%CI: 1.27 – 4.38), repeated childhood chest infections (OR = 7.75; 95%CI: 3.62 – 16.57), hospitalised for lung disease before the age of 2 years (OR = 7.00; 95%CI: 2.36 – 20.76), and often *vs* never having no food to eat in the family (OR = 7.84; 95%CI: 2.45 – 25.08). The results were quite consistent for different asthma outcomes.

Conclusion: The prevalence of asthma was 4-10% in this random sample of the general adult population in Tanzania. Frequency of limited food availability as well as commonly observed risk factors such as personal/family history of allergy and childhood airways/lung infections, were identified as important risk factors for asthma.

Conflict of interest: The authors did not specify any links of interest.

000412 | Sensitization profile to weeds in future and present militaries in Ukraine

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Background: Unlike most other forms of chronic disease, people with allergies are usually in a state between attacks and may have a high level of personal fitness. But in Summer 2022 in Ukraine, we firstly receive many inquiries from people with allergies who have joined the armed forces and in the same time have severe allergy symptoms. However, if these soldiers are prone to severe allergic reactions due to pollen and food, they may present a difficulty for the Army, because an allergic reaction, which soldiers have while on deployment, doesn't just incapacitate them and deprive their unit of their skills, it also ties up one or more other personnel to look after the allergic casualty. This is a particular problem if on active war action.

Method: Therefore, the goal of our study was to analyze the sIgE to components of weed pollen allergens and food cross reactive molecules using the multicomponent ALEX method in order to identify the specifics of sensitization depending on the region of Ukraine in order to develop timely methods of prevention and treatment and to ensure the health of military personnel who are forced to stay in increased pollen concentration. The study was conducted among military personnel who presented with respiratory symptoms and were referred for component diagnostics after SPT analysis.

Results: The results presented in Figure 1 indicate that Amb a 1 molecule are most often found in Southern (62.7%), Central (60.8%) and Eastern (55.3%); the frequency of this molecule in patients of the Western region was only 14.9%, which is consistent with the results of other studies conducted in Ukraine even before the war. Amb a 4 occurs 3-4 times less often, but the regional distribution remains practically unchanged. The detection frequency of the wormwood molecule Art v 1 is observed to be approximately 2-3 times lower than that of ragweed molecules and depends little on the region. Thus, in the West, the frequency is 11.6%, while in other regions it ranges from 14 to 16% among examined patients.

Conclusion: The identification of individual components made it possible not only to analyze the situation and provide recommendations for treatment, but also to create certain recommendations for the rotation of military personnel in the region with the lowest risk for the development of an exacerbation.

Conflict of interest: The authors did not specify any links of interest.

000740 | Specific IgG4 and sIgE ab to mite and cat component allergens and asthma: sIgG4 responses have a controlling effect in relation to der p 1 and Fel d 1, which have quantitatively higher exposure

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Background: Specific IgG4 Ab (sIgG4) to allergens may play an important role in controlling the severity of responses to allergen exposure in the indoor environment. However, limited data are available on sIgG4 to component allergens measured in absolute units, and the quantities of specific allergens in house dust are only known for a few allergens: Der p 1, Der p 2, Der p 23, Fel d 1 & Fel d 4.

Method: We performed a nested case-control analysis of participants in Project VIVA at the early adolescent visit (mean age 13 ± 2 years), measuring sera for sIgE and sIgG4 to mite components ($n = 218$) and cat components ($n = 270$) using ImmunoCAP. Current

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asthma (asthma) was defined as a physician diagnosis with symptoms or treatment in the past year. sIgE levels >0.35 kU/L and sIgG4 levels ≥0.07 μg/mL were considered positive. Results were expressed in ng/mL to allow sIgG4:sIgE ratio calculations.

Results: The prevalence of sIgE to mite extract, Der p 1, Der p 2, and Der p 23 in the asthma group was 61%, 37%, 43% & 30% respectively. The prevalence of sIgG4 to the same allergens was 88%, 79%, 24%, & 1.2%. Prevalence of sIgG4 to Der p 2 and Der p 23 was significantly lower than the prevalence of sIgE to these components. Although there was a strong correlation between sIgE titers to Der p 1 and Der p 2 ($r_s = 0.76$), there was a stronger association between asthma and sIgE to Der p 2 than with sIgE to Der p 1. This could be explained by the higher prevalence of sIgG4 to Der p 1.

Sera from 115 cat owners were measured for sIgE and sIgG4 to cat components. Of these, 30 (26%) had asthma. The prevalence of sIgE to Fel d 1, Fel d 4, and Fel d 7 among the cat-owning asthmatics was 47%, 33% & 33% respectively. The prevalence of sIgG4 to the same allergens was 70%, 37% & 27%. For Fel d 4 and Fel d 7, cat ownership did not affect sIgG4 prevalence or titers, and low sIgE and sIgG4 prevalence prevented sIgG4:sIgE ratio calculations. However, among cat owners, the geometric mean sIgG4:sIgE ratio for Fel d 1 was 4.8 [95% CI 1.41-16.1] for asthma compared to 54.2 [17.9-164] for non-asthma, $p < 0.01$.

Conclusion: The production of sIgG4 to Der p 2, Der p 23 and Fel d 4 was significantly decreased compared to that for the major allergens Der p 1 and Fel d 1. The implication is that either epitope spreading or higher production of sIgG4 is strongly associated with the higher quantitative exposure to "major" allergens. The controlling effects of increased sIgG4 are only seen in relation to the two allergens with the highest exposure.

Conflict of interest: The authors did not specify any links of interest.

000895 | One-year epidemiologic data from angioedema and its subtypes registry in Austria

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Background: In Austria, around 145 people are currently known to suffer from C1-esterase inhibitor deficiency-associated hereditary angioedema type I/II (C1-INH-HAE). Moreover, 6 other HAE-types with normal C1-INH values (nC1-INH-HAE) have been identified in recent years. Epidemiological data on these are widely missing yet. While around 450 individuals with F-XII mutation are estimated worldwide, other forms have been identified in 4-5 individuals in 1-2 families each. There is no data from Austria on this. The aim of our register is to reduce this gap for all HAE forms in Austria. Here we report 1-year epidemiologic results from Vienna.

Method: To rise epidemiologic data, awareness activities like webinars and talks were given and articles in medical non-medical journals published, and all patients who visited the angioedema Outpatient Clinic of Department of Dermatology Vienna with isolated angioedema were subjected to diagnostic tests for HAE after a precise case history was taken.

Results: In 2021, 82 angioedema patients have been screened. Among them, we identified thirteen (15%) ACE inhibitor-induced, one unspecified infection-associated, one Helicobacter Pylori-related, three (3,7%) food-related, and three (3,7%) drug-related angioedema patients. Additional three (3,7%) patients suffered from autoimmune diseases, one had sialadenitis-related unilateral facial swelling, and one patient reported globus sensations due to silent reflux. Another thirty (36%) people suffered from histaminergic angioedema of unknown cause. Among the remaining twenty-six (32%) patients, we identified one patient with C1-INH-HAE type I and an 80-year-old man with decreased C1-INH levels without underlying hematologic disease. Genetic analysis had been initiated for the remaining 24 (29,3%) patients with steroid-resistant angioedema attacks and nC1-INH levels.

Conclusion: In summary, we diagnosed one new patient with C1-INH-HAE type I, one elderly patient with late onset C1-INH-HAE type I or acquired AE patient, four women and one man with nC1-INH-HAE. Another 19 people with suspected nC1-INH-HAE are still being investigated and are under observation, while HAE could be ruled out in 56 patients. Shire-Takeda IIR-AUT-002649.

Conflict of interest: The authors did not specify any links of interest.

001552 | The T2 spectrum of asthma patients in an expert clinic in the Netherlands

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Background: Asthma is a heterogeneous and variable disease traditionally classified into T2-high and T2-low asthma phenotypes. This classification suggests a fixed T2 biomarker status. However, T2 biomarkers vary due to changes in medication, environment, or health status. We studied the stability of the T2 biomarker status.

Method: Medical records from patients attending the outpatient clinic from a Dutch asthma center of expertise in 2021 were retrospectively selected using the asthma diagnosis code. Descriptive data were used to describe medication use and T2 biomarker status as defined by GINA criteria (blood eosinophils > 150 cells/μL, FeNO > 20ppb, and sensibilization measured by sIgE screenings test).

Results: A total of 4447 out of 6457 patients visited the outpatient clinic for asthma treatment and opted-in for the scientific use of their data. Overall, 4126 patients used ICS, from which biomarker status was fully assessed in 2638 (59%) patients. Patients with a T2-high phenotype were the most common ($n = 2124$; 85%). In patients with a T2-low phenotype, 47% ($n = 172$) used biologicals or oral corticosteroids (OCS). When excluding patients with biologicals or OCS, 21% ($n = 40$) was T2-high in the past, 18% ($n = 34$) remained T2-low over

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time, and 62% ($n = 120$) missed follow-up measurements of blood eosinophils or FeNO. Overall, between 1,2% and 6,0% of patients could be classified as persistent T2-low.

Conclusion: T2-low asthma is present in 15% of patients when investigated cross-sectionally. However, just 1,2-6,0% of patients remain persistently T2-low over time. We postulate that T2 status must be seen as a spectrum rather than a fixed entity.

Conflict of interest: ALK, Chiesi, GSK, Novartis, EAACI taskforce Biomarkers in AIT, EAACI taskforce Clinicals outcomes of AIT in Asthma, NvAA Nederlandse richtlijn AIT, KNO: Richtlijn respiratoire allergie, NVALT commissie kwaliteitASIT, AstraZeneca, Sanofi, Boerhinger, Teva, mylan.

FOOD ALLERGY 3

001021 | Role of basophil activation test in the diagnosis of crab sensitization

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Background: Seafood allergy is an increasing problem with crustaceans as the leading cause among food allergic subjects in Southeast Asia, but little is known about the allergy to freshwater crab (*Somanniathelphusa sinensis*), and green crab (*Scylla paramamosain*). In Vietnam, crabs are frequently consumed by habitants, however we still lack the diagnostic tools and commercial allergens for an accurate diagnosis of allergy. Thus, we aimed to evaluate the clinical value of basophil activation test (BAT) in diagnosis of allergy to crabs.

Method: A cross-sectional study was conducted in the Unit of Allergy and Clinical Immunology, University Medical Center (Ho Chi Minh City, Vietnam). Extracts from *S. sinensis* and *S. paramamosain* were purified from the local freshwater and green crabs. Patients with a definite history of any of the two crabs were recruited. Skin prick tests (SPT) to Der p, Der f and crab extracts were performed. The specific IgE was semi-quantified by the Venezuela 53 Allergens panel (EUROIMMUN, Germany). BAT was conducted with extracts from *S.sinensis* and *S.paramamosain* at 50mg/mL and was evaluated by flow cytometry. Basophils were defined as $CD123^{+}/HLA\text{-}DR^{-}$, and the percentage of CD63+ and $CD203c^{high}$ were measured. For each subject, the fold of CD63+ and CD203c+ was normalized to the baseline level.

Results: Twenty subjects were enrolled in this study, with the median age at 29 years old and female were predominant (65%). There were 25% of subjects with a history of anaphylaxis. SPT to Der p and Der f was positive in 75% and 70%, respectively. The prevalence of sensitization to *S.sinensis and S.paramamosain* were 70% for each. In regards to *S.sinensis*, Compared to the non-sensitized group, the sensitized group increased fold of CD63 and CD203c from five to thirty times for both *S.sinensis, and S.paramamosain*. In regards to the *S.paramamosain, a* fold of CD203c was elevated significantly ($p = 0.033$). The addition of BAT using CD203c marker to history, IgE measurement, and SPT yield a PPV at 0.512 and NPV at 0.904 to differentiate the subjects with proper sensitization to the green crab (*S.paramamosain)*

Conclusion: The utility of BAT with crude extracts may help differentiate the proper sensitization to crabs. Further research to investigate the major allergens of the green crab *(S.paramamosain)* was necessary.

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Conflict of interest: The authors did not specify any links of interest.

001271 | Clinical features of patients with food allergy sensitized to taumatin-like proteins

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Background: Thaumatin-like proteins (TLPs) are proteins of the PR-5 family, which are produced in response to pathogens in pollen and fruits. They have a molecular mass of 20-30 kDa and a stable structure providing resistant to heat and digestive enzymes.

TLPs have been described as allergens in fruits and pollens, being responsible in some cases of cross-reactivity between them. Clinical manifestations of patients with food allergy caused by this proteins are not fully known.

Method: Retrospective analysis of clinical records of patients with food allergy and sensitization to kiwifruit TLP (Act d 2) in a tertiary hospital in Valencia, Spain, between 2010 and 2022 was performed. To assess the clinical characteristics of these patients the following items were collected from electronic records: anamnesis, clinical symptoms, culprit foods, prick test results, and analysis of specific IgE multiplexed platform (ImmnucoCAP©ISAC-Thermofisher®).

Results: Thirty-four patients were included, the median age was 29 years and 73% were female (Table 1). The most frequent clinical symptom related to thaumatins was SAO in 23 patients (67.6%), followed by skin (56%), respiratory (38%), and gastrointestinal symptoms (35%).

Most reactions (94%) were developed in less than 1 h after consumption of the food. The most frequently foods implicated in the first reaction were kiwifruit (41.1%), bananas (35.2%), and almonds (11.7%). Prick test was positive for kiwifruit in 21 patients (87,5%), followed by banana (58,3%) and almond (48,5%). In 94% of the patients the skin tests were positive for the suspected food. “In vitro” results were as follows: median total IgE of 559.75 and median level of IgE Thaumatin (Act d 2) of 3.78 (range from 0.3 to 17.99).

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Conclusion: In our environment, kiwifruit is the main culprit allergen for thaumatin food sensitization. The most frequent clinical manifestations are OAS and skin symptoms. It is not associated with cofactors as are known in other food allergies. In the allergy diagnosis, skin tests were positive for the food involved in most cases. Specific IgE determination allowed confirmation of the allergen involved.

Table 1. Clinical features for patients with Taumatine-like proteins (TLPs) food allergy.

Characteristics	N total (% total), [range]
Total of patients	34
Sex	
Female	25 (73.5)
Male	9 (26.5)
Age	29 [13 - 48]
Allergy antecedents	
Rhinitis	26 (76.5)
Asthma	15 (44)
Urticaria	1 (3)
Atopic Dermatitis	3 (9)
Drug allergy	6 (17)
Hymenoptera venom allergy	0 (0)
Clinical Manifestations	
Oral allergy syndrome	23 (67.6)
Skin symptoms	19 (56)
Urticaria	8 (23.5)
Angioedema	3 (9)
Urticaria and Angioedema	8 (23.5)
Gastrointestinal symptoms	12 (35.2)
Nausea and/or vomiting	7 (20.5)
Abdominal pain	7 (20.5)
Diarrhea	1 (3)
Respiratory symptoms	13 (38.2)
Rhinitis	2 (6)
Disnea	12 (35)
Coughing and/or wheezing	1 (3)
Desaturation (<90%)	1 (3)
Reaction time	
<1 hour	32 (94)
1 hour	1 (3)
>1 hour	1 (3)
Food implicated in the first reaction	
Kiwifruit	14 (41.1)
Banana	12 (35.2)
Almond	4 (11.7)
Tomato	1 (3)
Cherry	1 (3)
Grape	1 (3)
Melon	1 (3)
Prick Test	
Kiwifruit	21 (61.7)
Banana	14 (41.1)
Almond	13 (38.2)
Tomato	6 (17.6)
Cherry	4 (11.7)
Grape	1 (3)
Melon	5 (14.7)
IgE Total	559.75 [18.9 – 4985]
IgE Taumatina (Act d 2)	3.78 [0.3 – 17.99]

Conflict of interest: The authors did not specify any links of interest.

001432 | *Saccharomyces cerevisiae* as an unusual hidden food allergen: A case report

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*Presenting author: A. Jover Walsh

Background: *Saccharomyces cerevisiae* also known as baker's yeast or brewer's yeast has been described as an infrequent cause of food allergic reactions to alcoholic beverages or bakery products.

Method: A 44-year-old atopic woman, with episodes of itchy throat, globus sensation, and dyspnea, developed shortly after drinking alcoholic beverages (Franziskaner® malt wheat beer and wine), and wheat sourdough bread with seeds. Currently, she tolerates unmalted barley beer, regular wheat bread, distilled spirits, nuts, fruits, as well as sunflower, flax, pumpkin, and poppy seeds. An allergy work-up with the food extracts involved and SDS-PAGE immunoblotting with extracts of malted beers (Franziskaner®, Mahou Maestra®, San Miguel Selecta®), wheat malt, barley malt, hop flower and *Saccharomyces cerevisiae*, as well as blot-inhibition assays were carried out.

Results: SPT were positive to grass-pollen, cat epithelium, *Candida albicans* and *S. cerevisiae* and negative to other allergen, including mites, other molds, profilin (Pho d 2), peach lipid transfer protein (Pru p 3), cereals (wheat, gluten, gliadin, rye, oatmeal, barley, corn, rice, oat), soy and alpha-amylase

Prick-to-prick was positive with Franziskaner® beer (6 × 7 mm).

Total IgE was 25 kU/L. Specific IgE to cereals (wheat, oat, rye, barley), ω-5- *gliadina* (Tri a 19), malt, hops, lupine, nuts, sesame, profilin, Pru p 3, molds (*Penicillium notatum*, *Cladosporium herbarum*, *Alternaria alternata*, *C. albicans*, champignon, *S. cerevisiae)* were negative (≤0.35 kU/l).

Immunoblotting demonstrated IgE-binding bands at 97 kDa, 55 Da, 45-40 kDa in Franziskaner®, Mahou® and San Miguel® beer extract. Several IgE reactive-proteins were also found in wheat malt, barley malt and *Saccharomyces cerevisiae* extracts.

Immunoblot inhibition assay with Franziskaner® beer extract in solid phase showed a total IgE binding inhibition with *S. cerevisiae* and beer extracts (San Miguel® and Mahou®) as inhibitors while with malt extracts (wheat and barley) no inhibition was detected.

Conclusion: We present a case of anaphylaxis caused by wheat malt beer, red wine and sourdough wheat bread due to sensitization to *Sacharomyces cerevisiae* used for fermentation. Tolerance to other yeast-containing goods, could be due to the amount of *S. cerevisiae* proteins appeared in the food or to the different yeast strains contained in industrial products.

Conflict of interest: The authors did not specify any links of interest.

001204 | Baked milk and egg consumption after a negative oral food challenge

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Background: Up to 70% of children with IgE-mediated allergy to egg and milk may tolerate the baked forms of these foods. Baked food consumption expands the child's diet and may accelerate food allergy resolution. We aimed to evaluate long-term tolerability and adherence to baked foods consumption at home after a negative oral food challenge (OFC) to baked milk or egg

Method: A phone questionnaire was performed to all children with successful food challenges to baked milk and baked egg conducted from October 2017 to November 2019

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Results: In total, 151 children who had a successful baked OFC completed the questionnaire (73% response rate). Thirty-eight children (25.2%) continued baked food consumption at home, 51 children (33.7%) progressed to consumption of non-baked milk\egg and 62 children (41.1%) stopped eating the baked food. Thirty-nine children (25.8%) reported having an allergic reaction at home, most of them grade I (48.7%) and grade II (43.6%) reactions or non-specific complaints (7.7%). Seventeen children (43.6% of those who reacted) were treated with antihistamines, 4 children (10.2%) with adrenaline and 18 children (46.2%) were not treated. For children who stopped consumption of the baked food (i.e., complete milk\egg avoidance), reasons included: disliked the muffin (24%), had no time to prepare it (27%) and an allergic reaction at home (48%).

Conclusion: Nearly half of the children who had a negative challenge to baked milk or egg stopped eating the baked good. Of concern, a fourth of the children reported an allergic reaction at home

Conflict of interest: The authors did not specify any links of interest.

001211 | Allergic contact stomatitis in chewing gum: A case report

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Background: Allergic contact dermatitis (ACD) is a well-described clinical entity. A rare variety of this disorder, which affects the oral mucosa, is known as allergic contact stomatitis (ACS). It is an inflammatory reaction mediated by a type IV hypersensitivity mechanism that, due to its clinical manifestations and place of appearance, makes it necessary to consider differential diagnoses. Cinnamon is a rare cause of ACS in literature. It is used as flavor in foods, gums, cosmetics or dental hygiene products and its most important active substances are cinnamic aldehyde, cinnamic acid and cinnamic alcohol.

We report a case of ACS due to cinnamon chewing gum confirmed by positive path tests to cinnamic aldehyde and cinnamic acid with complete resolution of symptoms after avoidance of cinnamon gum.

Method: We present the case of a 47-year-old woman with 1-month history with clinical symptoms of itching and pain in the tongue and hard palate together with the presence of erythematous and erosive plaques in those regions. There was no prior medical history regarding ACD, food allergy, or poor oral hygiene. She denied the use of mouthwash. She revealed the frequent use of chewing cinnamon-flavored gum.

For her study, patch tests were performed according to the latest European Society of Contact Dermatitis guidelines with the European Baseline series and extended fragrance series. The patches were read at D2 and D4. Skin prick tests were performed with a standard battery of food allergens including treenuts, fruits, seafood, milk, egg, soy, wheat, anisakis, mustard.

Results: Patch tests were positive to cinnamic-aldehyde and cinnamic-acid from the extended fragrance series and fragrance mix I from the TRUE TEST. Skin prick tests were negative.

We reviewed her dental paste with no cinnamon derived fragrances. She was recommended to avoid completely the use of cinnamon flavored gum. Her oral symptoms resolved during the next 2 weeks after avoidance of chewing cinnamon flavored gum.

Conclusion: Our case highlights the importance of suspecting the cinnamon used as a new cause of ACS. The first case of ACS due to cinnamon was published in 1976 and since then most cases have been published in the last 20 years.

Conflict of interest: The authors did not specify any links of interest.

001180 | Case report of a not apparently isolated peanut allergy

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*Presenting author: M. Carvalho

Introduction: Until recently, all peanut allergy patients were advised to avoid all types of tree nuts, but this recommendation has changed with the emergence of molecular allergy, which has allowed an accurate diagnosis of these patients. A patient informed consent was obtained to describe this case.

Case report: A five-year-old boy, with a medical history of atopic dermatitis and rhinitis, presented with an oral allergy syndrome soon after eating a caramel and nuts ice cream. Four hours later he developed a generalized urticaria, cough and abdominal pain. He went to the Emergency Department, where adrenaline was administered with effect. He had eaten hazelnut before, but he had never eaten other tree nuts, so he was discharged with the indication to avoid peanuts and all tree nuts, and with a prescription of intramuscular adrenaline.

Afterwards an investigation was carried out. A blood test work-up revealed total IgE = 877 UI/ml and specific IgE (UI/ml) peanut = 26, almond = 23.6, cashew = 1.57, hazelnut = 20.3 and walnut = 23. Secondly, it was performed an ImmunoCAP ISAC (ISU-E) which showed sensitization to peanut storage proteins (Ara h 1 = 2.1, Ara h 2 = 0.4, Ara h 6 = 5.5) without sensitization to tree nuts molecular allergens and a MUXF3 = 41. A Singleplex (UI/ml) was performed with the following results: Ana o 3 <0.10, Cor a 8 <0.10, Cor a 9 = 1.56, Cor a 14 <0.10, Jug r 1 = 0.14, Jug r 3 = 0.13, Ara h 9 = 0.13, Ara h 8 <0.10.

Oral food challenges (OFC) were performed, which were negative for almond, cashew and hazelnut, but positive for peanut (anaphylaxis to a cumulative dose = 13 mg).

Lastly, an ImmunoCAP singleplex was performed (serum previously incubated with CDD inhibitor, Euroimmun), which showed that the specific IgE against tree nuts extracts was due to a cross-reactivity phenomenon with CCDs and confirm peanut anaphylaxis due to

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storage protein peanut sensitivity (mainly Ara h 6 but also Ara h 1, 2 and 3).

Discussion: In this clinical case, we described a child presenting with an anaphylaxis after eating a caramel and nuts ice cream. Throughout our investigation we diagnosed an isolated peanut allergy since the high sensitization to other tree nuts was only due to CCD cross reactivity (MUXF3).

JM case reports session: 18243.

Conflict of interest: The authors did not specify any links of interest.

001275 | Complementary and allergenic food introduction in infants: An umbrella review

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Background: Multiple systematic reviews examine the introduction of foods in relation to individual health outcomes, but the balance of harms and benefits on all health outcomes for children has not been overviewed in a systematic and peer-reviewed manner. We aimed to perform an overview of systematic reviews on age of introduction of complementary and allergenic foods to the infant diet and long and short-term health outcomes.

Method: Data was from MEDLINE, EMBASE, Cochrane, and PubMed (22/November/2021). Included systematic reviews examined introduction of complementary or allergenic foods before age one. Outcomes included allergic, autoimmune, and inflammatory diseases, neurodevelopment, nutrition, and weight. Extraction and quality assessment were performed in duplicate (AMSTAR 2; GRADE).

Results: We screened 3,576 articles and included 30 systematic reviews. There was moderate evidence that peanut and egg should be introduced from 4 to 11 months to prevent food allergy (6/9 reviews). Complementary food introduction was not associated with food allergy. There was moderate certainty evidence that age of complementary food introduction was not associated with eczema. There was high certainty evidence (3/4 reviews) that age at introduction of gluten was not associated with celiac disease. There was low certainty evidence that introducing solids before 4 months may increase the risk of childhood obesity. There was insufficient evidence regarding an association between any food introduction and bone health, gastrointestinal diseases, autoimmune disorders, asthma, or allergic rhinitis.

Conclusion: Current evidence supports introducing complementary foods around 6 months and allergenic foods before 11 months.

Conflict of interest: The authors did not specify any links of interest.

001216 | Sulphite allergy: A hidden allergen

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Background: Sulphites, which include sulfur dioxide, sodium potassium sulphite, bisulphite, and metabisulphite, are common additives used in the food industry due to their antioxidant and preservative properties. We show in table 1 foods containing sulfites.

Sulphites are known to induce life-threatening asthmatic reactions in patients with severe asthma. Not as frequent but still not negligible, there are a few cases of anaphylaxis related to sulphites ingestion.

We present the case of a 35-year-old male with a personal history of aspirin-exacerbated respiratory disease in treatment with Benralizumab. He referred 7 anaphylactic reactions consisting of urticaria, facial angioedema, bronchospasm, vomiting, and dizziness needing treatment with corticosteroid and nebulizations of salbutamol, and intramuscular epinephrine. Three reactions happened after eating packaged beef and pork hamburgers containing soy, vegetable fibre (peas, potato, bamboo fibre and carrot), nitrate and sodium ascorbate and sodium sulphite. The other 4 reactions happened after drinking white wine and aperol spritz. After the last reaction, he tolerated chicken, beef, turkey, pork, peas, potato, bamboo fibre and carrot.

Method: Skin prick tests with standard food battery (milk, rooster, shrimp, wheat, chestnut, peanut, mustard, peach, egg, sardine, chicken, hazelnut, soybean, lentil, chickpea, and anisakis) were performed, as well as prick-prick test with peas, potato, bamboo, carrot, beef and pork meat. Specific IgE (InmunoCAP) to pork, beef, lamb, sesame seed and rTri a 1 and controlled exposure test (CET) with packaged beef hamburger were also performed. After reviewing the ingredients in the packaged beef, we performed a sulphite prick-prick skin test.

Results: Skin prick and prick-prick tests with food proved negative. Blood test showed total IgE 130 UI/ml, tryptase 2.8, and all specific IgEs were negative. CET with packaged beef hamburger was positive, presenting anaphylaxis. Sulphite prick-prick skin test was positive, eliciting a wheal of 7 mm. Sulphite CET was ruled out due to the severity of previous reactions.

Conclusion: The patient was diagnosed with IgE-mediated sulphite hypersensitivity. Since then, he has been avoiding sulphite-containing foods without new reactions. IgE-mediated hypersensitivity to sulphites is rare but should be considered when dealing with idiopathic anaphylaxis.

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Table 1. Sulphite containing foods

High content
Dried fruit (excluding dark raisins and prunes)
Lemon and lime juice (nonfrozen)
Wine
Molasses
Sauerkraut juice
Grape juice (white, white, pink and red sparkling)

Moderate content
Dried potatoes
Wine vinegar
Gravies, sauces
Fruit topping
Maraschino cherries
Pectin
Shrimp (fresh)
Sauerkraut
Pickled peppers
Pickled cocktail onions
Pickles/relishes

Low content
Corn starch
Hominy
Frozen potatoes
Maple syrup
Imported and domestic jams and jellies
Fresh mushrooms
Malt vinegar
Dried cod
Canned potatoes
Beer
Dry soup mix
Soft drinks
Instant tea
Pizza dough (frozen)
Pie dough
Sugar (especially beet sugar)
Gelatin
Coconut
Fresh fruit salad
Crackers and cookies
Grapes
High fructose corn syrup

ppm: parts per million.
(*) Foods with low sulfite content have not been implicated in inducing reactions in sulphite-sensitive individuals.

Conflicts of interest: The authors did not specify any links of interest.

000958 | Tolerance to oral immunotherapy (OIT) with boiled egg white in egg-allergic children in a hospital of Madrid, Spain

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Background: Many patients fail Oral Immunotherapy (OIT) with raw egg white (RE) due to adverse reactions. We used a protocol with boiled egg white (BE) as it has shown greater probability of success. The objective of this study is to evaluate the tolerance of the patients subjected to OIT with BE, and assess the variables that can contribute to its success.

Method: Between 2019 and 2023, we conducted a retrospective observational study at the Hospital Universitario Fundacion Alcorcon on egg-allergic children with high risk and/or previous failure to RE OIT using a BE OIT. We analyzed demographic data, atopic history, skin tests (ST), and specific IgE (sIgE) to egg and its proteins, as well as the duration, reactions and success (tolerance to 3,630 mg protein) of OIT.

Results: We included 7 patients (57% females). 100% of patients had atopic history. 71% of patients had reactions due to accidental ingestion prior to OIT. The protocol had a median (Me) onset of 10.9 years, and 100% of patients used premedication. Out of all patients, 57% had previous failure to RE and 43% had high risk reactions to RE. During the protocol, 57% of patients presented reactions: 68% mild, 32% moderate-severe (3-4 grade). In total, 25 reactions were counted during OIT, 17 of them presented by one patient. 100% of patients reached the maximum dose (3,630 mg) with a Me of 24 sessions (IQR: 21-28). The levels of sIgE egg yolk and sIgE ovalbumina showed a statistically significant relation with the duration of OIT (DO) ($p = 0.014$; $p = 0.003$), as well as with the number of reactions (NR) during the protocol ($p = 0.017$; $p = 0.006$). There weren't statistical associations between DO and NR and the size of ST.

Conclusion: OIT with BE is well tolerated, with 100% success in treated patients. More studies would be necessary to demonstrate the efficacy of this protocol.

Conflicts of interest: The authors did not specify any links of interest.

001520 | Life-threatening anaphylaxis with documented asystole requiring cardiopulmonary reanimation triggered by allergy to flaxseed (linseed)

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Background: Flaxseed (also linseed, *Linum usitatissimum*) belongs to the Linaceae family and is increasingly consumed with cereals. We report a rare case of anaphylaxis to linseed.

History: A 49-year-old patient with pre-existing coronary artery disease and recurrent syncope was evaluated at our allergy clinic due to a severe anaphylactic reaction. 3 months earlier he developed sudden pharyngeal itch, abdominal pain, nausea and loss of consciousness for 10 s, 5 min after eating a "date–cocoa–nut–cake" from a local bakery, 3 h after lunch. He was transported to the ER, where initial examination/vital signs were normal. He was given clemastine and steroids i.v. Shortly afterwards, he developed a documented asystole with loss of consciousness, and CPR was started. The patient recovered fully and was transferred to the ICU for observation. Due to a suspected sick sinus syndrome and prior syncope, a pacemaker was inserted the next day.

Tryptase on arrival at the ER was 7 ng/ml (normal <11.4 ng/ml), but a baseline tryptase obtained 3 months later was 2.3 ng/ml.

No other food had been consumed besides the cake, which contained hazelnuts (10%), cocoa, cornstarch and linseed (4%).

Further history revealed hay fever in the spring and oral pruritus upon consumption of apple, cherry, peach and fig. He also reported repeated “allergic reactions”, which he attributed to the consumption of "whole wheat bread".

Allergy work-up: The allergy evaluation revealed positive skin prick test (SPT) to birch, alder, hazel and oak pollen. SPT also showed large reactions to apple, peach and linseed. It was negative to hazelnut, almond and walnut.

Specific IgE (sp IgE) to birch pollen was 6,47 kU/L, hazelnut 2,12 kU/L and linseed 14,2 kU/L.

Component-resolved diagnostics and multiplex sp IgE (ImmunoCAP ISAC) confirmed a broad sensitization to PR-10 proteins but no sensitization to profilins or lipid transfer proteins.

A food challenge with 38 roasted hazelnuts (53 g) was well tolerated.

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Conclusion: An allergic reaction to linseed was made based on the history, positive SPT to linseed and increased sp IgE to linseed. The tripling of the tryptase level also confirmed that an anaphylactic reaction took place. We postulate that the severe allergic reaction also triggered the asystolic event due to liberation of histamine and other mediators in our patient with preexisting cardiac disease.

JM case reports session: 18244.

Conflict of interest: The authors did not specify any links of interest.

001067 | Chicken meat allergy: A clinical case

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Background: A 49-year-old male, restaurant owner, with a 4-year history of generalized urticaria, dyspnea, facial angioedema and palmar-plantar pruritus, presented <2 h after chicken intake, with no cofactors association. The symptoms have progressed over the years, initially appearing after eating chicken wings and now related to inhalation of cooking fumes and handling of raw chicken wings. He tolerates eggs, bird entrails and other mammalian meats. Previously, he had frequent contact with farm and pet birds, without presenting respiratory symptoms.

Method: Prick and prick-prick skin tests were performed with chicken breast and wing (raw and cooked), tryptase determination, total and specific IgE determination, manipulation test, and controlled oral challenge with cooked chicken breast and wing.

SDS-PAGE immunoblotting and immunoblotting-inhibition assays were carried out with patient's serum and chicken extracts (wing, breast and thigh) and chicken alpha-livetin.

Results:

- Prick test: negative against extracts from mammalian epitheliums, feathers (canary, pigeon, parakeet), chicken egg, mammal meats, shellfish, Pru p 3.
- Prick-prick with chicken: doubtful with raw wing and breast and negative with cooked wing and breast. The patient later presented an immediate reaction with erythema and palmar-plantar pruritus, self-limiting in a few minutes.
- Tryptase: 4.16 mcg/L.
- Total IgE: 12.2 kU/L (Immulite).
- Specific IgE (Immulite) class 0 for extracts of chicken and turkey meats, feathers (chicken, pigeon, parakeet), chicken egg, tuna, cod, and *Anisakis*; and also class 0 for egg components, lysozyme, nFel d 2, Can f 3, alpha-gal, nPru p 3, omega-5-gliadin, rTri a 14, rGad c 1 and rCyp c 1.
- SDS-PAGE Immunoblotting detected IgE reactive-bands of approx. 97 kDa, 60 kDa and 55 kDa in raw chicken wing and thigh extracts (the last two bands of greater intensity in extract of wing than of thigh), and bands of approx. 80 kDa, 70 kDa and 60 kDa in extracts from cooked chicken wing and thigh. IgE binding was not detected against raw and cooked breast extracts.
- SDS-PAGE Immunoblotting-inhibition with chicken alpha-livetin: negative against raw chicken wing extract.
- Raw chicken wing handling test: negative. Later, positive at home.
- Controlled oral challenge with cooked chicken breast: negative.
- Controlled oral challenge with cooked chicken wing: palmar-plantar pruritus and erythema on the neckline.

Conclusion:

- We present a case of allergy to chicken, where the patient's symptoms seem to be related to high molecular mass proteins present in chicken wings and thighs, but not in breast.
- In this patient, it has been ruled out that the symptoms are due to sensitization to alpha-livetin (Gal d 5); the molecular mass of IgE-binding proteins does not match the molecular mass of other chicken meat allergens: aldolase (Gal d 10), enolase (Gal d 9), myoglobin, triosephosphate isomerase, myosin light chain (Gal d 7) and parvalbumin (Gal d 8).

Conflict of interest: The authors did not specify any links of interest.

001314 | Clinical cross-reactivity or co-allergy to plant foods in 133 banana-allergic patients: A cross-sectional study from Thai adult cohort

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Background: Fruit consumption in the Asia-Pacific region might differ from that in Western countries. Banana has at least 5 proteins potentially linked with cross-reactivity to various allergens. However, in patients with banana allergy, data on the prevalence of clinical cross-reactivity to other tropical/exotic fruits and plant foods in tropical countries are limited.

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Method: We cross-sectionally surveyed IgE-mediated banana-allergic adult cohort in Thailand. A history of clinical reactivity to other fruits was collected using a structured questionnaire, and a two-step question was assessed: (1) ingestion of other fruits within 2 years after the development of banana allergy, (2) a convincing history of IgE-mediated reaction after ingestion of specific fruits. Clinical reactivity was categorized into non-severe and severe reactions, using World Allergy Organization (WAO) criteria.

Results: A total of 133 participants were evaluated (72% female, median onset of banana allergy of 33 years). The common clinically cross-reactive fruits were kiwi (84%), avocado (71%), persimmon (59%), grapes (44%), durian (44%), sapodilla (27%), peach (24%), dates (22%), jackfruit (20%), and apricot (11%). Around 51.8% of banana-allergic patients were found to be clinically allergic to more than 2 plant foods. The majority (73.6%) of reported symptoms to other plant foods were non-severe. However, a substantial number of patients were considered severe, especially kiwi, avocado, persimmon, and durian.

Conclusion: Banana-allergic patients had a high rate of clinical cross-reactivity or co-allergy to many tropical fruits and plant foods. Most patients had non-severe reactions, but severe reactions could also occur. The possibility of cross-reactivity should be warned in banana-allergic patients.

Conflict of interest: The authors did not specify any links of interest.

001576 | Exercise-induced anaphylaxis in a young woman with celiac disease

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Background: It is estimated that both celiac disease (CD) and wheat allergy (WA) are uncommon entities in general population, with an overall prevalence of 1 and 0.2-0.9%, respectively.

The combination of these diseases is even more unusual. However, some cases have been described in the literature.

CD is an autoimmune disease that occurs in genetically predisposed individuals (genotype HLA-DQ2 and HLA-DQ8), whereas WA is due to a Th2 response.

We present the case of a 17-year-old woman who was diagnosed with CD at the age of 4 [positivity for HLA-DQ2, antitransglutaminase, antigliadin and antiendomysial IgA antibodies, and jejunal biopsy Marsh 3 b)], who follows a strict gluten-free diet.

Sixty minutes after eating a ham and cheese pizza, and 5–10 min after physical exercise, she developed rhinitis, cough, dyspnea and oropharyngeal, neck and ocular itching, and also facial angioedema. She came to our emergency department and intravenous methylprednisolone and dexchlorpheniramine were administered. 48 h later she was totally asymptomatic. After that, she ate ham and cheese without developing any symptoms.

Method: Blood tests were not taken at the time of the allergic reaction. At our evaluation, we performed: prick test for food (wheat, barley, corn, peach (LTP) and profiline), complete blood count, biochemistry, total and wheat specific IgE, basal tryptase, and sensitization of allergenic components by macroarray (ALEX2).

Results: Prick test for wheat (3 mm) and barley (4 mm) were positive, histamine 3 mm. Total IgE 40 IU/mL, basal tryptase 4.99 ug/L, IgE against gluten 9.70 kU/L and wheat 5.85 kU/L were obtained. Sec c_flour was positive (0.34 kUA/L) in the macroarray analysis.

Wheat, rye and gluten allergy and wheat-dependent exercise-induced anaphylaxis were diagnosed.

Conclusion: Although CD and WA are entities mediated by different immune mechanisms, with recognition of different epitopes, there are more and more described cases of patients with CD developing WA, so the combination of the two could increase in the coming years. It has been hypothesized that sensitization to wheat could be due to the lack of exposure to a gluten-free diet.

Conflict of interest: The authors did not specify any links of interest.

001577 | Comparison of the relationships among allergen protein sequences from allergenic plant served as guideline to predict potentially allergenic plants

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*Presenting author: C. Sangsiri

Background: Food consumption is changing globally, with trends toward more healthy and sustainable food such as plant-based food and alternative meat. The addition of several novel/alternative ingredients raised concerns about food allergy. While several allergens from common plant foods have been widely studied, allergens from local and novel plants in Asia are much less understood. More information about these allergens at the molecular level should provide better guidance and prediction about allergenic potential and cross-reactivity of these allergens.

In general, similarity of the allergenic protein sequences is correlated with the level of cross-reactivity among food sources. Thus, we aimed to explore the relationships among known allergenic protein sequences within a given protein family. Furthermore, we compared the relationships of the allergenic protein sequences with those of the source plant species in order to preliminarily predict the allergenic potential of local/alternative plant species commonly consumed in Asia.

Method: In total, 123 allergen sequences from five protein families: non-specific lipid transfer protein (nsLTP), legumin, profilin, vicilin, and 2s albumin were obtained from The National Center for Biotechnology Information (NCBI) database. Sequences were aligned and used to construct phylogenetic trees based on the BioNJ

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algorithm using the Seaviewprogram. The source plant phylogenetic tree was constructed based on the Angiosperm Phylogeny Group (APG) IV system of flowering plant classification.

Results: The following phylogenetic trees were generated: nsLTP (38 allergen sequences, 33 species), legumin (17 allergen sequences, 16 species), profilin (27 allergen sequences, 26 species), vicilin (19 allergen sequence, 17 species), and 2s albumin (22 allergen sequences, 19 plant species). The phylogenetic trees from legumin and vicilin sequences showed closely related protein sequences were derived from closely related plant sources as expected. On the contrary, only a few clades from nsLTP, profilin, and 2s albumin trees showed a close relationship among botanically related plants.

Conclusion: The knowledge of this study can provide basic information for further study, especially regarding the local and/or novel food from Asia.

Conflict of interest: The authors did not specify any links of interest.

001503 | Anaphylaxis: An underecognized diagnosis

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Background: Anaphylaxis is a severe systemic hypersensitivity reaction, usually of rapid onset, which may lead to death. It is reported that the incidence of anaphylaxis in children ranges from 1 to 761/100000 and new anaphylactic reactions affect 26.5 to 54% of follow-up patients.

Anaphylaxis is diagnosed when there is an acute onset of illness with involvement of the skin, or the mucous membranes, or both, associated with severe respiratory or gastrointestinal symptoms or a reduction in blood pressure or associated symptoms of end-organ dysfunction.

According to the new EAACI guidelines, diagnosis is also possible in the presence of an acute onset of hypotension, bronchospasm or laryngeal involvement after exposure to a known or highly probable allergen.

International literature reports that, despite the increase in cases, only a few are correctly diagnosed in the Emergency Room (ER) and the life-saving drug adrenaline is still underused.

Fleischer et al. observed 512 children aged 5 to 15 months, with known or probable allergy to milk or egg, and reported that only 30% of their severe reactions were treated with adrenaline.

Recently, Kraft et al. analyzed the 9171 anaphylactic reactions reported by the European Anaphylaxis Register and found that first line therapy with antihistamine or steroids was significantly associated with the occurrence of biphasic anaphylaxis due to a delay in adrenaline administration.

Method: We describe the case of a child who was followed in our Paediatric Allergology Unit since the age of 9 months, after an anaphylactic reaction characterized by lips angioedema and dyspnea following the ingestion of cooked eggs. During that episode, he was admitted to the ER where he was treated only with betamethasone. At the age of 5 years, after ingesting a slice of turkey breast containing egg, he started to present dyspnoea, angioedema of lips and eyes and breast pain. His parents drove him to the ER where he was treated with intravenous betamethasone. The child was than admitted to our Paediatrics Unit, where he developed wheezing. Therefore, we administered intramuscular adrenaline and short-acting B2 agonists with improvement of symptoms.

Results: In the case reported, we described two episodes of anaphylaxis in the same child non adequately recognized and treated in the ER.

Conclusion: It is fundamental to promote the awareness of this diagnosis and the importance of a timely treatment with adrenaline among healthcare professionals.

Conflict of interest: The authors did not specify any links of interest.

GENOMICS AND PROTEOMICS

000086 | Genome-wide association study identifies susceptibility locus for hazelnut allergy in the adult lifelines cohort

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Background: Today, in Western Countries, but also in China and Africa, challenge-diagnosed food allergy (FA) is reported to be as high as 10% and affects both children and adults. Previous genetic studies reported several genes to be associated with FA. Some genes are specific to single foods, while others are shared between FAs for different foods or even with other allergic diseases, such as eczema, asthma, and hay fever. However, most genetic studies of FA focused on children and had limited sample sizes. We aimed to investigate genetic susceptibility to FA in the adult population from the Dutch Lifelines Cohort.

Method: Any FA and allergen-specific FA were defined based on in-depth questionnaires and the previously published FA algorithm in the Dutch Lifelines cohort (Westerlaken-van Ginkel et al., 2020). We performed a series of genome-wide association studies (GWAS) on any FA and allergen-specific (i.e., hazelnut) FA in 22,128 adults. FA-associated SNPs were identified by logistic regression adjusted for sex and age.

Results: No SNP was significantly associated with any FA in adults. However, in 489 hazelnut FA cases and 19,464 controls, we identified one genome-wide significant hazelnut FA-specific locus (Figure) in *HLA-DPA1* (rs5025825, $P = 1.08E-08$, BETA = 0.42). For the hazelnut FA-specific SNPs with a suggestive threshold ($P = 1E-06$), 10 of 21 SNPs are located in genes at the human leukocyte antigen (HLA) region and rs116103898 ($P = 5.36E-7$, BETA = 0.9) is eQTLs of *HLA-DPA1*, *HLA-DPB1*, and *HLA-DPB2*. The HLA-region can be characterized by 183 haplotypes (estimated by HIBAG packages) and 2

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of these haplotypes were significantly associated with hazelnut FA after Bonferroni correction (HLA-DPB1*04:01: $P = 1.49E-06$, BETA=-0.32), HLA-DPB1*09:01: $P = 1.06E-04$, BETA = 1.35). These association were attenuated when correcting for hay fever in the model.

Conclusion: In this GWAS on FA in Dutch adults, we report one hazelnut FA-specific locus at the HLA region and the association of two HLA haplotypes with hazelnut FA, implying an association with immune regulation. This association is partly driven by hay fever, suggesting a shared mechanism of hay fever and hazelnut allergy due to known cross reactivity between tree pollen and tree nuts as hazelnut.

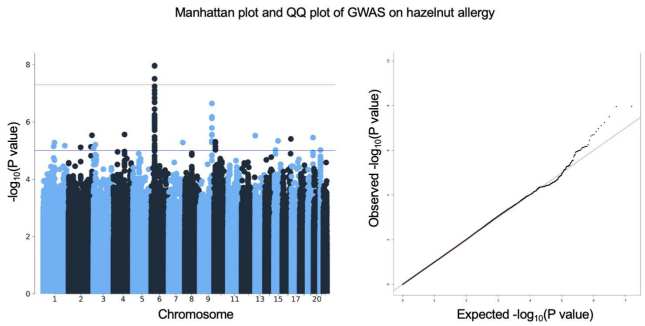

Figure Manhattan plot and QQ plot of GWAS on hazelnut allergy ($n = 19953$; 489 cases and 19,464 controls). In these two plots, each dot indicates a SNP test. In the Manhattan plot (left), the x-axis indicates 22 autosomes and the y-axis indicates the −log10(*P* value); the red horizontal line is $P = 5E-8$ (genome-wide significance threshold), while the blue horizontal line is $P = 1E-5$. In the QQ plot (right), the x-axis indicates the expected −log10(*P* value), and the y-axis indicates the observed −log10(*P* value). The red line means $y = x$.

Conflict of interest: Y. Sun is supported by a grant from the Chinese Research Council

000378 | Severe uncontrolled allergic asthmatic patients display a specific mirna profile associated to asthma and inflammation

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Background: Asthma affects an increasing number of people around the world every year. It involves genetic and environmental factors. Prevalence of severe uncontrolled allergic asthmatic phenotypes is increasing, while the underlying causes and mechanisms are not fully understood. Determining patients' asthma phenotype is critical for choosing the most appropriate treatment strategy, especially for severe asthma. In this work, we aimed to determine differentially expressed (DE) miRNAs in severe uncontrolled allergic asthmatic patients to use them as potential biomarkers of severity in allergic asthma.

Method: Thirty-six individuals were recruited and classified in three groups according to their phenotype (control subjects and mild or severe-uncontrolled allergic asthmatic patients). MiRNA PCR panels were used to study the expression of 752 miRNAs/patient extracted from serum samples. Normalization and statistical methods (statistical tests, hierarchical clustering, correlations, etc.) were applied with developed R scripts. miEAA software was applied for the functional enrichment analysis to know the biological implications of the DE miRNAs. DE miRNAs' predicted targets were obtained by using miRDB database.

Results: Forty DE miRNAs were detected between severe uncontrolled and mild allergic asthmatic groups. Eighteen of them were downregulated and twenty-two were upregulated in the severe uncontrolled group. From these DE miRNAs, only 18 were known to have previously described inflammation-asthma-related targets. Functional enrichment analysis revealed 123 enriched and 5 depleted signatures in severe uncontrolled patients compared to the mild ones, most of them related to inflammation (toll-like receptor), immune cells (CD14 expressed) and metabolism (sphingolipid signalling pathway). Significant correlations between 24 out of 40 DE miRNAs and some asthma-inflammatory-related metabolites such as sphingosine-1-phosphate were observed. Based on these correlations, we found some DE miRNAs' predicted targets related to the correlated metabolites.

Conclusion: Severe uncontrolled allergic asthmatic patients have a particular miRNA fingerprint mainly related to inflammation and sphingo-, phospholipid metabolism that correlates with severe asthma specific metabolites. Thus, severe-associated miRNAs could shed light on the underlying mechanisms associated to uncontrolled severe asthma.

Conflict of interest: MME reports payment or honoraria for lectures, presentations, speakers´ bureaus, manuscript writing or educational events from Stallergene and Diater

000326 | Oral immunotherapy modifies antigen-specific antibodies in serum and protein production in blood mononuclear cells in egg allergic children

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Background: Oral immunotherapy (OIT) is a promising therapy for the treatment of food allergy. For the development of more efficient and safer therapies, it is important to understand what happens during the desensitization process on a molecular level and why some

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patients benefit from this therapy while others don't. The aim of this study was to determine changes of concentrations of immunoglobulins (IgE, IgG4 and IgA) to the most common hen's egg allergens Gal d 1-4 (ovomucoid, ovalbumin, conalbumin, lysozyme) and immune-response induced protein production in peripheral blood mononuclear cells (PBMC) relative to the outcomes of oral immunotherapy.

Method: In this study 50 children, aged 6–17 years underwent OIT for hen's egg. Blood samples were collected at three time point: before the start of OIT, and 3 and 8 months after starting the therapy. Ig levels (by ImmunoCAP) and protein productions (by LC-MS/MS) in PBMC were compared at different time points and among the groups of desensitization reached at 8 months of therapy (partially or fully desensitized.)

Results: During OIT, concentrations of allergen-specific IgG4 and IgA antibodies increased while IgE antibody decreased. There was a trend of lower IgE levels at baseline being associated with the positive outcome of OIT. The protein production changed from pro-inflammatory before the start of therapy to anti-inflammatory at 8 months of therapy in PBMC.

Conclusion: Protein production in PBMC changes from pro-inflammatory to anti-inflammatory during OIT.

Conflict of interest: The authors did not specify any links of interest.

001402 | Differential expressions of micrornas in patients with chronic spontaneous urticaria and its clinical subtypes

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Background: Chronic spontaneous urticaria (CSU) is a common mast cell-driven cutaneous disease with complicated pathogenesis. MicroRNAs (miRNAs) have recently been reported to be implicated in the pathogenesis of allergic diseases such as asthma, allergic rhinitis, and atopic dermatitis. This study aimed to investigate whether miRNA might be related to the pathogenesis of CSU and its clinical subtypes.

Method: Thirty CSU patients (37.9 ± 9.8 years old, 15 females) and 10 normal controls were enrolled in this study. The patients were classified into clinical subtypes according to aspirin hypersensitivity and treatment response to antihistamines. MiRNAs were isolated from patient serum and analyzed using Affymetrix GeneChip™ miRNA 4.0 Array to compare expressions between CSU patients and normal controls. Genes targeted by miRNAs were identified by a web-based program TarBase v.8. The differentially expressed miRNAs were compared between patients with different clinical subtypes.

Results: A total of 27 miRNAs were differentially expressed between CSU patients and normal controls (9 upregulated and 18 downregulated in CSU patients). Among them, hsa-miR-5001-5p was more highly expressed in aspirin-intolerant patients than aspirin-tolerant CSU patients (Fold change, 1.565; $p = 0.04$). Compared with antihistamine responders, 4 miRNAs (hsa-miR-16-5p, hsa-miR-320d, hsa-miR-1268b, and hsa-miR-4793-3p) were significantly downregulated in antihistamine non-responders. Nineteen genes targeted by hsa-miR-5001-5p were identified, including IRF4 (interferon regulatory factor 4) and DCAF7 (DDB1- and CUL4-associated factor 7), of which subtypes (IRF1 and DCAF6) were reported as CSU-related genes in previous studies. ZNF217 (zinc finger protein 217), known as independently associated with the risk of allergic diseases, was also targeted by hsa-miR-5001-5p. The number of genes targeted by hsa-miR-16-5p was 7687, including multiple CSU-related genes such as CCL11 (C-C motif chemokine ligand 11; eotaxin-1), HRH1 (histamine receptor H1), and IL4R (interleukin 4 receptor) or their subtypes.

Conclusion: MiRNAs may have implications for the pathogenesis of CSU and its clinical subtypes. A better understanding of miRNAs and their targeted genes is needed to validate miRNAs as potential biomarkers for CSU.

Conflict of interest: The authors did not specify any links of interest.

000872 | A RNAseq study in nonsteroidal anti-inflammatory drugs-induced acute urticaria/angioedema

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Background: Nonsteroidal anti-inflammatory drugs (NSAIDs), including acetylsalicylic acid (ASA) and ibuprofen, are the most consummed medicines worlwide, and the main cause of drug hypersensitivity reactions. NSAID-hypersensitivity only occurs in some individuals, shunting prostaglandin (PTG) synthesis through cyclooxygenase-1 inhibition towards a disbalanced cysteinil leukotriene release, being NSAID-induced urticaria/angioedema (NIUA) the most frequent clinical entitity. Considering that current knowledge supports a genetic basis for NIUA, and that potential gene expression changes have not been evaluated, we aimed to analyse differential gene expression (DGE) in NIUA during the development of NSAID-hypersensitivity.

Method: RNAseq was performed from total RNA samples obtained from 7 NIUA patients twice: during a positive challenge with (ASA) (acute phase) and at least 1 month after it subsided. Samples from 10 age- and sex-matched, non-hypersensitive individuals taking ASA

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were also included. Multiple pairwise DGE analysis was performed using the ExpHunterSuite. To tag genes as differentially expressed, they have to be detected using DESeq2, edgeR, and limma packages, showed a mean adjusted *p*-value ≤0.05 and an mean absolute value of Log2Fold-Change >0.58. DGE results were functionally enriched to find gene ontology terms (Biological processes) and Reactome pathways by over-representation analysis, using an adjusted *p*-value lower than $p < 0.1$.

Results: Functional analysis revealed that most biological processes of DEG were related to leukocyte migration (*CCL3L1* and *CXCL8*, for example) and oxidative stress response (*ATP7A*, as an example), as well as biosynthetic processes of mononuclear cells, regulation of cell-cell adhesion and cytokine production. Reactome over representation análisis showed that most genes were linked to neutrophil degranulation (*MMP9*, *CXCL1*, *PLAUR*, *FCAR*, *SERPINB10*, and *OLR1*, among others), and interleukin signalling (*IL-4*, *IL-13*, and *IL-10*), being the later also overrepresented when comparing the acute phase of NIUA with ASA-taking controls. Finally, our results showed that *PTGDR* was up-regulated in NIUA.

Conclusion: Although preliminary, our results provide new insights into the underlying mechanisms in NIUA. However, more studies are required to validate our findings, and to establish their relevance at the molecular level and their potential utility in the management of NSAID-hypersensitive patients.

Conflict of interest: The authors did not specify any links of interest.

000914 | Leukotriene A4 hydrolase polymorphisms in acute urticaria/angioedema induced by nonsteroidal anti-inflammatory drugs hypersensitivity

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Background: Nonsteroidal anti-inflammatory drugs (NSAIDs)-induced urticaria/angioedema (NIUA) is the most frequent clinical phenotype due to cross-reactive hypersensitivity reactions to NSAIDs. These reactions have been linked to anomalies in the arachidonic acid (AA) metabolism in susceptible individuals, leading to an imbalance between the synthesis of prostaglandins and leukotrienes (LT). LTA4 hydrolase/aminopeptidase (LTA4H) catalyses the last step in the synthesis of LTB4, a key lipid mediator generated from AA through the sequential action of 5-lipoxygenase (5-LO) and 5-LO-activating protein. Although different studies have associated NIUA with single nucleotide polymorphisms (SNPs) in genes coding main enzymes from the AA pathway, no information is available concerning the role of such type of variants in the *LTA4H* gene. Our aim was to evaluate tagging SNPs (tSNPs) in *LTA4H* in a population of NIUA patients.

Method: A total of 10 tSNPs in the *LTAH4* gene were genotyped in 269 NIUA patients and 300 healthy sex- and age- matched controls using the iPlex Sequenom MassArray technology. These tSNPs were selected on the basis of available data from European populations in the 1000 Genomes Project. Those tSNPs showing a corrected *p*-value ≤0.05 after Bonferroni multiple testing were considered to be significantly associated with NIUA.

Results: The intronic rs2247570 variant was significantly associated with an increased NIUA risk under the additive model (OR = 1.47, IC = 1.13-1.9, corrected *p*-value = 0.033). In addition, the rs2540484 was suggestively linked to a higher NIUA risk; however, such association did not survive multiple testing correction (OR = 1.5, IC = 1.12-2.04, corrected *p*-value = 0.066).

Conclusion: Although additional studies are required to replicate our findings, our results suggest a role for *LTA4H* variations in the mechanism underlying NIUA. The relevance at the molecular level of this association and its potential utility in the management of NSAID-hypersensitive patients need to be elucidated.

Conflict of interest: The authors did not specify any links of interest.

000109 | Characterization of Hum j 6, a major allergen from Japanese hop pollen, the primary cause of weed pollinosis in east Asia

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Background: Japanese hop is an important cause of weed pollinosis in East Asia; however, its major allergens have not been characterized. This study aimed to characterize the major allergen from Japanese hop pollen.

Method: A major allergen in Japanese hop was detected by proteome analysis; it was purified to homogeneity and its sequence was obtained by transcriptome analysis. The recombinant proteins were produced in *Escherichia coli* and *Pichia* expression systems, and their IgE reactivities were compared with the natural counterpart. We also analyzed post-translational modifications such as glycosylation and phosphorylation.

Results: Pectin methylesterase inhibitor (PMEI), Hum j 6, was found to be the major allergen in Japanese hop. Natural Hum j 6 was recognized by IgE antibodies from 86.4% (19/22) of Japanese hop pollinosis patients, whereas the recombinant proteins did not show strong IgE reactivity. No glycosylation was detected, while at least 15 phosphorylated amino acids, possibly causing the pI shift, were detected by tandem MS analysis.

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Conclusion: Hum j 6 was identified as the major allergen of Japanese hop pollen and characterized. These findings are useful for the development of component resolved diagnosis and immunotherapy of the relevant weed pollen source.

Conflict of interest: KY Jeong, and JW Park have stocks in Prolagen. JW Park reports serving as an unpaid chief technology officer for Prolagen Ltd. KY Jeong receives a consulting fee from Prolagen Ltd, outside the submitted work. Dr. Ferreira reports personal fees from Swiss Institute of Allergy and Asthma Research (SIAF), personal fees from HAL Allergy, personal fees from AllergenOnline, outside the submitted work. Other authors have no potential conflicts of interest to disclose. Hum j 6 is pending a patent (10-2022-0066054).

001079 | Endotyping of Chronic Rhinosinusitis using omics approach: An explorative study

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Background: Chronic Rhinosinusitis (CRS) is an inflammatory disease of the nose and paranasal sinuses and may affect the upper airways in severe cases. In the EPOS guidelines CRS is diagnosed by at least two of the following major symptoms present for at least 12 weeks: nasal congestion, nasal discharge, pain or facial pressure or impaired sense of smell. There are two major types of CRS: presence of nasal polyps (CRSwNP) or no nasal polyps (CRSsNP). However, clinical classification by those two phenotypes does not reflect the variety of CRS endotypes which are related to different cytokine profiles and inflammatory responses and often lead to varying therapeutic response, surgical failures and recurrence, indicating that CRS is a hetegenous disease and proper pathophysiologic endotyping is necessary for advancement in patient management and treatments.

The aim of this project is to endotype CRS based on the proteomic analysis of the nasal mucus, Bronchoalveolar Lavage (BAL) and serum by profiling of inflammatory cytokines and immune cells and cluster analysis of CRS patients through untargeted proteomic analysis and target immunoassays and flow cytometry.

Method: Difference in proteome of nasal mucus, BAL and peripheral blood of 200 samples will be studied and analysed. First, Proteomic analysis will be performed on TimsTOF mass spectrometer and protein abundances will be calculated as mean and standard deviation and statistically analysed. Second, FACS analysis will be performed and immune cell profile will be established. All these data from patient samples will be analysed and compared with clinical tests and data to cluster our patient cohort into relevant pathophysiologic subgroups.

Results: Results will be presented during the congress.

Conclusion: This study gives us an insight into the different pathophysiological mechanisms that are involved in the disease and how it differs between individuals in the hopes of finding subgroups within this heterogeneous disease through analysing the protein profile and immune cells in CRS patients.

Conflict of interest: The authors did not specify any links of interest.

IMMUNOMODULATION AND NUTRITION

000301 | Nutritional status and adverse food reactions in children with autism spectrum disorder: Results of the NAFRA project

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Background: The prevalence of Autism Spectrum Disorder (ASD) increased dramatically in the last decades. Conflicting evidence suggest an increased prevalence of food allergy (FA) and malnutrition in ASD patients. The NAFRA (Nutritional Status and Adverse Food Reactions in children with Autism Spectrum Disorder) project was designed to bridge this knowledge gap.

Method: Prospective comparative study aimed at evaluating nutritional status, dietary habits (food selectivity and Mediterranean Diet (MD)-adherence) and prevalence of FA in 100 ASD children (79 male, mean ± SD age 65.4 ± 36 months) and 101 sex-, age- and socioeconomic status-matched healthy controls (HCs) (76 male, mean ± SD age 62.4 ± 34.2 months) consecutively observed at a Tertiary center for Pediatric Neuropsychiatry, Gastroenterology, Allergy and Nutrition.

Results: Higher prevalence of overweight/obesity (23/27% vs. 19/15%, $p < 0.05$) and of FA (7% vs. 1%, $p < 0.05$) was observed in ASD children. A higher prevalence of food selectivity (26% vs. 2%, $p < 0.0001$) and lower MD-adherence (28% vs. 16%, $p < 0.05$) was also observed in ASD children. Low MD-adherence score was inversely related to the severity of ASD.

Conclusion: Data from the NAFRA project, reporting higher rate of malnutrition, FA and unhealthy dietary habits in ASD children, strongly suggest the importance of a multidisciplinary approach providing appropriate nutritional management for improving core and associated ASD-related conditions.

Conflict of interest: The authors did not specify any links of interest.

001332 | Risk of all-caused cancers among organ transplant patients using different immunosuppressants: Real-world evidences

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Background: Occurrence of cancer after solid organ transplantation massively influence the quality of life of solid organ transplantation patients. Immunosuppressants were widely used in solid organ transplantation. However, whether or not the use of different immunosuppressants influence the risk of cancer after solid organ transplantation remained unclarified. The objective of this study is to evaluate the risk of cancer after solid organ transplantation in patients using different immunosuppressants, including corticosteroids, mTOR inhibitors and calcineurin inhibitors through the National Health Insurance Research Database (NHIRD) in Taiwan.

Method: In the current study, the National Health Insurance Research Database (NHIRD) in Taiwan was utilized. The population-based health database was administrated by the Ministry of Health and Welfare in Taiwan. Patients who underwent solid organ transplantation and taking different immunosuppressants including corticosteroids, mTOR inhibitors and calcineurin inhibitors has been identified and were separated into respective cohorts. The incidence of all-cause cancer would be head-to-head compared to determine the risk of developing future cancer in different immunosuppressant users after solid organ transplantation. This study was supported by National Science and Technology Council, Taiwan (Grant Number: 111-2813-C-040-015-H).

Results: Cyclosporine Microemulsion users were observed to have an 1.35-fold higher risk developing all-caused cancer in the future, comparing with non-users (Hazard ratio, HR = 1.35; 95% CI, 1.08-1.69). Comparing with calcineurin inhibitors and corticosteroids, mTOR inhibitors did not present significant protective effect in the all-cause cancer occurrence after solid organ transplantation (mTORi user vs CNi user, HR = 0.97; 95% CI, 0.357-2.631/ mTORi user vs corticosteroid user, HR = 2.31; 95% CI, 0.644-8.27).

Conclusion: Immunosuppressants selection could massively influence the occurrence of cancer after solid organ transplantation. The results observed in the current study could serves as potential references for clinicians while selecting the immunosuppressants for patients' treatments. Further large-scale real-world study was warranted to validate the observed association.

Table 1. Risk for immunosuppressant users developing cancer comparing with non-users

Variables	All cancer				
	HR	95% CI			p-value
Calcineurin inhibitors					
Cyclosporine Microemulsion (Yes vs No)	**1.35**	**1.08**	-	**1.69**	**0.009**
Tacrolimus (Yes vs No)	1.23	0.99	-	1.54	0.066
Corticosteroids					
Prednisolone (Yes vs No)	1.09	0.91	-	1.31	0.370
Methylprednisolone (Yes vs No)	1.09	0.81	-	1.47	0.561
mTOR inhibitors (Yes vs No)	0.91	0.73	-	1.12	0.365

HR, Hazard ratio

Table 2. Risk of all cause cancer in different immunosuppressant users after solid organ transplantation

Variables	All cancer								
	mTORi user vs CNi user			mTORi user vs corticosteroid user			CNi user vs corticosteroid user		
	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value
Total									
mTOR user	0.97	0.357-2.631	0.952	2.31	0.644-8.27	0.199			
CNi user	1	-	-				**2.35**	**1.033-5.348**	**0.042**
Corticosteroid user				1	-	-	1	-	-

HR, Hazard ratio, CNi, Calcineurin inhibitors; mTORi, mammalian target of rapamycin inhibitors

Conflict of interest: The authors did not specify any links of interest.

001469 | Exploring the role of food-derived extracellular mirnas in the development of allergic responses

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Background: Micro-RNAs (miRNA) are small (18-22 nt) single-stranded RNA molecules that regulate gene expression post-transcriptionally through a mechanism known as RNA interference. Qin et al, 2022, demonstrated that miRNAs are highly resistant to human saliva, and they can be further protected from the digestive system enzymes when they are loaded into exosome-like nanovesicles. Concordantly, recent research has indicated that some dietary miRNAs of animal or plant origin can enter the bloodstream and modify gene expression in host cells. Although the role of microRNAs in food allergy is not well-understood, some studies showed that miRNAs from ingested food can stimulate the immune response. We hypothesize that microRNAs can alter the development of food allergy as they can withstand digestion inside nanovesicles, be ingested by host cells, and affect cellular immune responses at the molecular level.

Method: To test our hypothesis, publicly available transcriptome data from food allergy studies were utilized. Using transcriptomes and methylomes from naïve CD4+ T-cells from infants and children with and without food allergy, GO and GSEA analyses were performed followed by VIPER.

Results: Hallmark gene sets that are related to innate and adaptive immune system signaling (interferon alpha/gamma response, TNF-α signaling via NF-κB, IL2-STAT5 signaling, JAK-STAT3 signaling, Complement) were significantly enriched in the food allergy group compared to the control group. According to miRNA: target interaction tools Miranda, TargetScan, and RNAHybrid, 846 egg and 711 peanut miRNAs could modify the expression of the aforementioned allergy genes in humans. The presence of some of these miRNAs inside food-derived nanovesicles, such as peanut miR159a, was confirmed using RT-PCR. A human basophil cell line, KU812, has been established to determine the specific effects of miRNAs on the primary effector cells in food allergy, utilizing histamine and tryptase-based degranulation assays and flow cytometry.

Conclusion: When completed, the study will help us understand the molecular mechanism of food allergies. In addition, novel biomarkers and therapeutic approaches for food allergy may be developed based on the outcome of the study.

Conflict of interest: The authors did not specify any links of interest.

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000980 | Binding of Alt a 1 to iron quercetin micronutrient complexes facilitates the attenuation of allergic symptoms in a BALB/c mouse model of alternaria allergy

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Background: *Alternaria alternata* spores contain the major allergen Alt a 1, the single major allergen of the mold *Alternaria alternate* which is strongly associated with respiratory allergies. We aimed to assess the potential immunomodulatory capacity of Alt a 1, the single major allergen of the mold *Alternaria alternata*, as a micronutrient carrier of iron-quercetin complexes (FeQ2) *in silico*, *in vitro* and *in vivo*.

Method: Docking calculations of quercetin alone, or in combination with iron (FeQ2) were performed with AutoDock Vina. Recombinant Alt a 1 was produced using pPICZαA plasmid system. Binding of Alt a 1 to FeQ2 was analyzed in docking calculations and by spectroscopy. IgE-binding to ligand-free apoAlt a 1 and ligand-complexed holoAlt a 1 was analyzed via ELISA and Western Blot. The impact of apo- or holoAlt a 1 on specific mast cell degranulation was assessed using rat basophilic RBLsx38 cells, and aryl hydrocarbon receptor (AhR) activation in the AZ-AHR reporter cell line. In a prevention model, female BALB/c mice were pretreated intranasally 6 times on two consecutive days with empty (apo) or FeQ2 loaded (holo) Alt a 1 before intraperitoneal (i.p.) sensitization with Alt a 1 absorbed to alum. Subsequently, mice were challenged i.p. with Alt a 1 and anaphylactic symptoms as well as immune response assessed.

Results: Concentration-dependent binding of iron quercetin complexes to Alt a 1 was confirmed via spectral analysis. Affinity to quercetin strongly depended on the quaternary state, increasing from monomer/dimer to tetramer with virtual addition of iron rendering calculated Kd-values as low as 100pM. HoloAlt a 1 facilitated FeQ2-dependent AhR activation. Patients IgE binding was up to 80% lower to holoAlt a 1 than to apoAlt a 1 in ELISA and Western Blot, in accordance also mast cell degranulation was hampered when Alt a 1 bound to FeQ2. In the prophylactic mouse model, pretreatment of mice with holoAlt a 1 led to a significant reduction of allergic symptoms upon allergen challenge compared to apoAlt a 1.

Conclusion: Alt a 1 has an outstanding affinity to iron-quercetin complexes suggesting a role as a micronutrient scavenger in fungi. Prophylactic treatment with holoAlt a 1 is effective in diminishing allergic sensitization and reducing allergic symptoms *in vivo*.

Conflict of interest: This study was funded by the Danube Allergy Research Cluster-DARC #08 of the Karl-Landsteiner University, Krems, Austria, to EJJ. FRW and EJJ are inventors on EP2894478, owned by Biomedical International R+D GmbH, of which EJJ is shareholder.

000459 | Therapeutic treatment of alternaria allergy in BALB/c mice is empowered when vitamin a metabolite retinoic acid is complexed with the Alt a 1 allergen

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*Presenting author: K. Hufnagl

Background: We investigated the biological function of Alt a 1 as a carrier of micronutrients, such as the vitamin A metabolite retinoic acid (RA) and the influence of RA binding on its immunogenicity in a therapeutic mouse model of Alternaria allergy.

Method: Binding of RA to Alt a 1 was analysed by *in silico* docking analysis and *in vitro* binding assays. Female BALB/c mice were intraperitoneally (i.p.) sensitized with Alt a 1 adsorbed to aluminium hydroxide followed by intranasal treatment with the "empty" allergen (*apo*-Alt a 1), allergen loaded with RA (*holo*-Alt a 1) and or with RA alone as a control. Anaphylactic response was measured after i.p. Alt a 1 challenge. Allergen-specific antibody response in sera and cytokine production in splenocytes were analysed by ELISA. Flow cytometry was used to assess splenic CD marker expression.

Results: *In silico* docking calculations revealed that RA binding was improved dependent on the quaternary state of Alt a 1, with highest affinity of −8.53 kcal/mol and a dissociation constant of 0.55 µM in tetrameric Alt a 1, which was supported by *in vitro* binding assays. In a mouse model of Alternaria allergy therapeutic nasal application of *holo*-Alt a 1, but not of *apo*-Alt a 1, significantly impeded the anaphylactic response after i.p. Alt a 1 challenge, as demonstrated by significant reduction of anaphylaxis score and prevention of body temperature drop. Allergen-specific IgE levels in serum and Th2 cytokines (IL-13, IL-4) in splenocytes were not affected by any treatment. However, we found a significant increase in IL-10 after intranasal *holo*-Alt 1 application compared to treatment with *apo*-allergen or RA alone. Analysis of splenic surface markers revealed unaltered regulatory CD4+CD25+Foxp3+ expression between groups, while percentage of CD19+CD138+ plasma cells and of dendritic CD11c+ CD86+ MHCII+ cells were significantly reduced in splenocytes from *holo*-Alt 1 treated mice, the latter indicating interruption of pro-inflammatory antigen presentation of the allergen.

Conclusion: *Holo*-Alt a 1 binding to RA was able to modulate an ongoing Th2 immune response and prevent anaphylactic symptoms *in vivo*, making it a hypoallergenic candidate for immunotherapy.

Conflict of interest: This study was funded by the Danube Allergy Research Cluster - DARC #08 of the Karl-Landsteiner University, Krems, Austria, to EJJ. FRW and EJJ are inventors on EP2894478, owned by Biomedical International R+D GmbH, of which EJJ is shareholder.

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000559 | **Anaphylaxis after ingestion of quinoa**

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Quinoa is a pseudocereal native to South America wich belongs to the Chenopodiaceae subfamily of amaranthaceae such as spinach, beetroot and chard. It is considered a "superfood" for its nutritional properties. Quinoa allergy is exceptional.

A 26-year-old woman with atopic dermatitis, rhinoconjunctivitis and asthma due to grass pollen, presented dyspnea, urticaria and eyelid oedema 15 min after eating a poke bowl (salmon, sesame, soy sauce, avocado, fish roe and quinoa).

Skin prick tests (SPT) were performed with fish, nuts, fish roe and quinoa, specific IgE (sIgE) for food and pollen (ImmunoCAP Thermo Fisher) were determined and immunodetection assays were performed.

SPT were positive to quinoa, the rest SPT were negative (Figure A). Quinoa sIgE value was 0.06 kUA/L and sIgE was positive to grass and cypress pollen.

SDS-PAGE-immunoblotting was performed with quinoa extract detecting IgE binding in 29-30 kDa bands, 32 kDa, 39 kDa that could correspond to the acid subunit of the 11S globulin. Other revealed bands were the 46 kDa and 70 kDa that could be a globulin 7 (Figure B).

We present a case of quinoa anaphylaxis with probable involvement of storage proteins (11S and 7S globulins). It is important to consider emerging foods in the diagnosis of food allergy.

JM case reports session: 18244.

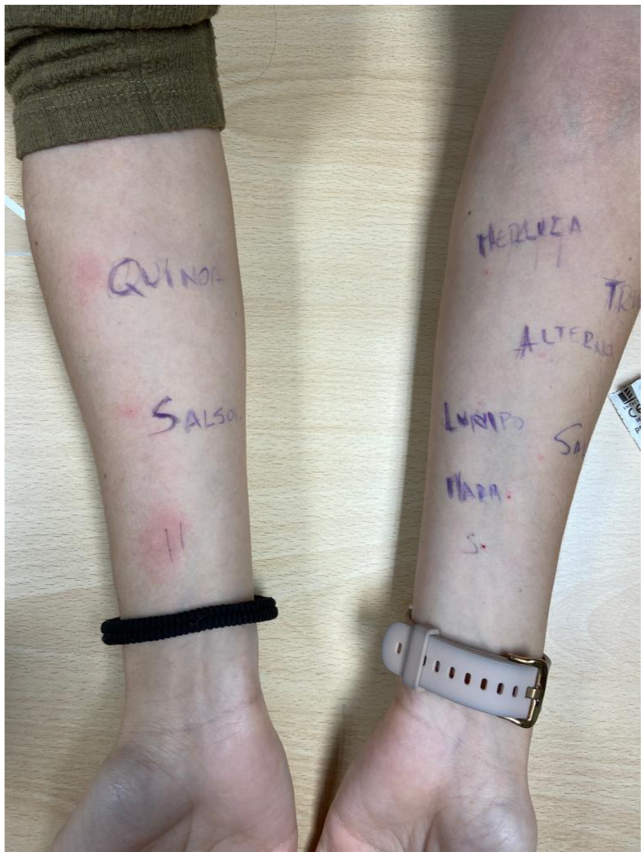
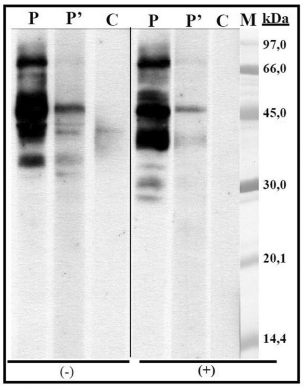


Figure A: Skin prick test



Calle P, P': Suero SGA. Dos diluciones **Calle C**: Suero control (mezcla de sueros de personas no atópicas) **M**: Patrón de masas moleculares. **(-)** Muestra sin tratar con 2-mercaptoetanol, **(+)** Muestra tratada con 2-mercaptoetanol.

Figure B: SDS-PAGE Inmunoblotting

Conflict of interest: The authors did not specify any links of interest.

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INFECTIONS

001336 | Have there been changes in the profile of patients with atopic dermatitis during the Covid 19 pandemic?

D. P. P. Lobo; R. C. V. M. Filho; D. L. Rodrigues; M. D. B. Dorna; B. Morgenstern; A. P. B. C. Moschione; A. C. Pastorino

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Background: Atopic dermatitis (AD) is a chronic disease with frequent exacerbations, influenced by environmental factors. The Covid 19 pandemic may have influenced the change in the course of the disease.

In this work, we sought to assess changes in the outpatient profile of patients with AD during the Covid 19 pandemic.

Method: A retrospective analysis of the electronic medical records of all patients followed up for atopic dermatitis in a tertiary pediatric hospital between July 2017 to December 2019 (T1) and April 2020 to September 2022 (T2) was performed (30 months in each period). The following data were compared (using the chi-square or Mann Whitney tests): SCORAD, use of systemic immunosuppressive therapy (cyclosporine or methotrexate), use of systemic antibiotics, hospitalization for AD exacerbations, presence of psychiatric disorders and obesity.

Results: In period T1, 506 medical appointments were carried out in 138 patients (average of 3.6 per patient) and in period T2, 262 medical appointments were carried out in 80 patients (3.2 per patient).

Comparing periods T1 and T2, there was a significantly higher use of systemic immunosuppressive therapy ($p = 0.001$) and systemic antibiotics ($p = 0.003$) and significantly more hospitalizations due to exacerbations of AD ($p = 0.001$) in the T2 period.

Regarding the other findings, there was no significant increase in the T2 period in relation to the SCORAD medians (T1 = 39.75 and T2 = 39.4; $p > 0.05$) and in the identification of psychiatric disorders (16% in T1 and 13% at T2) or obesity (10% at T1 and 10% at T2).

Conclusion: There was a change in the profile of patients followed up for AD, characterizing greater severity during the COVID 19 pandemic. This severity was identified by the increase in the number of hospitalizations for AD, use of systemic immunosuppressive therapy and of infectious events.

Although the specific reasons for these patients worsening are not fully understood, the need for frequent medical follow-up is evident.

	T1	T2	
Number of Patients	138	80	
Number of Medical Appointments	506	262	
Average Appointments per patient	3.6	3.2	
SCORAD Median	39.75	39.4	p > 0.05
Use of Systemic Antibiotic per appointment	0.09	0.17	p = 0.03
Hospitalizations due to AD	10	14	p = 0.001
Use of Systemic Immunosupressive Therapy per appointment	0.06	0.13	p = 0.001

TABLE: Data obtained after analysis of electronic medical records of patients followed up for Atopic Dermatitis (AD) before and after the beggining of COVID 19 pandemic: T1 (July/2017 to November/2019) and T2 (April/2020 to September/2022).

Conflict of interest: The authors did not specify any links of interest.

000606 | Passively transmitted anti-SARS-CoV-2 specific antibodies through the immunoglobulin substitution therapy

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Background: Common variable immunodeficiency (CVID) is a heterogeneous group of disorders characterized by decreased levels of immunoglobulins, impaired production of specific antibodies, and immune system dysregulation. The clinical manifestation of CVID includes recurrent bacterial infections and a broad spectrum of non-infectious complications such as autoimmune, granulomatous, and lymphoproliferative diseases as well as increased susceptibility to malignancies. Thus, patients with CVID are regarded as a risk population for the severe course and poor outcomes. As vaccination may not provide sufficient protection for patients with CVID, there is an open question, whether immunoglobulin replacement therapy can protect against SARS-CoV-2 infection or severe COVID-19. Immunoglobulin replacement therapy (IRT) provides effective prevention of bacterial infections but is limited against seasonal or novel viral infections. Therefore, we evaluated the content of virus-specific antibodies in IRT solutions.

Method: The virus-specific antibodies were evaluated in 9 different batches of 2 distinct brands of immunoglobulin solutions for intravenous use with expiration dates ranging from February 2023 to February 2025. Anti-RBD and anti-NCAP SARS-CoV-2 specific antibodies were measured by chemiluminescence immunoassay (CLIA) and immunoblot methods (IB).

Results: We detected high levels of anti-RBD antibodies (>180 U/mL) in all assessed IRT solutions by IB as well as CLIA (>22 U/mL). Moreover, we also found high concentrations of anti-NCAP antibodies in 6 different batches by IB and in 2 batches by CLIA.

Conclusion: The specific anti-RBD antibodies were found in all IRT solutions by two different methods of assessment including CLIA and IB. Additionally, anti-NCAP antibodies were detected in some of them suggesting, that the IRT solutions are prepared from vaccinated and recovered individuals as the donors. We assume, that the specific anti-viral antibodies may be transmitted and may provide some protection. However, these findings have to be interpreted in the context of the predominant viral strain that can affect efficacy.

Conflict of interest: The authors did not specify any links of interest.

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000355 | Predicting trainable damps in asthma development by integrating mRNA expression and DNA methylation

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*Presenting author: M. Abu Risha

Background: Frequent preschool infections with human rhinovirus (HRV) induce airway epithelial damage and are associated to asthma development later in life. Adaptive training of the innate immune response of epithelial cells leads to an increase of specific danger signals keeping the cells alarmed. DNA methylation is an epigenetic mechanism that confers such a training memory and can help to identify disease associated switch points. Involved genes can serve as biomarkers to track the early disease development. Discovering the trainable specific damage-associated molecular patterns (DAMPs) can help in early diagnosis.

Method: BEAS-2B cells were cultured with HRV-16 for 24 h, then split into two parts for DNA and RNA extraction. Each part was cultured up to five sequential infections. Samples were collected for the first, third and fifth infection, then genome-wide DNA methylation and mRNA expression was applied to each sample using HumanMethylation450 BeadChip Kit and RNA sequencing. A mixed model design was used to obtain differentially expressed genes and differentially methylated probes. The pre-processed data was further processed with filtering steps to obtain a set of trainable genes that are upregulated in each infection. Trainable genes were defined as differentially expressed genes with differentially expressed probes.

Results: Results showed 254 upregulated genes fulfilling the 'trainable' criterium. Functional analysis revealed significant pathways involved in innate immunity such as toll-like receptor cascades and antimicrobial peptides. We identified three DAMPs (*S100A6*; FC = 1.622, *S100A8*; FC = 3.649, *S100A13*; FC = 1.324) that correlate with specific methylated probes. Three CpGs in *S100A6* (cg10959711, cg24375627 and cg08106792) were correlated with expression level (r^2 = −0.28, −0.43 and −0.314 for the linear model, respectively). Four CpG in *S100A8* (cg20070090, cg20335425, cg01431057, cg20256009) were correlated with expression level (r^2 = 0.54, −0.51, −0.31 and 0.62). One CpG in *S100A13* (cg06819431) was correlated with expression level (r^2 = −0.44).

Conclusion: Significantly trained pathways were enriched for DAMPs and their recognition. S100 family members were prominently featured in our mixed model analysis. Extracellular S100 proteins interact with toll-like receptors and activate proinflammatory signaling. Our results suggest that repeated HRV trained DAMPs, which may increase the readiness of the innate immune response. Further research is warranted to confirm these finding in vivo.

Conflict of interest: The authors did not specify any links of interest.

000446 | Reduction of TGF-β-garp complex by NK cells upon rhinovirus infection

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Background: Asthma is a chronic inflammatory disease of the airways that affects millions of people all over the world. Rhinovirus infection is one of the main triggers for exacerbations of the disease. Different immune cells participate in the antiviral defense of the host enclosing Natural Killer (NK) cells. NK cells are an important source for the production of IFNγ and exert cytotoxic functions relevant for the clearance of the virus infected cells. Cytokines like TGF-β can regulate various immunological processes. TGF-β is secreted in an inactive form bound to the latency associated protein (LAP). Different cells have the ability to present inactive TGF-β on their surface via proteins like glycoprotein A repetitions predominant (GARP). The involvement of TGF-β in the host response to rhinovirus is still unclear. Thus, in this study we wish to further elucidate the role of TGF-β during rhinovirus infection.

Method: In our human cohort of healthy adult controls and asthmatics (AZCRA) we cultured PBMC after rhinovirus infection in vitro. TGF-β was analyzed via ELISA and flow cytometry of different cell types was performed after 4 days of culture.

Results: First, we investigated the release of TGF-β in control and rhinovirus infected PBMC via ELISA. Here we saw a strong reduction in the RV infected condition. We next analyzed the mRNA levels of TGF-β and its receptor and didn´t find differences in the expression. Flow cytometry staining for co-expression of TGF-β and GARP revealed that NK cells carry this complex on their surface. In the rhinovirus infected condition, we found this membrane-bound TGF-β to be reduced. Simultaneously, the NK bright population was increased and more IFNγ was detected in the supernatant of RV infected PBMC.

Conclusion: Taken together, we found that, TGF-β1 in the supernatant was markedly reduced after rhinovirus infection due to a reduced expression of the LAP-TGF-β-GARP complex on NK cells. We therefore report that, NK cells reduce their TGF-β cellular egression to increase their survival, cytotoxicity and cytokine production upon RV infection, as TGF-β is known to inhibit these functions. These results implicate an unpredicted role of TGF-β egression from NK cells during viral infection.

Conflict of interest: The authors did not specify any links of interest.

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001337 | Reduced miR-146a-5p is a biomarker of infant respiratory diseases contributing to immune dysregulation in small airway epithelial cells

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Background: Respiratory diseases such as bronchiolitis, and those with wheezing episodes, are highly important during infancy due to their potential chronicity. Immune response dysregulation is critical in perpetuating lung damage. Epigenetic modifications including microRNA (miRNA) posttranscriptional regulation are among the factors involved in alleviating inflammation. We evaluated the expression of miR-146a-5p, a previously described negative regulator of immunity, in infants with respiratory diseases, in order to study epigenetic regulation of the immune response.

Method: Nasopharyngeal aspirate (NPA) was obtained from infants with bronchiolitis (ongoing and post-disease) or with wheezing episodes in addition to healthy controls. Virus presence was determined by nested PCR, while miRNA and gene expression were studied in cells from NPAs using qPCR. Healthy small airway epithelial cells (SAECs) were used as *in vitro* model.

Results: We observe a reduction in miR-146a-5p expression in infants with either bronchiolitis (ongoing and post-disease) or with wheezing episodes compared to controls ($p < 0.05$), suggesting the potential of this miRNA as a disease biomarker, as seen in the ROC curve, with an UAC of 0.85 for differentiating presence of infant respiratory diseases in respect with controls ($p < 0.05$). Post-bronchiolitis, miR-146a-5p expression increases, though without reaching levels of healthy controls. MiR-146a-5p expression correlates inversely with the immune-related gene *PTGS2*, while its levels correlate directly with *TSLP*, showing relationship of miR-146a-5p with the antiviral immune responses of these diseases. When healthy donor SAECs are stimulated by poly:IC, we observe an increase in miR-146a-5p, accompanied by *TLR3* and *TSLP* overexpression, with wounds having a synergistic effect ($p < 0.05$), confirming that viral responses in healthy epithelium are characterized by miR-146a-5p increase.

Conclusion: In summary, our results show that miR-146a-5p is reduced in the airways of infants with severe respiratory bronchiolitis and with wheezing episodes, suggesting the suitability of this miRNA as a biomarker for the disease, as well as a measure of immune dysregulation in small airway epithelial cells *in vitro*. Artificial over-expression of miR- 146a-5p, such as that observed in many animal models, may, thus, be a promising therapeutic target to restore immunity and resolve inflammation in infants with severe early respiratory infections and wheezing.

Conflict of interest: The authors did not specify any links of interest.

001470 | Antibiotic prescription practices for acute asthma exacerbations: Results of an EAACI survey

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*Presenting author: A. L. Redel

Background: An acute asthma exacerbation (AAE) is a worsening of symptoms and is treated with systemic corticosteroids. Antibiotics are often prescribed, despite the lack of clear evidence for their beneficial effect. We performed a survey among European Academy of Allergy and Clinical Immunology (EAACI) members to gain insight into antibiotic prescription practices for patients with an AAE.

Method: The EAACI task force designed an online survey to explore the health care providers' antibiotics prescription practices. The online survey comprised questions such as demographics of the health care providers, antibiotics prescription rates, and differentiating questions to investigate the considerations of health care providers to prescribe antibiotics. The survey was created in Castor EDC and distributed among the EAACI members by e-mail. Additionally, the survey was translated and distributed in Poland, the Netherlands, Greece, and Italy.

Results: The survey was completed by 112 EAACI members from 49 different countries with the majority living in Europe (74.1%). Participants represented different professions, mainly allergists (62.5%), followed by paediatricians (20.5%), and pulmonologists (10.7%). Seventy-seven % of the participants agreed that there is a lack of evidence or guidelines to prescribe antibiotics in AAE. One hundred and five participants diagnosed patients with AAE and prescribed antibiotics in 18% (median; IQR: 0-33%). The majority (73.2%) indicated that they assumed to prescribe fewer antibiotics than colleagues; their prescription rates were indeed lower (median

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14%; IQR: 0-29%). Before prescribing antibiotics, 68% of the participants would perform diagnostic tests, mainly inflammatory blood parameters or a chest X-ray. The most prescribed antibiotics were macrolides (45%) and penicillins (41%). The numbers of national surveys were too small to draw firm conclusions for each country except for the Polish survey; the prescription rate in Poland was 20% (median; IQR 0-46%), and the antibiotic classes resembled the international survey results.

Conclusion: Most of the participants agreed that there is a lack of guidelines for prescribing antibiotics in patients with AAE. The results indicated a broad variation in antibiotic prescription rates. Further research is needed to compose evidence-based guidelines to aim for more rational antibiotic prescriptions for AAE.

Conflict of interest: The authors did not specify any links of interest.

000035 | Immunological and neurocognitive functions in DiGeorge syndrome

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Background: DiGeorge syndrome (DGS), also known as "22q11.2 deletion syndrome", is a genetic disorder caused by a hemizygous microdeletion of the long arm of chromosome 22. We aimed to evaluate the clinical, laboratory, radiological, and neuropsychological findings of our patients diagnosed with DGS in this study.

Method: Patients with DGS were included in the study between June 2000-March 2022. Clinical and laboratory data of patients were evaluated retrospectively. Neuropsychological tests were applied to the patients to evaluate their neurocognitive findings.

Results: Fifty-two patients (28 male and 24 female) were included in our study. Fifteen died during the follow-up. All 37 patients (16 female, 21 male) under clinical follow-up had partial DGS. The median age of patients was 10 years 7 months (2 months- 49 years 5 months) and the median age of patients at diagnosis was 5 years and 4 months (1 month- 48 years 1 month). CD3 lymphopenia was detected in 19/52 (36.5%) of the patients. Eleven patients had low CD4, 17 patients had low CD8, and 10 patients had low CD4 + CD8. IgM levels were low for 20/52 (38.4%) patients, whereas IgG and IgA deficiencies were detected in 5. 27 patients (72.9%) had cardiac pathologies, and 13 (35.1%) patients developed an autoimmune disease. Two patients developed cancer (non-Hodgkin lymphoma and mycosis fungoides). Bilateral conduction deceleration in the anterior visual pathways in 6 (20%) of 30 patients was determined by the VEP (Visual Evoked Potentials). The auditory brainstem evoked potential test (BAEP) showed sensorineural hearing loss in 11 out of 30 (36.6%) patients. Cranial MRI disclosed developmental brain abnormalities in 18 out of 25 (72%) patients. The neuropsychological assessment showed that impairments in executive functions, expressive language, and verbal memory of 18 patients were noted.

Conclusion: Patients diagnosed with DGS should be monitored multidisciplinary, and it should be kept in mind that they may be presented with neuropsychiatric findings or hypocalcemia as the initial symptom in advanced age. Awareness of the potential for underlying neurologic disorders is key to anticipatory guidance, optimization of therapies, and maximizing life quality

Conflict of interest: The authors did not specify any links of interest.

000241 | The post-COVID syndrome and post-traumatic stress disorders in patients from Ukraine (the pilot study)

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*Presenting author: S. Zubchenko

Background: After infection with SARS-CoV-2 is observed short-term and long-term post-acute sequelae of COVID-19 (PASC). Since the full-scale war in Ukraine, patients with PASC have been additionally diagnosed with post-traumatic stress disorder (PTSD). The manifestation of PASC is associated with the reactivation of herpesvirus infections that can trigger lymphoproliferative, autoimmune, allergic, and other pathological disorders.

Method: 142 patients with PASC were examined, including 79 females and 63 males, with a mean age of 41.4 ± 6.7 years. PASC was verified by NICE guidelines (2020), and PTSD was verified by American National Center for PTSD (2013). Anamnestic, clinical, general laboratory, biochemical and immunological testing were performed on all patients.

Results: In 142 patients with PASC, detected next clinical symptoms: mild fever in 71 (50.0%) patients, headache in 132 (92.9%), anxiety in 53 (37.3%), memory impairment in 83 (58.4%), depression in 47 (33.1%), myalgia in 46 (32.3%), arthralgia in 40 (28.1%), and shortness of breath in 55 (38.7%). Laboratory investigations showed elevated ESR in 53 (37.3%), lymphopenia in 93 (65.4%), monocytosis in 91 (64.0%), and increased liver enzyme activity ALT and AST in 43 (30.2%), CRP in 38 (26.7%), and D-dimer in 41 (28.8%). Reactivation of herpesvirus infections was detected in 105 (73.9%) of these patients: positive DNA EBV – in 33 (31.4%) patients, DNA HHV6 – in 41 (39.0%) patients, DNA HHV6 and EBV– in 25 (23.8%) patients. 10 weeks after the start of the war, 121 of these patients were re-examined (due to evacuation 21 patients dropped out of the study). PTSD was diagnosed in 83 (68.6%) patients. Reactivation of herpesvirus infections was detected in 119 (98.3%) patients: positive DNA EBV in 38 (31.4%) patients, DNA HHV6 in 54 (44.6%) patients, DNA EBV and HHV6 in 27 (22.3%) patients.

Conclusion: In 20.8% of patients with PASC and PTSD, the increased reactivation of herpesvirus infections was observed, especially by HHV6. Patients with PASC, PTSD, and active herpes viruses were characterized by more frequent mental, articular, and respiratory

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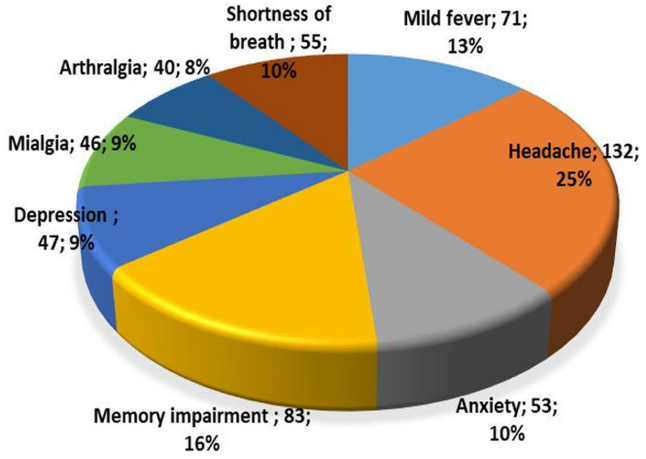

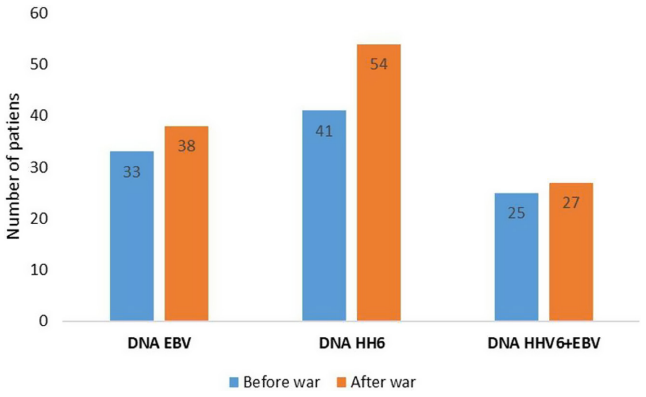

manifestations, and laboratory abnormalities. In patients with PTSD and PASC has stimulated the reactivation of herpes viruses (HHV6), which required correction of treatment, including the involvement of psychotherapists.

Conflict of interest: The authors did not specify any links of interest.

000037 | Dialyzed leukocyte extract (DLE) IMUNOR® as a preventative measure against COVID-19

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*Presenting author: T. Balner

Background: Original/review articles on the diagnosis, prevention and treatment of COVID-19 largely focus on the epidemiology, etiopathogenesis and management of severe cases resulting from SARS-CoV-2 infection. Less attention is paid to immunomodulatory drugs that can favourably inform human innate immunity at the initial phases of infection. Therefore, a pilot monocentric study evaluating the efficacy of IMUNOR® in the prevention and mitigation of COVID-19 has been conducted.

Method: A monocentric, non-randomized, non-blinded pilot study based on the participation of voluntary study subjects (EudraCT 2020-005524-11) investigated 51 nurses at a university hospital during the third wave of COVID-19 pandemic in the Czech Republic. The primary outcome measure was based on prevention success rates against SARS-CoV-2 infection in outpatient and inpatient nurses during a 1- and 2-month period in a high-risk professional setting, respectively, with a 1-month follow-up. Secondary outcome measures focused on the severity of infection. The hospitalization rate in study participants and tolerability of IMUNOR® were also measured. A large-scale control group consisting of the remaining nurses in the same hospital was used.

Results: During the study, only two nurses on the IMUNOR® preventative regimen suffered a mild COVID-19 infection. No hospitalization was required and a 2-week home-based symptomatic treatment was sufficient. A statistically highly significant preventative effect of IMUNOR® ($p < 0{\cdot}00001$) was documented for a total of 70 per cent of days. In the remaining days, statistical significance could not be established, there being one incapacitated subject only at a time.

Conclusion: IMUNOR® appears to have a preventative potential against severe COVID-19 infection in high-risk professional populations.

Conflict of interest: The authors did not specify any links of interest.

001081 | Initial infectious presenting manifestations in patients with inborn errors of immunity (IEI) in a tertiary pediatric hospital

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Background: Inborn Errors of Immunity (IEI) are rare diseases with significant morbimortality and their most frequent initial manifestations are infections. Better knowledge of these manifestations and diseases can reduce the delay in diagnosis.

Method: The aim of the study was to describe the initial infectious manifestations reported in patients with IEI.

Data were obtained from medical records of patients with IEI followed in a tertiary pediatric hospital between 2018-22. Patients with initial infectious presenting manifestation related to diagnosed IEI were included.

We report these manifestations, the diagnosis of IEI and age at the onset of manifestations and at the diagnosis.

Results: Were included 99 patients (68 male) representing 56% of the 177 with IEI. The age of patients at the onset of infectious manifestation were: 64 (<1 year), 28 (1-5yrs) and 7 (>5yrs).At diagnosis of IEI: 13 (<1 yr), 37 (1-5yrs) and 49 (>5yrs).

The infectious manifestations reported were: 40 Pneumonia (PMA), 18 otitis, 13 abscesses, 9 viral upper respiratory tract infections (VURTI), 8 tuberculosis (TB), 7 sinusitis and 4 meningoencephalitis.

The most reported IEI with initial infectious manifestations were: 25 Chronic Granulomatous Disease (CGD), 21 Selective IgA Deficiency (SIgAD), 6 Common Variable Immunodeficiency (CVID), 6 Di George Syndrome (DGS), 5 Mendelian Susceptibility to Mycobacterial Diseases (MSMD) and 5 Severe Combined Immunodeficiency (SCID).

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The analysis of these data showed the following relevant correlations:

1. Manifestations x Age of onset:

- **< 1yr:** PMA (30/40); abscess (10/13); otitis (11/18) and TB (6/8).
- **Between 1-5yrs:** VURTI (7/9).

2. IEI x Age of onset:

- **< 1yr:** CGD (21/25) and SCID (5/5).
- **> 5yr:** CVID > 5 yr (5/6).

3. Manifestations x IEI: PMA in CGD (11/25), SIgAD (7/21), DGS (5/6) and SCID (3/5); abscess in CGD (10/25); VURTI in SIgAD (7/21); otitis in SIgAD (7/21); and TB in MSMD (4/5).

Conclusion: Initial infectious presenting manifestations were the most frequent and presented early (mainly in the first year of life). PMA was the most reported manifestation and CGD the most reported diagnosis. The higher age at diagnosis may be due to the low suspicion of IEI in the face of some common and mild initial manifestations, but also to the diagnosis of SIgAD and CVID can only be established at older ages. It is important to be aware of these manifestations (mainly severity and recurrence) in order to diagnose early, enabling strategies to improve the prognosis of patients.

Conflict of interest: The authors did not specify any links of interest.

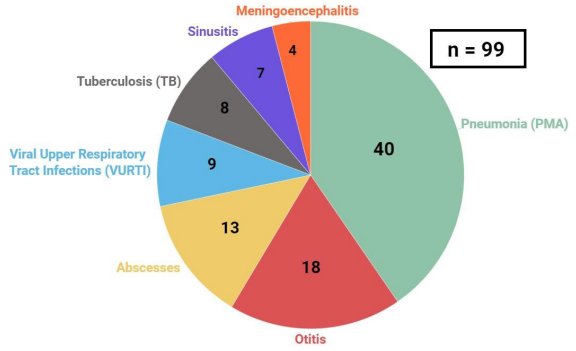

CHART 1: Inital infectious presenting manifestations of 99 patients with IEI (n).

	PNEUMONIA			OTITIS			ABSCESSES			VURTI			TUBERCULOSIS			SINUSITIS			MENINGOENCEPHALITIS			
	< 1 YR	1 - 5 YRS	> 5 YRS	< 1 YR	1 - 5 YRS	> 5 YRS	< 1 YR	1 - 5 YRS	> 5 YRS	< 1 YR	1 - 5 YRS	> 5 YRS	< 1 YR	1 - 5 YRS	> 5 YRS	< 1 YR	1 - 5 YRS	> 5 YRS	< 1 YR	1 - 5 YRS	> 5 YRS	TOTAL
CGD	10	1	0	1	0	0	8	2	0	0	0	0	1	1	0	1	0	0	0	0	0	25
SIgAD	6	1	0	5	1	1	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0	21
CVID	0	0	1	1	0	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	6
DGS	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
MSMD	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	5
SCID	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	5
HIES	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
XLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3
HIGM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
STAT 1 GOF	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
HLH	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
PIK3CD	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
C2 DEFICIENCY	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
CHS	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
CyN	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
LRBA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
RIPK 1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
BLOOM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
RAG2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
STAT 3 GOF	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
IFNAR 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
CANDLE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
KABUKI	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
GSD1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
STAT 5B	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CDC 42	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
VODI	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	30	9	1	11	3	4	10	3	0	2	7	0	6	1	1	3	3	1	2	2	0	99

TABLE 1: Initial infectious presenting manifestations per age at onset (< 1 year, 1-5 years and > 5 years) in each diagnosis of Inborn Errors of Immunity (IEI).
[Viral Upper Respiratory Tract Infectious (VURTI); Chronic Granulomatous Disease (CGD); Selective IgA Deficiency (SIgAD); Common Variable Immunodeficiency (CVID); DiGeorge Syndrome (DGS); Mendelian Susceptibility to Mycobacterial Diseases (MSMD); Severe Combined Immunodeficiency (SCID); Hyper IgE Syndrome (HIES); X-Linked Agammaglobulinemia (XLA); Hyper IgM Syndrome (HIGM); Hemophagocytic Lymphohistiocytosis (HLH); Chediak Higashi Syndrome (CHS); Cyclic Neutropenia (CyN); Glycogen Storage Disease Type 1 (GSD1) and Hepatic Veno-occlusive Disease with Immunodeficiency (VODI)].

001333 | **Long-term follow-up for blood eosinophil counts after albendazole treatment in a case of toxocariasis**

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*Presenting author: Y. I. Koh

Background: Blood eosinophilia occurs commonly following parasite infestations probably due to Th2 immune response. However, it has not been known how long it takes for blood eosinophilia to return to normal following parasite eradication. Here, we describe a case of toxocariasis showing that blood eosinophilia has been resolved in a very slow pattern over 15 months with albendazole treatment.

Methods: Albendazole was administered totally five times over 15 months after the diagnosis of toxocariasis. Periodically, blood eosinophil counts were monitored.

Results: A 62-year-old man visited with severe blood eosinophilia of 6,500/μL, which was detected on a local medical check-up. He had frequently eaten raw animal liver and ate chicken liver 1 month before. On presentation, blood eosinophil count was 6,320/μL. Other laboratory findings showed alanine aminotransferase of 52 U/L and total immunoglobulin E of 768 IU/mL. Computed tomography scans revealed the multiple nodules with perilesional ground glass opacification in both lungs and the multiple ill-defined hypodense lesions in liver. Serologic test showed a positive reaction for *Toxocara canis*–specific IgG. Finally, he was diagnosed with toxocariasis. Albendazole 400 mg was given twice daily for 1 week, which was repeated four times, i.e., 2 weeks, 2 months, 4 months and 12 months later. Correspondingly, blood eosinophil counts were reduced very gradually to 3,640/μL after 2 weeks, 1,020/μL after 1 month, 2,770/μL after 2 months, 1,380/μL after 3 months, 2,380/μL after 4 months, 1,080/μL after 5 months, 750/μL after 7 months, 800/μL after 12 months and 380/μL after 15 months.

Conclusions: Our case suggests that it may take a long time for blood eosinophils to return to normal following parasite eradication. Thus, blood eosinophil counts should be monitored for several months or longer after antiparasitic medication.

JM case reports session: 18244.

Conflict of interest: The authors did not specify any links of interest.

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000185 | Clinical disease activity and titers of interferon-γ autoantibodies by inhibitory ELISA in adult-onset immunodeficiency with anti-interferon-γ autoantibodies

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*Presenting author: P. Teepapan

Background: Inhibitory ELISA of interferon-γ autoantibodies (IFN-γ Aabs) is a valuable tool for diagnosing adult-onset immunodeficiency associated with anti- IFN-γ Aabs. However, the correlation between inhibitory ELISA and disease activity is poorly understood.
Method: A retrospective study of 26 patients with anti- IFN-γ Aabs were performed at Ramathibodi Hospital from November 2017 to November 2022. Demographic data, clinical activity, and laboratory biomarkers, including white blood count (WBC), interleukin-6 (IL-6), C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and Inhibitory ELISA of IFN-γ Aabs titers, were collected. Disease activity was classified as active and remission by the evidence of infection from clinical and laboratory evaluation.
Results: Of twenty-six patients with a mean age of 58.69 ± 9.43 years, male in 61.5% were recruited. Forty-six blood samples for inhibitory ELISA of IFN-γ Aabs titers were analysed, with an area under the receiver operating characteristic (ROC) curve (AUC) of 0.913; the cut-off value was 1:50000 and 95.2% specificity. The median concentration of anti- IFN-γ Aabs in the remission group was significantly lower than that in the active disease group (5000 [IQR:5000,10000] vs 100000[IQR:10000,100000] respectively; $p < 0.001$). Combining analysis of inhibitory ELISA of IFN-γ Aabs titers with WBC, CRP, IL-6 and ESR increased accuracy in predicting the disease activities.
Conclusion: Inhibitory ELISA of IFN-γ Aabs titers may help predict the disease activity during follow-up.
Conflict of interest: The authors did not specify any links of interest.

001495 | Asthma exacerbation or something else?

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Introduction: Tuberculosis (TB) diagnosis can be challenging in pediatric patients. Approximately 40% of children infected with *Mycobacterium tuberculosis* develop disease, usually within the first 2 years after infection.
Case report: Seventeen-year-old female with a history of severe asthma and a diagnosis of TB infection in 2017. After 2 months of treatment with isoniazid, failed to attend follow-up appointments for reasons unknown. 5 years later, presents to the emergency department complaining of progressively worsening dyspnea, fever, rhinorrhea, and a cough with hemoptysis over a period of 4 days. On physical examination, decreased breath sounds bilaterally, a prolonged expiration time and wheezing, with no response to bronchodilators. Blood tests revealed a positive interferon-gamma release assay (IGRA), an increased erythrocyte sedimentation rate (ESR) of 38 mm/h and a C-reactive protein (CRP) of 24 mg/L. Chest x-ray showed a right-sided basal consolidation, chest Computed tomography (CT) revealed a right middle lobe consolidation with atelectasis and a bronchoscopy a right inferior lobe endobronchial granuloma. Three consecutive early morning sputum specimens and a bronchoalveolar lavage were performed with no acid-fast-bacilli detected, a negative nucleic acid amplification test (NAAT) for TB was obtained and M. *tuberculosis* cultures are ongoing. Due to a high index of suspicion of TB disease with identification of an endobronchial lesion in a patient with *status asthmaticus*, she was started on isoniazid, rifampin, pyrazinamide, ethambutol, and prednisolone 1 mg/kg/day. The patient was discharged, after 7 days, clinically improved, with scheduled follow-up appointments.
Discussion: This case report reiterates the importance of the epidemiological context and that of bronchoscopy, essential in achieving an accurate TB diagnosis. Nonetheless, isolation of *M. tuberculosis* is often impossible being, therefore, vital to adequately screen, diagnose and treat all cases of infection in this age group given the greater risk of TB disease progression.
JM case reports session: 18244.
Conflict of interest: The authors did not specify any links of interest.

INSECT VENOM HYPERSENSITIVITIES

000910 | Immunomodulatory effect of venom immunotherapy – can we have an additional cellular and immunomodulatory explanation of this process?

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*Presenting author: W. Urbanska

Background: Venom immunotherapy (VIT) is a method of choice for treating venom allergies (VA). It aims to modify the immune system's response to VA and improve its accuracy. Previous research has shown that VIT leads to a shift in T helper cell responses from Th2 to Th1, characterized by the production of IL-2 and INF-γ by CD4+ and CD8+ cells and inducing allergen tolerance Treg cells. Treg cells have also been associated with the production of transforming growth factor beta (TGF-β) and its isoforms, a potent suppressive cytokine in immune responses.

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Method: The study includes 61 patients with overreaction to wasp venom. Eighteen patients (Müller's grades I and II) were qualified to control group, and 43 patients (Müller's grades III and IV) were in the study group. Desensitization was performed only in the study group. The wasp venom (Venomenhal®) was given using the ultra-rash protocol (0,1 μg, 1 μg, 10 μg, 20 μg, 30 μg, and finally 40 μg in the 30 min intervals – total 101.1 μg in induction phase – point "0"). Two weeks later, and then every 4 weeks, 100 μg of the vaccination was administrated. Blood for analysis was collected at 0, 2, 6, and 24 weeks after the induction phase. Serum cytokines concentration: interleukins -1b, -2, -4, -5, -6, -7, -8 (CXCL8), -9, -10, -12, -13, -15, -17A, TNF-α, IFN-γ, TGF-β1-3) chemokines (MIP-1a (CCL3), MIP-1b (CCL4), MCP-1, RANTES (CCL5), Eotaxin (CCL11), IP-10) growth factors (G-CSF, GM-CSF, PDGF, bFGF and VEGF) and receptor antagonist of IL-1 were measured using Bio-Plex Pro TGF-β Panel 3-Plex (Bio-Rad) and Bio-Plex Pro Human Cytokine Grp I Panel 27-Plex (Bio-Rad, Poland). Determination of white blood cells phenotypes was performed using IMK Plus Kit (BD Biosciences, Poland), while nTregs were identified using CD4-PerCP, CD25-APC, CD127-FITC (extracellular staining, BD Bioscence, Poland).

Results: Long-term (0–24 weeks) effects of VIT include a decrease in the number of lymphocytes and an increase in the percentage of granulocytes, particularly neutrophils. There was also an increase in the number of NK cells (CD3-16+ CD56+), but a decrease in the number of helper T lymphocytes (CD3+CD4+) and activated T lymphocytes (CD3+HLA-DR). The nTreg ($CD4+/CD25^{high}/CD127^{low}$/FoxP3+) significantly increased. In addition, VIT resulted in a long-term increase in CCL4, CCL5, IL-12, IL-9, TGF-B1, TGF-B2, and PGDF concentration in the serum of treated patients. Finally, we observed correlations between cytokine secretion and immune cell phenotype changes.

Conclusion: In the long-term response to venom immunotherapy, two main pathways are involved in modifying B-cells: Th1 and Th9, in which the role of IL-9 and TGF-β signaling is particularly important.

Conflict of interest: The authors did not specify any links of interest.

000313 | Safety and effectiveness of venom immunotherapy: Evaluation of premedication and venom preparations

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Background: The safety profile of venom immunotherapy (VIT) is a relevant issue and considerable differences in safety and efficacy of VIT have been reported in the past, due to several reasons. We therefore assessed whether premedication with oral antihistamines as well as different venom preparations have an influence on the frequency of systemic adverse events (AE) and VIT effectiveness in a large study cohort.

Method: In this open, prospective, observational, multicenter study, we recruited patients with a history of a systemic sting reaction and indication for VIT. The primary aim of this study was to evaluate the safety of ACE inhibitors and beta-blockers during VIT. These data were already published. For a second analysis, data concerning premedication and

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venom preparations in relation to systemic AEs during the up-dosing phase and the first year of the maintenance phase were evaluated as wells as the outcome of field stings and sting challenges.

Results: In total, 1,425 patients were enrolled and VIT was performed in 1,342 patients; 1,186 patients returned to the clinics for the first annual check-up.

Antihistamines and corticosteroids were the treatment of choice for mild systemic sting reactions; the usage of epinephrine significantly increased with the severity of the reaction ($p < 0.001$). During up-dosing, mainly Grade I and II reactions occurred and these systemic AEs were less frequently treated than initial sting reactions (56.3% and 91.1%, respectively).

Premedication with oral non-sedative antihistamines was taken by 52.1% of patients during the up-dosing phase and 19.7% of patients during the maintenance phase. Taking antihistamines had no effect on the frequency of systemic AEs ($p = 0.11$) but large local reactions (LLR) were less frequently seen (OR: 0.74; 95% CI: 0.58-0.96; $p = 0.02$).

Aqueous preparations, both purified and non-purified, were preferentially used for up-dosing (73.0%), while depot preparations were the first choice for the maintenance phase (64.5%). The type of venom preparation neither had an influence on the frequency of systemic AEs nor on the effectiveness of VIT ($p = 0.26$ and $p = 0.80$, respectively), while the frequency of LLRs was significantly increased when aqueous preparations were used ($p < 0.001$).

Conclusion: Pretreatment with oral antihistamines during VIT significantly reduces the frequency of LLRs but not systemic AEs. All venom preparations used were equally effective and none was superior to others concerning the frequency of systemic AEs.

Conflict of interest: Dr. Alfaya reports personal fees from ALK, outside the submitted work. Dr. Antolín-Amérigo reports lecture fees from Astra-Zeneca, GSK, MSD, Novartis, MEDA-Mylan, FAES, Leti, Sanofi-Genzyme, and patients´website advisory from ALK-Abelló outside the submitted work. Dr. Lang reports non-financial support from Bencard, non-financial support from ALK-Abelló, non-financial support from Thermo Fisher Scientific, outside the submitted work. Dr. Sturm reports grants from ALK Abello, personal fees from ALK Abello, personal fees from Allergopharma, personal fees from Novartis, personal fees from Mylan, personal fees from Stallergenes, personal fees from Bencard, outside the submitted work.

000995 | Clinical and laboratory response to venom immunotherapy (VIT) – study including data up to 5 years after completing VIT

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Background: Venom immunotherapy (VIT) effectively reduces the risk of anaphylactic sting reactions. The changes of selected laboratory parameters same as the clinical efficacy during VIT have been reported, but there are only a few long-term studies describing these parameters in detail after VIT. We decided to evaluate the clinical effectiveness and laboratory changes in VIT-treated patients for up to 5 years after finishing VIT.

Method: We followed a group of 222 patients - 107 treated with wasp and 115 with bee VIT. In all patients, we evaluated changes of selected laboratory parameters: the basophil activation test (BAT), specific IgE and IgG4 to respective venom extract, and major allergen components: rApi m 1 in bee, and rVes v 5 and rVes v 1 in wasp venom allergic patients. Each parameter was measured before treatment and after each year of VIT, then once a year after finishing VIT (up to 5 years). In 20 wasp VIT patients, enzyme-linked-immunosorbent-facilitated-antigen-binding-assay (ELIFAB) was assessed before and after VIT. The clinical effectiveness was evaluated by field sting reactivity.

Results: We observed a significant decrease in BAT during VIT; a slow increase toward pretreatment levels was seen after finishing VIT in both bee and wasp VIT. Specific IgE to venom extracts, similar to the major allergen components, decreased during VIT; a slight decrease continues after VIT in both groups. Specific IgG4 to venom extracts and major components change in the same manner in both groups, with a significant increase during VIT and an evident slow decrease after VIT. In 20 wasp VIT patients, we observed a specific Ves v 5-blocking capacity decline, although this decline was not statistically significant. In the bee VIT group, 72 patients were stung, 89% (resp. 78%) of patients had no sting reaction during (resp. after finishing) VIT. Similarly, in the wasp VIT group, 63 patients were stung, 97% (resp. 94%) being protected during (resp. after finishing) VIT.

Conclusion: Our study provides a complex picture of patients treated by VIT. Our data reflect evident changes in immunological parameters induced by VIT. Moreover, our data support the high clinical effectiveness of VIT up to 5 years after VIT.

Conflict of interest: The authors did not specify any links of interest.

001161 | Accelerated 7 – week outpatient up-dosing protocol with aluminium hydroxide adsorbed bee venom

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Background: Hymenoptera venom allergy is a frequent cause of anaphylactic reactions in Europe, with systemic sting reactions (SSR) occurring in up to 7.5% of adults and up to 3.4% of children. Venom immunotherapy (VIT) offers a high level of protection from further SSR, having an efficacy of 77-84% in bee venom (BV) allergic patients. A variety of up-dosing in- and outpatient protocols are available, with the current approved outpatient protocol lasting 15 weeks. There is a need for faster up-dosing protocols to increase patient

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adherence and compliance. Our group already published data on a 7 – week protocol in vespid venom allergic patients.

Method: We designed a prospective, single arm, interventional study using an up-dosing protocol, where patients receive 7 injections to reach the maintenance dose (MD). We used aluminium hydroxide adsorbed BV from ALK Abelló, with a starting dose of 1 µg and subsequent doses of 5 µg, 10 µg, 20 µg, 40 µg, 60 µg, 80 µg, 100 µg each 7 to max. 14 days apart. Before each administration the patients took a non-sedating H1 antihistamine as premedication. Participants were recruited in our outpatient allergy clinic and diagnosed using our routine diagnostics: IgE determination, intradermal test and the basophil activation test. Only patients exclusively allergic to BV were included. To assess efficacy, sting challenges with living bees were performed as early as 7 days after reaching MD. Systemic adverse events (AEs) were graded according to Ring and Messmer.

Results: Seventy-one patients (38 female and 33 male) were included, of which 64 reached the MD. the up-dosing phase, 13 patients (20,3%) had large local reactions, with five having more than one. Systemic AEs were observed in eight (12.5%) patients, three participants had one and four had two. Seven systemic AEs were grade I (urticaria, flush or pruritus) and four grade II (vertigo, globus sensation, nausea or abdominal cramps). Sting challenges were performed in 59 patients, with 11 (18.6%) suffering from SSRs 6 grade I (urticaria), 4 grade II (increased pulse, drop in blood pressure or globus sensation) and 1 grade III (flush, urticaria, nausea and vomiting).

Conclusion: The rate of systemic AEs in the up-dosing phase of our study was comparable to other published data (10.9 - 19.3%), with more than half being mild (grade I). Combined with the efficacy of 81.4% we conclude that our protocol is safe and efficient in BV allergic patients.

Conflict of interest: Sturm GJ reports grants from ALK-Abelló, personal fees from ALK-Abelló, personal fees from Allergopharma, personal fees from Novartis, personal fees from Mylan, personal fees from Stallergenes, personal fees from Bencard, outside the submitted work. Cerpes U reports personal fees from Mylan, Sanofi, Almirall, Lilly, Takeda outside of the submited work.

001003 | Mouse model of immune responses to bee venom allergen API M 10

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Background: Api m 10 (Icarapin), a major allergen in honeybee venom, has been under discussion as a putative predictor of treatment failure in the context of presumed potential underrepresentation in some AIT-products. Api m 10 is known to be of instable nature with rapid degradation and of low abundance in honeybee venom. Previous qualitative analysis by mass spectrometry performed in our Division was able to detect Api m 10 in all investigated venom immunotherapy products. Whether the amount of Api m 10 contained in AIT-products is sufficient to induce a specific protective immune response is of utmost importance concerning safety and efficacy of venom immunotherapy products. Aim of our animal model using BALB/c mice is to obtain supportive information *in vivo* on the amount of Api m 10 sufficient to elicit a (protective) immune response and to gain Api m 10-specific monoclonal antibodies (mAbs).

Method: Recombinant (r)Api m 10 was produced in *E. coli* as an intein-fusion protein with a chitin-binding domain. Increasing amounts (0.1-50 µg) of tag-less rApi m 10 with and without adjuvant ($Al(OH)_3$) were administered to male and female mice and the IgG-antibody concentrations in the blood of treated verum *versus* placebo mice were investigated by indirect ELISA. When reaching a predefined IgG-titer (cut-off OD_{450}≥1), after a final boost without adjuvant mice were killed and their spleen removed for mAbs production; splenic B cells of antigen-exposed mice were obtained and fused with immortalized myeloma cells for the generation of Api m 10-specific mAbs according to Hybridoma Technology.

Results: In our first set of experiments we were able to determine the amount of rApi m 10 which is capable to induce an allergen-specific IgG-response in male and female mice as a surrogate marker for a protective immune response. Whereas female mice reached the cut-off (OD_{450}≥1) of Api m 10-specific IgG already after 8-10 injections, male mice in mean required 11-14 allergen doses of the predefined dose scheme and displayed a broader statistical variance. The adjuvant was of minor relevance. Two Api m 10-specific mAbs could be retrieved and are under further investigation.

Conclusion: The administration of rApi m 10 (up to 50 µg) was capable to induce allergen-specific IgG antibodies as a surrogate marker for a protective immune response. Female mice showed an earlier antibody production than male mice. Further investigations with complex natural bee venoms are underway.

Conflict of interest: The authors did not specify any links of interest.

000169 | In vitro analysis and in silico comparison of polistes dominula and vespula SPP venoms

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Background: No homologous groups have been established in the Guideline on Allergen Products (EMEA/CHMP/BWP/304831/2007) for insect venoms. Polistes and Vespula are two genera of the Vespidae family (Hymenoptera). A vast amount of recent bibliographic information has been generated and several allergens have been identified and sequenced, which allows a more in-depth assessment.

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Method: SDS-PAGE and WB of venom extract from different Vespula species (V. germanica, V. maculifrons, V. pensylvanica, V. vulgaris and V. squamosa) were compared to Polistes dominula. Allergenic bands were identified by mass-spectrometry. Finally, enzymatic activity was determined.

Uniprot sequences from all wasp allergen groups 1 and 5 described in http://www.allergen.org/ and https://www.allergome.org/ have been analyzed using Clustal Omega tool from Services of the EMBL's European Bioinformatics Institute and sequence identity has been compared.

Results: Protein profile of a 5-mix Vespula species and Polistes dominula venom extracts were very similar. Allergen groups 1, 4 and 5 were identified. However, group 3 was not identified by mass spectrometry, due to its low abundance. Hyaluronidase (group 2) and phospholipase (group 1) activities were also measured in both extracts.

Vespula and Polistes allergens were compared in silico. Similar conclusions are obtained analyzing groups 1 and 5. Sequence identity is higher than 50% between both genera, although it is higher within the same genera. Within each genera, two groups share the highest identity: for Polistes: P. dominula and P. gallicus; P. fuscatus, P. annularis and P. exclamans; and for Vespula: V. germanica, V. pensylvanica, V. flavopilosa, V. maculifrons and V. vulgaris; V. squamosa and V. vidua.

Conclusion: Venoms from both genera should be considered the same homologous group in line with Lorentz et al 2009, as they are taxonomically related, present comparable physicochemical and biological properties (derived from the same tissues, venom sacs; same enzymatic activity) and present cross-reactivity (same relevant allergens and high sequence identity).

Conflict of interest: The authors did not specify any links of interest.

000190 | Hymenoptera venom allergy in a paediatric cohort: Experience of a Portuguese centre

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Background: Hymenoptera (hym) venom allergy is the second cause of severe reactions in children. The aim of this study is to characterize a cohort of Portuguese paediatric patients referenced to hym venom allergy clinic.

Method: Retrospective observational study, including all paediatric patients with a suspected reaction after a hym sting. Demographic (age, sex), clinical and epidemiological (presence of atopy, area of residence, hobbies, manifestations after hym sting, culprit hym involved) data was analysed. The results of skin prick tests and intradermal tests (Bial-Aristegui/Roxall®) with *Apis mellifera*, *Vespula spp* and *Polistes dominula* venom, whenever performed, and specific IgE (sIgE) (ImmunoCAP®) for these allergens and their molecular components (*rApi m1*, *rApi m2*, *rApi m3*, *rApi m5*, *rApi m10*, *rVes v1*, *rVes v5* and *rPol d5*) were also analysed.

Results: 18 children were included (88.9% male, mean age 11.6 ± 3.1 years). 55.6% had allergic rhinitis and/or asthma, 72.2% lived in rural areas and 77.8% had risk factors to hym sting (9 patients were 1st degree relatives of beekeepers, 2 beekeepers' neighbors and 3 were outdoor leisure activities practitioners). Bee was identified as the culprit in 50% of patients and wasp in 22.2%. Clinically, 8 patients reported large local reactions (LLR), 4 had exclusively rhinitis/wheezing and 6 met anaphylaxis criteria (4 were proposed to VIT and the remaining 2 maintain regular clinical surveillance). For VIT we used an ultra-rush build up phase that had to be adjusted in patients 1 and 3 due to systemic reactions with mucocutaneous involvement and rhinitis (Table 1). IgE sensitization was confirmed in all patients by positive sIgE for 1 venom, and 44% had positive skin tests (7 to *Apis mellifera and* 1 to *Vespula spp*). According to molecular allergens, bee venom allergy was confirmed in 10 patients, *Vespula* venom allergy in 2, and *Polistes* venom in 3. One patient was allergic to bee and *Vespula* (LLR with both insects) and 2 to *Vespula* and *Polistes* venom (with LLR). The mean value of total IgE and baseline tryptase was 175.7 113.6 U/mL [22.3-401] and 3.8 2.3 mg/L [1.8-11], respectively.

Conclusion: In our cohort, systemic reactions were rare, happened mainly in children with risk factors for re-stings, often with skin involvement and rarely with cardiovascular symptoms. During VIT, some non-severe anaphylactic reactions were described, however they did not affect further up dosing and maintenance of VIT (80-100mg).

Table 1. Demographic and clinical characterization and immunoalergology investigation of patients under hymenoptera venom immunotherapy.

Sex, Age (years)	Presence of atopic diseases	Risk factors	Hymenoptera sting reaction	Skin Prick test - 100 µg/mL (mm)	Intradermal test (mm)	sIgE (kUA/L)		Immunotherapy extract, maintenance dose reached
M, 13	None	1st degree relative of beekeeper (father)	Eyelid angioedema, dysphonia, oropharyngeal tightness, vomiting	6	*Apis mellifera* 0.01 µg/mL - 10 0.1 µg/mL - 14	*Apis mellifera*: >100 *Vespula spp*: 0.75 *Polistes dominula*: *0.89*	*rApi m 1*: 90.7 *rVes v 1*: 0.45 *rVes v 5*: 0.03 *rPol d 5*: 0.02	*Apis mellifera*, 80µg
M, 14	None	1st degree relative of beekeeper (uncle)	Generalized urticaria, facial angioedema, loss of consciousness	7	*Apis mellifera* 0.01 µg/mL - 8 0.1 µg/mL - 12	*Apis mellifera*: 18.7 *Vespula spp*: 0.24 *Polistes dominula*: *0.01*	*rApi m 1*: 5.28 *rApi m 2*: 10.2 *rApi m 3*: 0.84 *rApi m 5*: 0.05 *Api m 10*: 10.7 *rVes v 1*: 0.0 *rVes v 5*: 0.0 *rPol d 5*: 0.01	*Apis mellifera*, 100µg
M, 8	Allergic rhinitis and asthma	1st degree relative of beekeeper (father)	Generalized urticaria, eyelid angioedema, conjunctivitis, dyspnea	8	*Apis mellifera* 0.01 µg/mL - 9 0.1 µg/mL - 11	*Apis mellifera*: 49 *Vespula spp*: 4 *Polistes dominula*: *0.07*	*rApi m 1*: 26.1 *rApi m 2*: 0.01 *rApi m 3*: 0.05 *rApi m 5*: 0.03 *Api m 10*: 9.77 *rVes v 1*: 0.01 *rVes v 5*: 0.02 *rPol d 5*: 0.5	*Apis mellifera*, 80µg
F, 16	Allergic rhinitis and asthma	Outdoor leisure activities practitioner (firefighter)	Upper limb angioedema, dyspnea, oropharyngeal tightness	0	*Vespula spp.* 0.01 µg/mL - 7 0.1 µg/mL – 11 1 µg/mL – 14 *Polistes dominula* 0.01 µg/mL - 5 0.1 µg/mL – 7 1 µg/mL - 7	*Apis mellifera*: 0.18 *Vespula spp*: 14.5 *Polistes dominula*: *19.3*	*rApi m 1*: 26.1 *rApi m 2*: 0.01 *rApi m 3*: 0.05 *rApi m 5*: 0.03 *Api m 10*: 9.77 *rVes v 1*: 14.2 *rVes v 5*: 0.06 *rPol d 5*: 0.46	Is going to start VIT with *Vespula spp* in February/2023

Papule mean diameter was expressed in millimeters (mm) and tests with an increase ≥3mm in relation to the negative control were considered positive. Specific IgE values >0.35 kUA/L were considered positive.

Conflict of interest: The authors did not specify any links of interest.

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000269 | Diagnosis of Vespa crabro venom allergy

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Background: Hymenoptera stings can cause systemic allergic reactions; in these cases the specific immunotherapy for Hymenoptera venom (VIT) is the only one able to protect these patients from systemic reactions after a re-sting. The most important allergens present in Vespids are phospholipase A1, hyaluronidase and antigen 5; these antigens are present in both Vespula (V) and Vespa crabro (VC). It can be hypothesized that some of the patients with Hymenoptera venom allergy (HVA) due to VC were previously sensitized by V stings. Thus, in those subjects with an ascertained VC systemic reactions, the venom immunotherapy (VIT) with V extracts would be sufficient to confer protection, and this is what the European guidelines suggest. On the other hand, CAP inhibition and immunoblotting-based studies showed that those techniques remained inconclusive in about 50% patients, suggesting that sensitization against VC Ag-5 is relevant and genuine. In such cases, a specific VC venom would be preferable for VIT treatment. Discrimination between true double sensitization and the identification of primary and/or cross-sensitization has normally been studied by inhibition studies. The aim of our study is to compare the degree of cross-reactivity between Vespid venoms (in particular V and VC) by inhibition studies in subjects with systemic reaction from suspected VC sting and candidates for VIT.
Method: 21 HVA patients were recruited at various Allergy Centres in Italy (Udine, Florence and Rimini). Intradermal test, serum specific IgE and inhibition assays were carried out.
Results: In 14/21 (66.6%) patients VC has been demonstrated the primary venom, while in 7/21 patients multiple sensitizations was demonstrated (VC associated with another Vespid venom); however, no primary sensitization to V was demonstrated. Serum specific IgE for VC were always lower than specific IgE for V.
Conclusion: Patients with systemic VC sting reactions should be candidates for VIT with VC venom (if available, at the moment the therapy is only available in Italy). Since a third of the patients did not show VC primary sensitization, therefore it would also be useful to carry out inhibition studies to evaluate whether to associate another venom with the VC in VIT. These data need to be confirmed by further inhibition studies.
Conflict of interest: The authors did not specify any links of interest.

000261 | Analysis of the allergenic profile of a Spanish honeybee venom allergic population

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Background: The diagnosis of honeybee venom allergy is based on the clinical history and *in vivo* and/or *in vitro* specific IgE tests. Api m 1 and Api m 2 are the *Apis mellifera* major allergens, although Api m 3, Api m 4, Api m 5, and Api m 10 have been reported to be potentially allergenic and can be under-represented in some therapeutic extracts, leading to negative skin test results. The aim of the present study was to determine the allergenic profile of patients sensitized to *Apis mellifera* in Galicia, Spain, and analyse the relevance of the *A. mellifera* allergens.
Method: Sera from 53 honeybee venom allergic patients were analysed by Western blot, using a venom extract from *Apis melllifera* containing all the allergens described to date. The allergenic composition of the venom extract was firstly determined by LC-MS/MS. Specific IgE levels of each serum was also assessed using a multiplex microarray including the allergens Api m 1, Api m 2, Api m 3, Api m 4, Api m 5 and Api m 10.
Results: Proteomic analysis revealed the presence of all the twelve relevant allergens in the venom extract used. Sera from patients contained specific IgE against protein bands of different molecular weights, compatible to the described allergens. The average levels of specific IgE were higher for Api m 1, followed by Api m 10, Api m 2, Api m 5, Api m 4, and Api m 3 and the prevalence of sensitization by components was 92.4%, 79.25%, 58.49%, 49.06%, 33.96% and 43.40%, respectively.
Conclusion: The population studied showed a high prevalence of sensitization to Api m 1 (92.4%) but also to other relevant allergens, such as Api m 10 (79.25%). The use of venom commercial extracts containing all the relevant allergens is crucial for the correct diagnosis of allergic patients. Further analysis should be developed to determine the correlation of specific allergen sensitization to clinical symptomatology.

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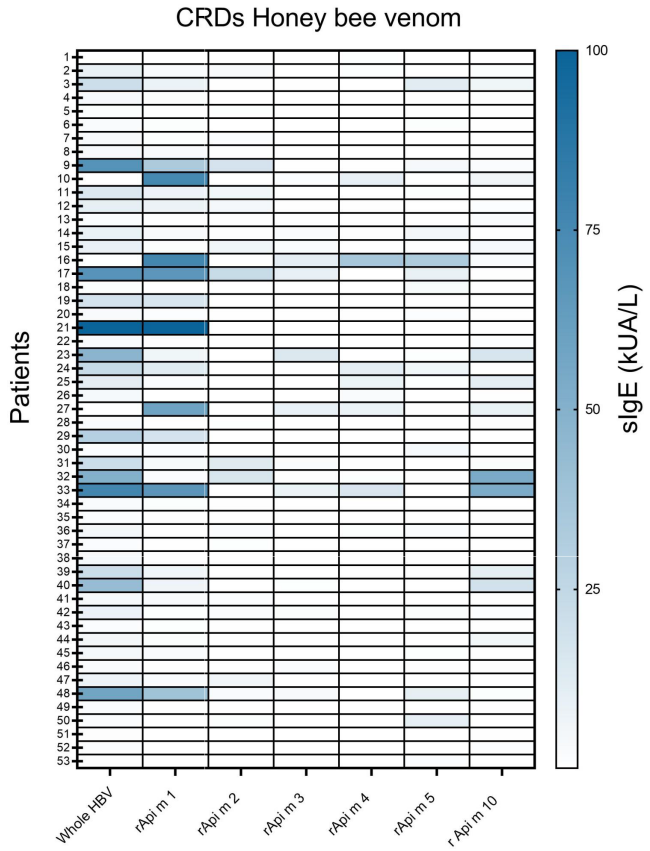

Conflict of interest: The authors did not specify any links of interest.

000597 | Safety in switching immunotherapy extract with vespid venom in a cohort of patients

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Background: There are different commercial extracts for immunotherapy with Hymenoptera venom. Given the future disappearance of a commercial extract widely used in our unit, the need to continue treating our patients with a different commercial extract arises.

Method: Descriptive analysis of the procedure for changing the extract with vespid venom in a cohort of patients and evaluation of the safety of this procedure.

Results: A total of 53 patients received immunotherapy with Polistes dominula and Vespula spp. venoms with a certain commercial extract (mean age: 49 years; 64% male). 32 patients received immunotherapy for Polistes dominula (100mcg dose), 5 patients received immunotherapy for Vespula spp. (100mcg dose) and 16 patients received double immunotherapy alternating monthly Vespula spp. (100mcg dose) with Polistes dominula (100 mcg dose). They had presented a systemic Müller reaction (grade I: 11%; grade II: 25%; grade III: 19%; grade IV: 43%). All patients tolerated their maintenance dose. Only two patients continued with antihistamine premedication for having presented systemic reactions.

All patients were switched to a different commercial extract of Vespula spp. and Polistes dominula with the same maintenance dose, making this change in a single visit (administration of two hemidoses with an interval of 30 min) without the appearance of adverse effects, including 12 patients diagnosed with indolent systemic mastocytosis and 3 patients with suspected mast cell activation syndrome. One patient underwent a restart with a 2-week cluster scheme due to dose delay. The mean number of months between the start of immunotherapy and the change of extract was 36, with an interval between 3 and 187 months.

Conclusion: Using two hemidoses to receive the same maintenance dose of vespid venom with a different commercial extract has been shown to be safe even in patients with indolent systemic mastocytosis. In cases of dose delay, using a 2-week cluster has been similarly well tolerated.

Conflict of interest: The authors did not specify any links of interest.

000873 | Health-related quality of life in patients with hymenoptera venom hypersensitivity treated with venom immunotherapy: Longitudinal validation of the Slovene version of the "vespid allergy quality of life questionnaire"

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Background: Patients with Hymenoptera venom hypersensitivity experience impairment in quality of life, especially because of fear of being stung again. Vespid Allergy Quality of Life Questionnaire (VQLQ) has been developed to evaluate the psychological burden of Hymenoptera venom hypersensitivity (Oude Elberink JN. JACI, 2002). In a cross-sectional study in 2018, the Slovene version of the questionnaire (HRQLH-S) proved suitable for estimate the quality of life in patients with wasp as well as honey bee venom allergy. The aim of this study was to complete the validation of the HRQLH-S by analyzing its sensitivity to changes of quality of life (QoL) after 5 years of treatment with VIT (longitudinal validity).

Method: The questionnaire was given to 49 patients treated with Hymenoptera venom immunotherapy. All patients completed the HRQLH-S at baseline before VIT and after 5 years of treatment. The results are shown as median values (Me) where 1 means good and 7 poor QoL.

Results: In the longitudinal validation we showed a significant correlation between questions »Expectation of outcome« (EoO) and HRQLH-S (Q16 $r = 0.77$; Q17 $r = 0.72$), with a good internal consistency (Cronbach $\alpha = 0.97$). Furthermore, we found a significant difference ($p < 0.001$) in QoL of pretreatment patients with average median value (Me = 3.91) compared to the value after 5 years of treatment (Me = 2.06).

Conclusion: The HRQLH-S is sensitive to change, and has longitudinal reliability and validity in a Hymenoptera venom allergic patient population. Results of this study confirm the efficiency of VIT on QoL in patients with venom hypersensitivity.

Conflict of interest: The authors did not specify any links of interest.

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000358 | Real world evidence of a new bee venom extract without human serum albumin

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Background: Hymenoptera venom immunotherapy it's the only curative treatment for those sensitized patients that experienced systemic reactions to hymenoptera stings.

The aim of this study is to explore the real practice in Spain among the hospitals that use bee venom immunotherapy without human serum albumin.

Method: This is an observational retrospective study developed in 7 hospitals in Spain, including patients older than 18 years old that had received this immunotherapy. Each center gathered information about their patients allergic to bee venom that had initiated treatment with a bee venom extract without human serum albumin. This information was the protocol used to initiate the immunotherapy, adverse reactions, field re-stings, and the patient clinical data.

Results: 108 patients were included. 4 different protocols were used (5 weeks reaching 200 µg, and 4, 3 and 2 weeks reaching 100 µg)

8 systemic adverse reactions were recorded, none greater than grade 2, all of them immediate, and 13 local reactions. Among the four different protocols we had an incidence of systemic adverse reactions each 100 injections of 1.5 (4 weeks); 1.7 (3 weeks), 0 (2 weeks) and 0.58 (5 weeks).

We studied age, sex, profession, biomarkers and previous cardiovascular diseases among others diseases and also medication intake; there was no demographic variable that affected directly the appearance of adverse reactions, only the patients that had a grade 4 systemic reaction at the initial sting had a grade 2 systemic reaction during the buildup phase of the immunotherapy; regarding biomarkers the only one that was 3 times higher in patients with systemic reactions grade 1 than in the general group was IgE to *Apis mellifera* but no statically significant, the rest were lower among the patients that experienced systemic reactions.

32% of the sample have suffered spontaneous re-stings, after starting the immunotherapy without presenting systemic reactions

Conclusion: In conclusion in this retrospective real-life study, we observed that the four protocols are safe and well tolerated with a lower rate of systemic AR than in other studies with other extracts. This extract thanks to proteomic identification and not having human serum albumin or aluminum, has the presence of all allergens and it's stable and suitable for treating any patient and also has indirectly demonstrated its efficacy by the tolerance of new field stings without reactions.

Conflict of interest: The authors did not specify any links of interest.

001230 | Clinical and laboratory profile of vespula spp allergic patients

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Background: Vespula is widely distributed across Europe, being a Hymenoptera frequently involved in allergic reactions. We aim to characterize a cohort of Portuguese patients sensitized to Vespula spp.

Method: Retrospective study including patients with the diagnosis of local large reactions (LLR) and anaphylactic reactions (AR) with documented sensitization do *Vespula spp*, followed in our outpatient clinic (2012-2022). Data collected included demographics, concomitant allergic diseases, clinical severity of AR, skin testes (ST), specific IgE (sIgE) for *Vespula spp*, total IgE, baseline serum tryptase and sIgE values to Ves v1 and Ves v5. Venom immunotherapy (VIT) decision, duration and adverse reactions were evaluated.

Results: We included 37 patients (62.2% male; 97.3% adults; mean age at first reaction 48 + 19 years old [7-74]). Table1 indicates clinical characteristics of our population and ST and laboratory results of AR patients. Most reactions occurred in summer (59.5%, $n = 22$). Other allergic diseases were present in 24.3% patients, with rhinitis being the most prevalent ($n = 8$). In this population, 22 (59.5%) patients reported previous wasp stung; 9 previous LLR and 1 previous history of AR (Mueller grade1), misinterpreted at the time. Considering risk factors for new stings, 89.2% ($n = 33$) lived or travelled frequently to rural areas in accordance with occupation/hobbies. Regarding clinical characteristics, 45.9% ($n = 17$) had LLR and 54.1% ($n = 20$) had AR. In the subgroup of AR, ST were performed in all patients, positive in 100%. VIT was started in 11 patients, using an induction 210-min ultra-rush (UR) protocol. No adverse reactions were described during UR. Eight patients were stung by a wasp after UR phase with no severe systemic reaction. Two patients are still under VIT. Within AR patients, positive significance correlation was found between serum tryptase and the severity of initial sting reaction ($r = 0.759$, $p < 0.001$), and between sIgE for *Vespulla spp* and Ves v1 ($r = 0.637$, $p < 0.003$) and Ves v5 ($r = 0.869$, $p < 0.01$). No statically significance was found between the severity of initial reaction and sIgE for *Vespula spp*, total IgE, Ves v1 or Ves v5, respectively.

Conclusion: Our study shows that the majority of Vespula venom allergic patients are male adults from rural areas. Significant statistics were found between higher serum tryptase values and greater

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severity of reaction. VIT was safely stared in 11 patients, without adverse effects.

Clinical and Laboratory characteristics of Vespula spp allergy patients	
Patients – n	37
Gender – n (M/F)	23/14
Age at beginning of symptoms (x+SD [min-max] years old)	48+19 [7-74]
Age at diagnosis (x+SD [min-max] years old)	52+18 [13-77]
Season where the stung occurred – n (%)	
Summer	22 (59.5%)
Spring	2 (5.4%)
Unknown	13 (35.1%)
Presence of allergic diseases – n (%)	9 (24.3%)
Rhinitis	8 (21.6%)
Asthma	3 (8.1%)
Rural occupation/hobbies – n (%)	33 (89.2%)
History of previous wasp stung – n (%)	22 (59.5%)
No reaction	3 (13.6%)
LR	9 (40.9%)
LLR	9 (40.9%)
AR	1 (4.6%)
Severity of anaphylactic reaction – n (%)	20 (54.1%)
Grade I	6 (30%)
Grade II	6 (30%)
Grade III	7 (35%)
Grade IV	1 (5%)
ST – n (%)	20 (54.1%)
SPT	2 (10%)
ITD 0.01 μg/mL	7 (35%)
ITD 0.1 μg/mL	5 (25%)
ITD 1 μg/mL	6 (30%)
Laboratory findings in AR group (x+SD [min-max])	
Serum tryptase (ng/mL)	6.2 [3.1-11.4]
Total IgE (mg/dL)	205.5 [12.4-788]
Vespula sIgE (kU/L)	10.6 [0.19-56.4]
Ves v1 (kU/L)	2.8 [0.1-15.7]
Ves v5 (kU/L)	6.4 [0-46.9]
VIT induction phase – 210 minutes UR protocol - n (%)	11 (100%)
Immediate reactions during UR	0
Delayed reaction during UR	0
Mean duration of treatment (y)	4.8y
Wasp stung after VIT – n (%)	8
LR	8 (100%)
LLR	0
AR	0

Table 1 – Demographics, previous allergic diseases, previous stung reaction, reaction's severity, skin test, laboratory findings, molecular evaluation, and VIT. Abbreviations: AR - anaphylactic reactions; LR – local reaction; LLR – local large reaction; ST - skin test; VIT - Venom immunotherapy; UR – Ultra rush; SPT – skin prick test; ITD – intradermic test; M – masculine; F – feminine; x – mean value; SD – standard deviation; min – minimum; max – maximum; y- years old. Reference values: Serum tryptase < 11.4 ng/mL, Total IgE < 100 mg/dL, sIgE, Ves v1, Ves v5 < 0.1 kU/L.

Conflict of interest: The authors did not specify any links of interest.

000981 | Potential of Nexkin DSPT for improving measurement of wheal size in intradermal tests for immediate hypersensitivity reactions diagnosis

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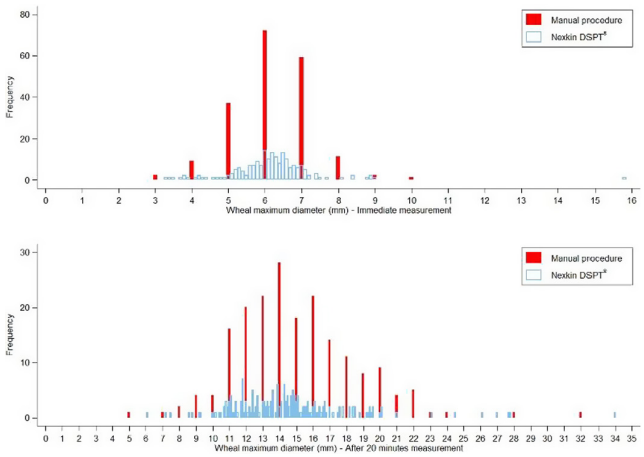
Background: The intradermal test (IDT) has a crucial role for the study of immediate hypersensitivity reactions, especially drug hypersensitivity reactions (DHR). The IDT involves a manual procedure (MP) of wheal maximum diameter (WMD) measurement. This procedure is associated with some variability among health professionals. In 2020, a standardized method was suggested with the aim to reduce this variability. However, an accurate and reliable assessment of wheal size remains challenging. The terminal digit bias is a common type of measurement error that consists in a preference by the observer to round measurements to a specific end digit. Nexkin DSPT is an electromedical device for automated detection, reading and measurement of skin prick test wheals that has shown higher reliability than the MP for the wheal measurement. We aimed to explore the terminal digit preference in the WMD measurement of the IDT with both MP and Nexkin DSPT techniques.

Method: A prospective clinical study was conducted at Clínica Universidad de Navarra. The IDT with histamine were performed in 193 volunteers. The WMD was measured, both automatically (using Nexkin DSPT) and by the MP (outlined with pen and transferred with tape to paper). Two readings (immediate and after 20 min) were performed with each measurement technique.

Results: The distribution of WMD values are displayed in Figure 1. The MP showed a pattern of terminal digit preference for both immediate and after 20 min readings. The most frequent recorded WMD value in the immediate reading was 6.0 mm (72 wheals, 37.31%), followed by 7.0 mm (59 wheals, 30.57%). For the 20 min reading, the most common recorded WMD value was 14.0 mm (28 wheals, 14.51%), followed by 13.0 mm (22 wheals, 11.40%) and 16.0 mm (22 wheals, 11.40%). Inversely, no terminal digit preference was observed with Nexkin DSPT. The proportion of WMD values ending in zero (tenths place) with Nexkin DSPT was 12.44% in the immediate reading, and 11.92% in the 20 min reading, whereas all WMD values ended in zero (tenths place) with MP ($p < 0.001$).

Conclusion: Nexkin DSPT may have potential for improving measurement of wheal size in intradermal tests for immediate hypersensitivity reactions diagnosis through reducing terminal digit preference compared with the MP.



Wheal maximum diameter (mm) in immediate and after 20 min measurements by manual procedure and Nexkin DSPT.

Conflict of interest: GG, OM and ET: contributed to the medical device (Nexkin) development.

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000519 | Self-assessment of skills for use of epinephrine autoinjector in patients at high risk of anaphylaxis

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Background: Intramuscular epinephrine is the standard treatment for severe to moderate anaphylaxis. Its self-administration by the patient using an auto-injectable device in case of anaphylaxis is central. This skill requires prior patient education.

The aim is to study the correlation between a patient self-assessment and an assessment by a health professional of the skills required for epinephrine self-administration by autoinjector device. These skills include the recognition of situations requiring the self administration and the technical abilities to perform it.

Method: Adult patients with follow-up visits at the Grenoble Alpes University Hospital or at the Metropole Savoie Hospital at risk of severe anaphylaxis (severe food allergy and/or hymenoptera venom allergy and/or systemic mastocytosis) and with a current prescription of epinephrine autoinjector were included. All of them answered a self-assessment scale. Then a hetero-assessment scale was performed by a health professional. The correlation between these 2 scales was then studied using a Pearson's correlation coefficient.

Results: Fifty-six patients ranging in age from 23 to 80 years (median age 61.5 years) were included over the month of June 2022. There was no statistically significant correlation between patient self- and hetero-assessment (Pearson's correlation coefficient $r = 0.09$, $p = 0.51$).

Although no factors were found to significantly influence good patient self-report. However, there was a tendency for good self-assessment for patients who had seen their specialist recently ($p = 0.06$), who had an Emrade as autoinjector device in their emergency kit ($p = 0.06$), who had received group based education session ($p = 0.08$), and finally who had epinephrine autoinjector with them at the time of the inclusion visit ($p = 0.09$).

Conclusion: Our study did not reveal a good self-assessment of patients' skills in self-administration of epinephrine. Their self-assessment is therefore not, for the moment, a criterion on which we could base the frequency of our education sessions. Regular education sessions should therefore be maintained, ideally every 3 months, with greater emphasis on recognition of situations when epinephrine should be injected.

Conflict of interest: The authors did not specify any links of interest.

001330 | Systemic sting reactions and venom immunotherapy in children: A retrospective case series

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Background: Systemic sting reactions (SSRs) in children are unfrequent, being up to 3.4%. Venom immunotherapy (VIT) in children is indicated when suffering SSRs exceeding skin compromise, among other considerations, in joint with positive either in vivo or in vitro tests to the Hymenoptera venom.

Method: This is a single-center retrospective review of forty-eight children under fifteen years, studied by our Allergy Department between January 2000 and December 2022, for suspected Hymenoptera venom allergy. The principal outcome was to analyze those with VIT indication and assessed its tolerance.

Results: Forty-eight children were reviewed, 65% with positive sensitization to the venom of the culprit insect of which 27% presented SSRs, 27% large local reactions and 11% local reactions; in 35% no sensitization was detected.

Ten of thirteen children with SSRs met criteria for VIT indication, two with skin compromise only besides personal conditions. Nine children received or continue receiving VIT till this analysis and one did not due to parental refusal. All children were male with a mean (SD) age of eight (4.3) years, three under five years old. Reactions severity were as follows: One severe SSR (Müller IV), six moderate SSRs (Müller II/III) and two mild SRRs (Müller I) Venom specific IgE (sIgE) determination to complete extracts showed positive results exclusively to Vespidae in four, Honeybee in two and both in three children.

Two children presented SAR (Grade 3) during the conventional updosing phase with Honeybee VIT. Both had sIgE for the complete extract to Apis mellifera over 100 kU/L. sIgE determinations for Api allergens were available only for one patient, in whom sensitization to Api m 10 but not to Api m 4 was demonstrated. Despite premedication and dose modification, the continued presenting SAR; consequently, VIT was suspended and reintroduced ten years later with good tolerance. While the second one, in addition to premedication, tolerated a lower dose (30 µg) for 6 months and subsequently updosing to maintenance.

Conclusion: Children with SSRs requiring VIT were frequent in this series, up to 20%. The ones who presented SAR were under Honeybee VIT, had sIgE to Api >100kU/L and required dose modification or temporal VIT suspension.

U/A: Unavailable ND: Non-determined

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CASES	1	2	3	4	5	6	7	8	9
Year of assessment	2000	2007	2012	2018	2019	2019	2022	2022	2022
Gender	Male	Male	Male	Male	Male	Male	Male	Male	Male
Age (years)	5	3	11	13	13	12	3	4	8
Previous Sting exposure	Bee	No	No	Bee	Wasp	No	Bee	Wasp	Wasp
IDT positive	Apis mellifera	Polistes dominula	Polistes dominula + Vespula spp.	Api mellifera	Polistes dominula + Vespula spp.	Api mellifera + Polistes dominula + Vespula spp.	Apis mellifera	Vespula spp.	Vespula spp.
Baseline Tryptase (mg/L)	2.74	ND	3.74	4.75	4.6	6.2	2.5	ND	ND
Acute Tryptase (mg/L)	ND	ND	ND	ND	ND	ND	6.3	ND	ND
Total IgE (kU/L)	172	166	2842	107	1400	477	1430	1350	320
Apis IgE (kU/L)	399	0.08	13.5	19.3	0.18	>100	84.5	ND	ND
- Api m 1 (kU/L)	U/A	U/A	U/A	13.5	0.02	>100	>100	ND	ND
- Api m 2 (kU/L)	U/A	U/A	U/A	1.45	ND	0.4	0.07	ND	ND
- Api m 3 (kU/L)	U/A	U/A	U/A	6.47	ND	3.03	0.13	ND	ND
- Api m 4 (kU/L)	U/A	U/A	U/A	U/A	U/A	0	0.05	ND	ND
- Api m 5 (kU/L)	U/A	U/A	U/A	0.96	ND	9.05	0.06	ND	ND
- Api m 10 (kU/L)	U/A	U/A	U/A	9.93	ND	6.16	0.33	ND	ND
Vespula wasp IgE (kU/L)	U/A	0.25	13.3	ND	24.7	1.79	0.10	33.7	8.93
- Ves v 1 (kU/L)	U/A	U/A	U/A	ND	29.1	0.08	ND	50.1	2.61
- Ves v 5 (kU/L)	U/A	U/A	U/A	ND	1.84	0.8	ND	4.12	9.75
Polistes wasp IgE (kU/L)	U/A	2.83	3.67	ND	43.8	0.64	0.04	19.4	ND
- Pol d 5 (kU/L)	U/A	U/A	U/A	ND	ND	0.85	ND	ND	ND
Vespa velutina IgE (kU/L)	U/A	U/A	U/A	ND	ND	2.13	0.06	3.09	ND
CCD MUXF3 (kU/L)	U/A	U/A	U/A	ND	ND	2	ND	ND	ND
SSRs Severity Müller/EAACI score	III/2	IV/3	III/2	II/2	II/2	III/2	III/2	I/2	I/2
VIT extract	Apis mellifera	Polistes dominula	Vespula spp.	Apis mellifera	Polistes dominula + Vespula spp.	Apis mellifera	Apis mellifera	Vespula spp.	Vespula spp.
VIT Up-dosing	Conventional (Pharmalgen)	Conventional (Pharmalgen)	Cluster (Pharmalgen)	Cluster (Pharmalgen)	Cluster (Pharmalgen)	Conventional (Pharmalgen)	Rush (Alutard)	Cluster (Alutard)	Cluster (Alutard)
Systemic adverse reaction (SAR)	Yes	No	No	No	No	Yes	No	No	No
Number of SSRs / /Severity (WAO 2017 Grading system)	2 reactions / 3 6 reactions / 1	-	-	-	-	2 reactions / 3	-	-	-
Dose of SAR Grade 3 /	20ug / 100ug					10ug / 100ug			

Conflict of interest: The authors did not specify any links of interest.

001481 | Double sensitization: Bee and wasp sige ratio versus component diagnostics?

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*Presenting author: K. Černiauskas

Background: Hymenoptera venom allergy workup besides correct identification of the culprit insects requires confirmation of sensitization, and double sensitization is one of the common problems. Implementation of the component-resolved diagnostics (CRD) in routine practice is one of the biggest advantages guiding decision-making in venom immunotherapy (VIT). In this retrospective study, we aimed to look what would be the impact of CRD in decision to choose venom for VIT comparing to the bee and wasp specific IgE concentration ratios in double-sensitized patients.

Method: From 2013 till 2021, 83 adult patients (mean age 43 ± 13.2 years) were treated with Hymenoptera VIT. Sensitization was confirmed using sIgE against bee and wasp venom extracts and components rApi m1, rVes v1 and rVes v5 (ImmunoCAP, ThermoScientific, Uppsala, Sweden). We calculated the ratio of bee and wasp-specific IgE and analyzed if CRD could change our decision on choosing venom for VIT. Patients with mast cell disorders were excluded from the analysis.

Results: Double sensitization was detected in 42.17 % ($n = 35$). In 30 patients we could compare the influence of CRD in the decision-making process. In 20 patients (66.7 %) ratio of sIgE >4 (mean 20.3±28.4) was enough to make a selection of venom for VIT. CRD guided decision was made in 6 cases (20 %) with a ratio of bee and wasp venom sIgE <4. In 4 cases, neither the CRD nor the sIgE ratio helped the decision.

Conclusion: After the exclusion of risk factors such as mast cell disorders, in the majority of cases of double sensitization diagnosed at our clinic, bee and wasp specific IgE ratio could guide which venom to choose starting VIT.

Conflict of interest: The authors did not specify any links of interest.

OCULAR ALLERGY

001622 | Adapting protocols for conjunctival provocation tests – looking for a personalized model

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Background: Conjunctival provocation tests (CPT) with aeroallergens are used for diagnosis and for allergen immunotherapy (AIT) efficacy evaluation. The Task Force recommends for both cases protocols using two-fold concentration increments; however, manufacturer recommendations differ between laboratories and practices vary between centers.

Aim: Evaluate the accuracy of a ten-fold increase CPT protocol for diagnosis and to monitor AIT efficacy.

Method: CPT results with Dermatophagoides pteronyssinus (Dp) and grass pollen (*Dactylis*, *Festuca*, *Lolium*, *Phleum*, *Poa*) realized in our department between 2016 and 2021 were reviewed. According to the manufacturer recommendations, CPT were performed with Leti allergens extracts with ten-fold concentration increases (0.1-1-10-100 HEP for Dp and 0.03-0.3-3-30 HEP for grass pollen). The results and characteristics of the study groups were analyzed accordingly to the aim of the test, namely if it was due to assess local allergic conjunctivitis (LAC) or to support AIT decision and to assess its efficacy.

Results: A total of 292 CPT were performed in 198 patients (49% children).

CPT with Dp were positive in 127 of 164 cases (77%) and LAC (sIgE < 0.35 kU/L) was diagnosed in 2[MJV1] patients both at the maximum dilution of 100 HEP. Positive CPT occurred in 2% of cases with the 0.1 HEP dilution (median sIgE of 23.2, ranging from 6.0 to 40.4 kU/L); 26% with 1 HEP (median sIgE of 35.3 [1.3-100]); 54% with 10 HEP (median sIgE of 20.2 [0.6-100]) and 19% with 100 HEP (median sIgE of 2.3 [0.2-100]).

As for CPT with grass pollen, 77 of 128 cases were positive (60%), none with the 0.03 HEP dilution. LAC to grass was diagnosed in 2[MJV2] patients with a minimum dilution of 3 HEP. [u3] Positive

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CPT occurred in 17% of cases with the 0.3 HEP dilution (median sIgE of 24.5 [2.2-100]); 44% with 3 HEP (median sIgE of 9.4 [0.2-100]) and 39% with 30 HEP (median sIgE of 8.9 [0-100]. A sample of 20 patients (29 CPT) were retested in order to assess AIT efficacy after 1 year of treatment; an increased reactivity threshold was found in 93% and 40% of patients treated with Dp and grass pollen AIT extracts, respectively.

Conclusion: CPT protocol might be optimized accordingly to the aim of the test. To assess local allergic conjunctivitis it is likely that the use of one drop with highest dose might be sufficient. The lower concentrations should be reconsidered as the 0.03 HEP grass dilution proved to be useless and only a small proportion reacted with the most diluted of Dp solution. However to evaluate AIT efficacy a ten-fold protocol might not detect slight reactivity thresholds reductions, further studies are needed to optimized protocols.

Conflict of interest: The authors did not specify any links of interest.

001490 | Multidisciplinary aproach in severe atopic dermatitis patients: Ophtalmological evaluation

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*Presenting author: C. Lopes

Background: Atopic dermatitis (AD) is an immune-mediated disease that can have ophthalmological manifestations in 25 to 64% of cases, with a higher prevalence in the most severe forms and with a longer duration. Atopic keratoconjunctivitis, keratoconus, blepharitis, cataracts, glaucoma and retinal detachment are the most common. Treatment of AD with dupilumab (anti-IL4/13) may be associated with ocular surface disease in 8.6-22.1% of patients, especially if there is a previous history of ocular pathology, which in most cases is mild to moderate.

The aim was to characterize, from an ophthalmological point of view, patients with AD being followed up in the multidisciplinary consultation of severe AD at ULSM.

Method: 11 patients aged between 18 and 42 years were evaluated, all with AD since childhood except one, with onset in adolescence. All were on dupilumab treatment for 3 months to 2.5 years, all were treated with systemic corticosteroids for more than three cycles per year; 7 were steroid dependent before starting dupilumab, all but one were sensitized to respiratory allergens and the majority had allergic rhinitis and/or asthma.

Results: The observed ophthalmological manifestations were: atopic keratoconjunctivitis ($n = 6$), dry eye ($n = 5$), blepharitis ($n = 3$), keratoconus ($n = 2$) and cataracts ($n = 1$). One patient developed dupilumab-induced ocular surface disease without the need to discontinue the drug. The most reported symptoms were changes in visual acuity, photophobia, itching, tearing, burning and ocular discomfort.

Conclusion: The data found corroborate the high prevalence of ophthalmological manifestations in patients with severe AD, and all the patients observed had at least one manifestation considered significant for counseling and/or therapeutic intervention.

Multidisciplinary follow-up with the integration of an Ophthalmology specialist has clear benefits for patients with severe AD.

Conflict of interest: The authors did not specify any links of interest.

000335 | Treatment with dupilumab in a patient with severe atopic dermatitis, allergic conjunctivitis and bilateral keratoconus

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*Presenting author: J. Vieira

Introduction: Dupilumab is a human monoclonal antibody inhibiting IL-4/13, approved for the treatment of severe atopic dermatitis (AD). Dupilumab-induced ocular surface disease (DIOSD) has been reported, limiting its use in patients with previous ocular disease.

Case report: 24-years-old woman with allergic rhinosinusitis and conjunctivitis, referred to Immunoallergology outpatient department with 17-years-old for severe AD. Since childhood, she described generalized erythematous, scaly and pruritic skin lesions, with high impact on sleep, quality of life and scholar/professional performance. Treated with ebastina 10 mg *qid*, topical tacrolimus 1mg/g *bid* 5–7 days, topical betamethasone 0.5 mg/g *bid* 5–7 days, multiple cycles of deflazacort 30 mg and oral antibiotic for impetigo, and cyclosporin 200 mg *id* for 3 months without significant improvement. Further investigation revealed: total IgE of 22876U/mL, negative patch tests with European standard battery and skin biopsy compatible with eczema. By the age of 18-years-old, despite being treated with deflazacort 30 mg/day, the patient had severe AD (SCORAD 68.7) and started treatment with omalizumab 300mg every 2 weeks, with a slight reduction in SCORAD 54.4. At 21-years-old, she was diagnosed with bilateral keratoconus and cataract secondary to systemic corticosteroids, with indication for unilateral phacoemulsification and intraocular lens placement due to decreased visual acuity. Due to severe AD (SCORAD 73, EASI 46) refractory to systemic corticosteroid therapy (deflazacort 7.5mg id), it was decided to switch to dupilumab. Previous ophthalmologic evaluation was carried out and prophylactic treatment with sodium hyaluronate 0.15% qid was started. After 4 weeks of dupilumab: SCORAD 38.6, EASI 22; and after 6 weeks deflazacort was suspended. Currently, the patient is 24 years-old and presents: SCORAD 26.4, EASI 17, total IgE 653U/mL. Maintains regular ophthalmological evaluation every 3 months, with stable visual accuracy without progression of keratoconus with sodium hyaluronate 0.15% *qid*. She uses daily emollient and topical mometasone 1mg/g. No use of systemic corticosteroids for 2 years.

Conclusion: In this patient, treatment with dupilumab did not aggravate pre-existing keratoconus or allergic conjunctivitis. Pre-treatment ophthalmologic evaluation and prophylaxis in

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high-risk patients appears to minimize dupilumab-associated ocular complications.

JM case reports session: 18244.

Conflict of interest: The authors did not specify any links of interest.

001587 | Can aeroallergen contact induce urticaria? two case reports following conjunctival allergen provocation test

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*Presenting author: D. Brandão Abreu

Contact urticaria has been seldom described with aeroallergens, with no published reports during conjunctival provocation tests (CPT). We present two children that developed contact urticaria during a positive CPT.

A 12-year-old female, sensitized to grass pollen, with a specific IgE (sIgE) of more than 100 kU/L, skin prick test (SPT) positive to grass pollen and having mild symptoms during spring performed CPT. Immediately after the instillation with a drop of the highest dose of 30 histamine equivalent units per millilitre (HEP/mL) of grass pollen Leti® extract a pruritic erythematous papule appeared in the malar region. The second case is a 5-year-old male, having inconsistency between symptoms and the sensitization pattern, with a sIgE for *Dermatophagoides pteronyssinus* (Dp) of 49.8 kU/L and a SPT positive to Dp. After the highest dose of CPT (100 HEP/mL) of Dp Leti® extract, multiple pruritic erythematous papules appeared on his face. Both cases were treated with a single dose of oral antihistamine and had resolution of the contact urticaria within few minutes.

Here, we report two cases of patients with mild rhinoconjunctivitis symptoms who presented contact urticaria induced by aeroallergens. The occurrence of urticaria as a possible side effect when performing CPT should be considered and skin contact with tears should be avoided. Further studies are needed to assess the potential of aeroallergens to induce urticaria.

JM case reports session: 18243.

Conflict of interest: The authors did not specify any links of interest.

ALLERGY DIAGNOSIS + SYSTEMS MEDICINE 2

100035 | Variable IgE reactivity of Austrian fish-allergic patients to parvalbumins from locally available freshwater fish species

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*Presenting author: H. Breiteneder

Background: Our recent research on a multinational fish-allergic patients' cohort indicated that up to 21% of the patients may tolerate specific bony fish species, while up to 90% may tolerate cartilaginous fish. The major fish allergen parvalbumin is the most relevant molecule for diagnosis for >80% of the patients. There is a constant effort to improve the current diagnostic methods to include relevant species for specific geographic regions, thereby enabling the efficient identification of potentially allergenic versus tolerated species for each patient. This study investigated the IgE reactivity to parvalbumins from 12 under-represented Austrian freshwater bony fish species and two cartilaginous species commonly consumed in Europe, with an aim to improve *in vitro* fish allergy diagnostics.

Method: Parvalbumins were purified from 12 locally available Austrian freshwater bony fish species and two cartilaginous fish species from North Sea. The IgE reactivity of 59 fish-allergic Austrian patients to these parvalbumins was investigated using a multiplex IgE quantification assay. Basophil activation tests were performed to investigate the capability of parvalbumins to induce IgE cross-linking.

Results: Based on multiplex IgE quantification for the parvalbumins, the highest reactivity was found for brook trout (median IgE 4.6 kUA/L), brown trout (3.76 kUA/L) and Danube salmon (4.72 kUA/L). The lowest reactivity, with the median IgE below the threshold of 0.3 kUA/L, was observed for the parvalbumins from European eel, tench, Wels catfish, and parvalbumins from cartilaginous fish. The percentage of patients positive to specific species followed a similar trend: ≥85% of the patients reacted to parvalbumins from brook trout, brown trout and Danube salmon, while <50% reacted to European eel, tench, Wels catfish, and the parvalbumins from cartilaginous fish. Between the parvalbumins from the two cartilaginous fish species, a higher reactivity to shark (44% of patients positive) than to ray (1.7% positive) was observed.

Conclusion: The parvalbumins from all 12 investigated freshwater fish species, as well as shark parvalbumin, are relevant allergens. Nevertheless, reactivity to specific species, such as brook trout, brown trout and Danube salmon, is more commonly observed than to others. Molecular allergy testing using the parvalbumins from

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various species relevant for local consumption may help identify potentially tolerated species for individual patients.

Conflict of interest: The authors did not specify any links of interest.

100064 | IgE to cross-reactive carbohydrate determinants (CCD) in childhood: Prevalence, risk factors, putative origins

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*Presenting author: E. Potapova

Background: IgE antibodies to cross-reactive carbohydrate determinants (CCD), although usually clinically irrelevant, may cause false positive outcomes of allergen-specific IgE tests in vitro. Their prevalence and levels have been so far cross-sectionally examined among adult allergic patients, but knowledge about their origins and relevance in childhood are lacking.

Method: CCD were examined with a cross-sectional approach in 1263 Italian pollen allergic children (Panallargen in Pediatrics cohort, PAN-PED), as well as with a longitudinal approach in 319 atopic German children (Multicenter Allergy Study, MAS), whose cutaneous and IgE sensitization profile to a broad panel of allergen extracts and molecules was already known. The presence and levels of IgE to CCD were examined in the sera of both cohorts using bromelain (MUXF3) as reagent and a novel chemiluminescence detection system, operating in a solid phase of fluorescently labelled and streptavidin-coated paramagnetic microparticles.

Results: IgE to CCD was found in 23% of the Italian pollen allergic children, mainly in association with an IgE response to grass pollen. Children with IgE to CCD had higher total IgE levels and were sensitized to more allergenic molecules of Phleum pratense than those with no IgE to CCD. Among participants of the German MAS birth cohort study, IgE to CCD emerged early in life (even at pre-school age), with IgE sensitization to group 1 and 4 allergen molecules of grasses, and almost invariably persisted over the full observation period.

Conclusion: In our Italian and German pediatric populations, we found that the IgE response to CCD: 1) is very frequent among children with pollen allergy; 2) is associated, in both populations, with an IgE response to grass pollen; 3) emerges with IgE sensitization to group 1 and 4 allergen molecules of grasses; 4) can start early in life (even at pre-school age); 5) once started, is almost invariably persistent.

Conflict of interest: Dr. Matricardi reports grants and personal fees from Euroimmun AG; grants and personal fees from Thermo Fisher Scientific, personal fees from Hycor Biomedical Inc, outside the submitted work. All other authors declared no conflicts of interest.

100075 | Post orgasmic illness syndrome (POIS)

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*Presenting author: E. N. Mete Gokmen

Background: Post-orgasmic illness syndrome is characterized by flu, rhinitis, conjunctivitis, loss of appetite, muscle weakness, and fatigue after ejaculation. Although the etiology is unknown, it is accepted that it may be mostly due to type 1 and type 4 allergic reactions and autoimmunity.

Clinical case: The 33-year-old unmarried man was referred to our clinic due to runny nose, itchy eyes and conjunctivitis that developed after ejaculation. After each ejaculation a stabbing pain started on the soles of the feet as if walking on broken glass, and then fatigue, muscle weakness, pain all over the body, hot flushes and arthralgia continued for a week. His symptoms were similar in spontaneous (during sleep), masturbation related and vaginal ejaculation.Physical examination were normal. He has experienced seasonal allergic rhinitis last 1 years.

Metod: Skin prick and intradermal test were performed with sequentially saline diluted fresh autologous semen. The semen dilutions with positive skin test results were shown in table 1. His other laboratory analysis were unremarkable. He also has aeroallergen sensitivity to olive, grass and plantago pollen in the skin prick test.

Results: The patient's symptoms met the POIS criteria; semen spesific IgE may be the pathogenesis. Fexofenadine 120 mg bid was started.

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Conclusion: POIS is a rare condition that severely impairs quality of life. The diagnosis can be made clinically in a simple way, but unfortunately the exact mechanism and treatment of the disease are unknown.

Table 1: Skin Test

Semen	Dilution	Prick	İntradermal
	1/40.000	Not done	Negatıve
	1/4000	Negatıve	3/6 mm
	1/400	Negatıve	4/10 mm
	1/40	Negatıve	6/10 mm
	1/4	Negatıve	Not done
	1/1	3/5 mm	Not done

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Conflict of interest: The authors did not specify any links of interest.

100114 | Creation and first results of an online open educational allergen Encyclopedia

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Background: Open scientific education resources for health care professionals, researchers, patients and the public have been incentivized by the 2019 UNESCO Open Educational Resource (OER) guidelines. The lack of a comprehensive OER prompted us to establish a free OER for allergen science, with the purpose of giving an overview to researchers, patients and the public on allergens and allergen components, and helping clinicians in the diagnosis of allergy. The Allergen Encyclopedia was launched in early 2020 and contains today >550 peer-reviewed articles addressing allergen extracts, components, symptoms, diagnosis, treatment, and cross-reactivity.

Method: An international team of allergy and IT experts designed and implemented a comprehensive, open, online English OER in allergen science. Data from all user countries was anonymously monitored and analyzed to understand the impact of the AE worldwide.

Results: The Allergen Encyclopedia received >400,000 unique visitors since its launch in April 2020, with a steady increase in unique visitors per month. The average number of unique visitors per month was 1,842 in 2020 and reached >25,000 during January and February 2023, with 75% engaged visits. Top 3 user countries were USA, UK and Canada, while the top 3 in EU were Italy, Germany and France. These results were the same when country population was considered. The European union had a quarter of the number of unique visitors compared to the US. When UK, Switzerland and Norway were included in EU, a significant difference was still present. Brazil, South Africa, Philippines, New Zealand, and Malaysia were top users in the rest of the world. The publication output in allergen science had a positive correlation with the number of unique visitors (correlation coefficient 0.78; $p = 0.0076$).

Conclusion: We created an open scientific educational website, the Allergen Encyclopedia, where health care professionals, patients and researchers can learn about allergen extracts and molecules. Since its implementation, there has been a steady increase in unique visitors worldwide, especially in English speaking countries. OERs with anonymous tracking capabilities can support scientific awareness and fulfil knowledge gaps, paving the way for strategies to implement country-tailored resources.

Conflict of interest: The authors did not specify any links of interest.

100116 | The underrated factor in COVID-19 vaccination: PEG allergy

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Background: The mechanism of action behind anaphylactic reactions to the mRNA COVID-19 vaccines remains unknown, but the excipient polyethylene glycol (PEG) has been implicated. Although initial recommendations were made for excipient testing with PEG to help risk stratify individuals and identify an etiology, no standard protocol has been specified.

In this study, we wanted to share our clinical approach in patients who developed or are at risk of developing an allergic reaction after covid-19 vaccination.

Method: Our vaccination approach to 41 patients who previously developed anaphylaxis, urticaria after covid-19 vaccines, or who had a history of drug hypersensitivity to various known agents and therefore refrained from getting covid-19 vaccine, was examined (Figure 1).

Results: A total of 41 (10 males and 31 females) patients were included in the study. The mean ages of males and females were 38.80±12.145 and43.52±14.769, respectively.The patients were evaluated according to their clinical history and PEG skin prick test was performed on all of them.

According to the results of PEG skin prick test, it was observed whether a reaction developed in patients who underwent desensitization and split dose vaccination (Table 1-a, 1-b).

Conclusion: The potential life-saving benefit of vaccination in a global pandemic setting obliges us to carefully evaluate every patient with a possible allergic reaction to avoid being denied access to the vaccine.Your knowledge will be updated as our experience grows.

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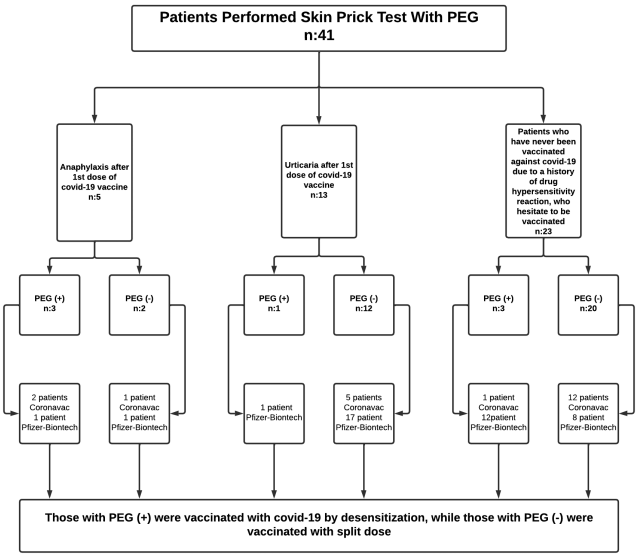

Figure 1

Table 1-a,1-b

Table 1-a:Allergometric tests used for patients with suspect Polyethylen glycol (PEG) and/or Polysorbate 80 (PS80) hypersensitivity

Step		Tested drug	Dilution	Cumulative time (min)
1	Positive control	Histamine	1:1	0
	Negative control	Methyl-prednisolone sodium succinate (Prednol) 20 mg /mL	1:1	
	Prick test	Methyl-prednidolone Acetate (Depo-Medrol) 40 mg /mL	1:100	
	Prick test	Triamcinolone acetonide (Kenacort) 40 mg/mL	1:100	
2	Prick test	Methyl-prednidolone Acetate (Depo-Medrol) 40 mg /mL	1:10	30
	Prick test	Triamcinolone acetonide (Kenacort) 40 mg/mL	1:10	
3	Prick test	Methyl-prednidolone Acetate (Depo-Medrol) 40 mg /mL	1:1	60
4	Intradermal	Methyl-prednidolone Acetate (Depo-Medrol) 40 mg /mL	1:100	90
	Intradermal	Triamcinolone acetonide (Kenacort) 40 mg/mL	1:100	
5	Intradermal	Methyl-prednidolone Acetate (Depo-Medrol) 40 mg /mL	1:10	120
	Intradermal	Triamcinolone acetonide (Kenacort) 40 mg/mL	1:10	
6	Observation			180

Tablo 1-b Pfizer/BioNTech desensitization protocol

	Dose (mL)	Total Dose (mL)
Step 1	0.03	0.3
Step 2	0.07	0.1
Step 3	0.10	0.2
Step 4	0.10	0.3

30 minutes between steps

Conflict of interest: The authors did not specify any links of interest.

100135 | Molecular profile of children with CD based on serum IgE determined by multiplex

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*Presenting author: E. Majsiak

Background: After diagnosis of coeliac disease (CD) some patients may have persistent symptoms, even if a gluten-free diet was introduced. Proper dietary verification often requires the exclusion of other disorders, such as lactose intolerance or food allergy. The aim of this study was to determine the frequency of allergen sensitisation in CD paediatric patients.

Method: 100 children (62 girls), with age range 2.2 – 17.3 years (mean age 8.4 years), newly diagnosed with CD at the Department of Gastroenterology Hepatology and Nutrition of the Children´s Memorial Health Institute in Warsaw, according to ESPGHAN guidelinewere analysed in serum using IgE multiplex tests (ALEX2, Macro-ArrayDX, Austria), containing 117 extracts and 178 molecular components of allergens (with blocker anti-CCDs. Optical density was measured with the use of a microplate reader (ImageXplorer) and Raptor analysis software. The specific IgE to molecular components higher than 0,3 kU_A/L was as positive.

Results: The specific IgE to 87 molecular components (64 inhalant, 21 food and 5 other) from 178 tested were detected in 42% of patients with CD. The most often sensitization was observed to Phl p 1 timothy grass (20%), Lol p 1 ryegrass (18%), Bet v 1 birch (14%) and Der p 23 *Dermatophagoides pteronyssinus* (14%). In individual groups of families, the order was observed: for the family PR10 Bet v 1 (14%) > Aln g 1 Cor a 1.0103, Cor a 1.0401; Fag s 1; Mal d 1 (11%); > Ara h 8 (9%) > Api g 1; Dau c 1; Gly m 4 (6%); for profilins Bet v 2; Cuc m 2; Hev b 8; Mer a 1; Phl p 12; Pho d 2 (3%); for polcalcins Aln g 4; Phl p 7 (2%), for nsLTP Api g 2; Api g 6; Art v 3.0201; Can s 3 (1%) for defensins Art v 1.0101(3%) > Amb a 4 (1%); for lipokalins Can f 4; Can f 6; Cav p 1; Equ c 1; Mus m 1 (3%) > Fel d 4 (2%) > Can f 1; Can f 2; Fel d 7; Ory c 1; Phod s 1 (1%), for NPC2 Der f 2; Der p 2 (12%) > Gly d 2 (10%) > Lep d 2 (6%) > Tyr p 2 (4%); for cysteine proteases Der f 1 (12%) > Der p 1 (10%); for beta-expansins Phl p 1 (20%)> Lol p 1 (18%) > Cyn d 1 (12%). No sIgE was found in children with CD against wheat molecules (even at 0.1 kU/L cut-off).

Conclusion: This preliminary study showed the high frequency of allergic sensitisation to inhaled and food molecular allergens in CD paediatric patient. Some of these allergens are able to cross-react with food proteins, what can affect dietary treatment in CD.

Conflict of interest: The authors did not specify any links of interest.

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100152 | Novel, computational IgE-clustering in a population-based cross-sectional study: Mapping the allergy burden

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*Presenting author: N. Wanniang

Background: There is an increasing prevalence of allergies in western countries. Allergies are linked to long-lasting health impairments, a reduced quality of life, and an increase socio-economic health burden. Allergy development and progression are influenced by a multitude of complex factors, including genetics, social and environmental conditions, as well as allergen exposure. This study utilized the European Health Examination Survey in Luxembourg (EHES-LUX) and a computational approach to analyze large datasets and identify population groups with highest need for medical care. The novel method allowed for a better understanding of the allergy burden in our population.

Method: Health, lifestyle, environment, and medical examination data were collected from 1,462 Luxembourgish adults of the cross-sectional EHES-LUX cohort. Serum IgE-typing (sIgE) was done using the ImmunoCAP Phadiatop SX1 screening assay and the ALEX^2 assay for deep sIgE profiling. Deep sIgE profiles were clustered using unsupervised analysis and following, those clusters were correlated with EHES-LUX database.

Results: 42.6% of the participants reported a physician-diagnosed allergy. The overall sensitization rate was found to be 44% on the basis of sIgE-positivity. Main sensitization sources were tree pollens (52.4%), followed by grass pollens (51.8%) and mites (40.3%) suggesting seasonal as well as perennial burden. The youngest group of participants (25-34 years old) showed the highest burden of multiple sensitization while mono-sensitization was most prevalent in the oldest generation (55-65 years old). Unsupervised clustering of sIgE-profiles revealed seven clusters. The largest cluster comprised of participants with highest sensitization to pathogenesis-related molecule (PR-10) and with multi-sensitization to respiratory sources. This cluster reported more allergy symptoms as well as the highest need for medical attention among the sensitized participants.

Conclusion: Our novel approach of analyzing large biosamples datasets along with deep health information allows the measurement of the burden of a chronic inflammatory disease in the general population. This also led to the identification of the most vulnerable groups in need of better medical care.

Conflict of interest: The authors did not specify any links of interest.

100189 | Developing a national allergy centre of excellence in Australia

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*Presenting author: K. Perrett

Background: 20% of Australians live with allergic disease, including 10% of infants diagnosed with clinically confirmed food allergy. Following a bipartisan Parliamentary Inquiry into Allergies and Anaphylaxis (2019-2020), the *Walking the Allergy Tightrope* report made 24 recommendations identifying the critical need for a national action plan. In August 2022, the Murdoch Children's Research Institute received $10.2 million Australian Government funding to transition the Centre for Food & Allergy Research (CFAR), into the National Allergy Centre of Excellence (NACE).

The NACE's mission is to centralise allergic disease research and translation of evidence into practice as Australia's peak allergy research body. It will generate resources and infrastructure to facilitate and accelerate allergy research and provide consumers, clinicians and policy makers access to the latest evidence-based research findings and clinical trials.

Method: Governance structures include: an Executive Committee (Director and Pillar Leads) and International Advisory Board, overseeing the NACE's national plan of action; a Consumer Advisory and Leadership Group (Executive Committee and elected Co-Chairs of the four Streams (drug, food, insect, and respiratory allergy)); and Stream Advisory Groups, acting as a sustainable framework for collaboration and communication among allergy researchers across Australia.

Results: NACE's activities are underpinned by four interconnected Pillars designed to maximise outcomes whilst developing the infrastructure, systems, and processes for the future. E.g: Our *Evidence & Translation* Pillar is undertaking living systematic reviews to provide evidence to underpin our embedded clinical trials which will be developed in the *Allergy Research* Pillar along with nationally standardised outcome measures and research resources. Minimum embedded clinical trial datasets, collected via electronic medical

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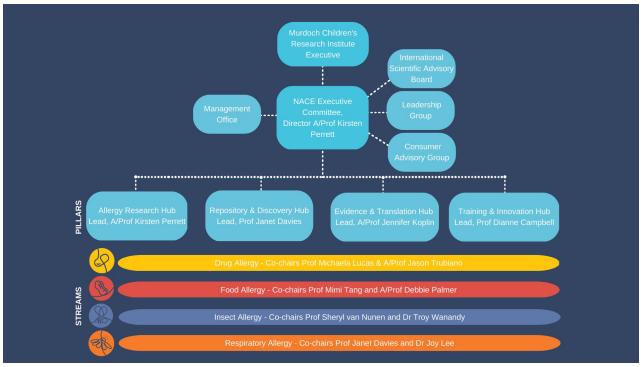
records will have lineage and linkage functionality, and together with biospecimens will be stored in the NACE BioRepository, created by the *Repository and Discovery* Pillar. Finally, the *Training & Innovation* Pillar will develop the next generation of allergy experts (via competitive PhD scholarships and fellowships) to conduct Pillar activities.

Conclusion: The foundations of Australia's innovative NACE infrastructure have been established, providing a unique opportunity to accelerate and sustain allergy research at scale. Together with the new patient focused National Allergy Council the NACE will help transform the lives of people living with allergic disease.

Governance Structure of the National Allergy Centre of Excellence in Australia



Conflict of interest: The authors did not specify any links of interest.

100205 | Component-resolved diagnostics of specific IgE reactions using microarray technology

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*Presenting author: N. Offermann

Background: Microarray technology allows small amounts of allergen extracts, natural and recombinant allergens to be spotted on different surfaces. In addition, small serum amounts can be used for specific Immunoglobulin E (sIgE) detection for a huge number of allergen specificities in a single step. A prototype of a Microarray for the simultaneous determination of different allergen-specific antibodies was developed. The aim of the further study was to test allergen extracts and their corresponding recombinant components to identify specific allergen reactions.

Method: The test is based on an Enzyme Linked Immuno Sorbent Assay combined with a Microarray technique. A set of purified allergen extracts and their corresponding recombinant components were spotted in microtiter plate wells. The specific IgE from patient´s sample bind to the solid phase coupled allergens. After addition of anti-IgE-Enzyme-Conjugate a solid phase bound antigen/IgE/anti-IgE-HRP-complex is formed. The amount of bound antibody corresponds to the amount of horse radish peroxidase in the respective well and is detected by incubation with precipitating Tetramethylbenzidine Substrate resulting in the development of blue colored allergen-spots. A calibration curve is run simultaneously with the serum samples and the concentration of the allergen specific IgE antibodies is read by a special Microarray Reader. The concentrations are directly proportional to the intensities of the colored spots.

Results: The results were compared with established assay methods like Allergen Lateral Flow Assay, ALLERG-O-LIQ (Dr. Fooke Laboratorien GmbH) and ImmunoCAP® (Thermo Fisher).

There was good agreement between the microarray results and different in vitro techniques. Area under the curve values were found at >0.85 compared to other in vitro results. Spearman correlation between commercially available in vitro systems and the Microarray for all tested allergens reveals a correlation coefficient of >0.85.

Conclusion: For the detection of sIgE the Microarray shows comparable results to other in vitro techniques. The Microarray technology allows the simultaneous detection of allergen specific IgE within one well of a microtiter plate using small amounts of serum samples. By testing both, the reaction to the purified extracts and the recombinant components, there is the opportunity to determine the individual immune response for each patient.

Conflict of interest: The authors did not specify any links of interest.

100243 | Alfa-Gal syndrome: Endemic food allergy in Armenia

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Background: Alfa-Gal syndrome is known to be a food allergy which occurs due to sensitization to oligosaccharide rather than food protein. The main culprit of developing the sensitization is considered to be tick's bite, Lone star tick in particular.

Method: This study was conducted among the patients who applied to Arabkir JMC within 05.2020 to 02.2023 period with complaints of rash, and /or cough, and/or general complaints after consuming red meat. A few of them have symptoms after dairy products and certain medications: acetaminophen, Tamiflu. The onset of the symptoms were mainly late 3–6 h after consuming the culprit food. There were 91 people from 9 regions of Armenia and Artsakh: 20% from Tavush, 23 % from Lori, 6% from Syunik, 6% from Shirak, 4% from Gegharkunik, 2% from Kotayk, 29% from Yerevan, 2% from Armavir, 4 from Ararat and 2 % from Artsakh, of which 7,7% females and 84 % males. We checked the levels of specific IgE to culprit food and alfa- Gal applying ImmunoCAP method.

Results: Among 91 examined patients 27 (30%) have specific IgE to Alfa-Gal of which 23 (25%) have additional sensitization to pork, 25 (27 %)to beef, 4 (4%) to milk. Of all alfa- Gal sensitized patients 12 (44.4 %) came from Tavush region, 11 (40.7%) patients came from Lori, 1 (3.7%) from Yerevan, 1 (3.7%) from Syunik, 2(7.4%) came from Artsakh. All individuals were advised to avoid the culprit products,

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as well as to avoid further bites. Epinephrine auto-injector was prescribed for the first medical care.

Conclusion: 2 regions of Armenia- Tavush and Lori seem to be endemic for alpha- gal syndrome, since they are located in the north of Armenia with forest-rich environment. These regions are considered to be an endemic zone for ticks of Ixodae family. Despite the lack of Lone star tick presence evidence there, we found that the majority of sensitized individuals had tick bites. Apparently this tick does live there, or there is another tick of Ixodae family which can cause sensitization to alfa gal with further development of alfa-Gal syndrome in sensitized individuals. It is important to know to take certain measures towards prevention and management of the problem.

Conflict of interest: The authors did not specify any links of interest.

100246 | Quality and usefulness of informative youtube videos on (HAE)

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Background: Hereditary angioedema (HAE) is characterized by unpredictable and potentially life-threatening attacks which impact quality of life and accurate information is crucial to lessen disease burden. Therefore, YouTube videos are widely being used to give information about HAE to both physicians and patients. However, since there is no regulatory authority for their content, they may contain incorrect or incomplete information. We aimed to evaluate the popularity, usefulness and quality of YouTube videos about HAE.

Method: A search on YouTube was conducted using the term of "hereditary angioedema". The most relevant 135 videos were initially screened. The videos in languages other than English, irrelevant ones (advertisements-promotions) or videos with poor visual quality were excluded. The remaining 110 videos were independently examined by two allergy specialists. Data on views, likes and comments as well as data on the source of uploaders, duration of availability and content quality were recorded. All videos were classified according to Global Quality Score (GQS)-(5-point score list), usefulness scoring systems (poor-moderate-excellent) and harmfulness scoring system (not harmful true information- misleading information- potentially harmful). In addition, all videos were divided into 4 categories depending on their purpose including medical professional education, patients' education, patient experiences and awareness.

Results: 66.30 % of the videos were uploaded by healthcare workers. The median GQS scores of videos posted by healthcare workers were higher than those posted by non-healthcare workers ($p < 0.01$). Among 110 videos, 60.9%, 13.63%, 13.63% and 11.81% of them were about education of medical professionals, patient education, patient experiences and awareness of the disease, respectively. Within these four groups, there was no significant difference in views, likes, and comments. Medical professional education videos were more useful than the other ones ($p < 0.01$) and their GQS scores were higher ($p < 0.01$). Medical professional education videos were uploaded more recently ($p = 0.006$) and they were longer ($p < 0.01$) in duration than the non-professional.

Conclusion: Youtube videos about HAE disease uploaded by healthcare professionals can be used as a source of accurate information. Professional medical organizations, doctors, hospitals or universities need to increase the visibility on YouTube for a better understanding of HAE.

Table 1: Comparison of the videos depending on their purpose and origin

	HEALTHCARE WORKERS (n:79)	NON-HEALTHCARE WORKERS (n:31)	P	Medical Professional Education (n:67)	Patients Education (n:15)	Patients Experience (n:15)	Awareness n:13	P
Views median (IQR)	363 (112.5-3386)	635 (98.50-2466)	NS	328 (105-1463)	2419 (345-2751)	633 (179-2274)	291 (72.5-2718)	NS
Views/month median (IQR)	19.07(1.23-82.06)	14.19 (1.59-41.58)	NS	18.22(2.45-103.63)	27.51 (59.07-27.51)	13.56 (2.72-49.23)	3.24 (2.17-58.59)	NS
Likes median (IQR)	6 (2-41)	6 (2-45.50)	NS	6 (2-45)	10 (5-43)	4 (2-9)	2 (1-38.50)	NS
Likes/month median (IQR)	0.27 (0.04-1.13)	0.1 (0.03-0.64)	NS	0.29 (0.03-1.17)	0.35 (0.08-0.68)	0.06 (0.03-0.56)	0.08 (0.01-0.38)	NS
Comments median (IQR)	1 (0-4)	1 (0-6)	NS	1 (0-4)	2 (0-7)	1 (0-6)	0 (0-3.5)	NS
Duration minute median (IQR)	9 (3-25.5)	3 (1-5.5)	**0,037**	10 (3-28)	2 (1-4)	4 (1-22)	2 (1-5.5)	**<0.01**
Uploaded many months ago median (IQR)	26 (15.5-57.5)	63 (20.5-100)	**0,004**	25 (14-53)	69 (24-100)	55 (16-98)	57 (23.5-110)	**0,006**
Likes/views median (IQR)	0.012 (0.005-0.023)	0.01 (0.005-0.01)	NS	0.01 (0.005-0.024)	0.009 (0.006-0.017)	0.112 (0.005-0.014)	0.0074 (0.0031-0.0200)	NS
GQS median (IQR)	4 (3-5)	2 (2-3)	**<0.01**	4 (3-5)	3 (2-4)	3 (2-3)	2 (2-2)	**<0.01**
Harmfulness Score median (IQR)	1 (1-1)	1 (1-1.5)	**0,023**	1 (1-1)	2 (1-2)	1 (1-2)	1 (1-1)	**<0.01**
Usefulness Score median (IQR)	3 (2-3)	2 (1-2)	**<0.01**	3 (2-3)	2 (2-2)	2 (1-2)	2 (1-2)	**<0.01**

Conflict of interest: The authors did not specify any links of interest.

100250 | Novel rapid fingerstick alternative to traditional venipuncture for total IgE quantification

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Background: The current method of total IgE quantitation requires venipuncture and external laboratory processing. Sample acquisition is dependent on phlebotomist proficiency and patient factors, both anatomic and psychologic, particularly in pediatric patients. Post-collection, test results are typically available after a shipping and processing delay of 1–6 days. The need for minimally-invasive, rapid, in-house testing is high.

Method: In this multi-center non-inferiority trial, we compared total IgE results from traditional venipuncture to whole blood obtained by fingerstick. Venous blood samples were collected by trained phlebotomists and sent to a central laboratory. Fingerstick samples were collected in duplicate by untrained allergy staff (ie, medical assistants, office administrators) and analyzed within 30 min on a desktop device at the point-of-care (POC). 408 subjects were enrolled across 3 sites.

Results: Of the 813 fingersticks collected, 0.5% were unsuccessful compared to 2.2% of phlebotomy draws. The difference between the total IgE values from the two fingersticks were well within individual biological variance and were not significantly different at 95% confidence (-2.77%, 0.76%). The coefficient of variance for two fingerstick samples from different fingers taken by two different operators and tested on two POC devices simultaneously was 9.4% for

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total IgE concentration from 5-900 kU/L. This falls on the lower end of the range of coefficient of variances from the CAP proficiency testing for 2020-2022 (9 to 13%) for samples in the 100-500kU/L range for all IgE quantification system manufacturers. In addition, staff reported 75% of patients <10 years chose not to participate upon hearing a venipuncture was required.

Conclusion: Total IgE quantitation of whole blood obtained via fingerstick and processed using this in-house device was rapid, precise, and facile. Fingerstick samples provide a less invasive, more palatable alternative to venipuncture, particularly for pediatric patients. Validation of this testing methodology paves the way for future studies investigating rapid, in-house fingerstick-based specific IgE quantification.

Conflict of interest: Dr. Lindsey Moore is a paid investigator for a trial run by Kenota.Dr. Nicole Chase is a paid investigator for a trial run by Kenota.Dr. Joel Hartman is a paid investigator for a trial run by Kenota.Dr. Bob Geng is a consultant for Kenota.

100347 | Hereditary angioedema and COVID-19; single center experience

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Background: Hereditary angioedema (HAE) is a rare disease with fatal angioedema attacks. Like many factors, coronavirus disease 2019 (COVID-19) and its vaccination may trigger angioedema attacks and increase the frequency and/or severity of attacks. We evaluated the HAE patients followed in our center for SARS-CoV-2 infection and vaccination.

Method: Ten patients (3 male+7 female) followed up with the diagnosis of HAE were included in the study. The patients were evaluated retrospectively.

Results: Of 10 HAE-C1-INH (C1-INH deficient HAE) patients, 3 were diagnosed with type-1 HAE, 6 with type-2 HAE, and 1 with normal C1-INH HAE. 5 out of 10 patients have had a COVID-19 infection. Two patients (mother and daughter) diagnosed with type-2 HAE had an attack during COVID-19 infection. While the mother had abdominal, extremity and larynx involvement, her daughter had abdominal attacks. C1-INH concentrate was administered in repeated doses. The family (father and two daughters) diagnosed with type-1 HAE had SARS-CoV-2 infection without attack. 6 out of 10 patients received the COVID-19 vaccine (BioNTech, Sinovac or Turkovac). One of the vaccinated people got the infection after 2 doses of Sinovac vaccine and one patient after 1 dose of Turkovac vaccine. The patient who took 2 doses of Sinovac did not have an attack during SARS-CoV-2 infection, but the patient who took a single dose of Turkovac had an attack. There was no attack in the patients during and after 72 h of vaccination.

Conclusion: The complement cascade and tissue kallikrein-kinin pathways are thought to potentially play a role in the pathogenesis of COVID-19 in patients with HAE-C1-INH. The fact that, during the SARS-CoV-2 infection, our 3 patients (Type-1 HAE) had no attack and 2 patients (Type-2 HAE) had an attack may be associated with the SARS-CoV-2 variant. Consistent with the literature, no post-vaccination attacks were observed in our patients.

Conflict of interest: The authors did not specify any links of interest.

100351 | Brazilian oral food challenge panorama

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Background: oral food challenges (OFCs) are considered the gold standard procedure to check food allergy (FA) status in the context of diagnosis or tolerance acquisition. It requires, specialized staff and appropriate conditions to reduce harm as anaphylaxis may occur. Just recently, in 2022, it was recognized as a coded procedure in Brazilian public and private national health systems, but still just in the context of milk allergy for children up to 24 months of age. Few is known about OFC practices in Brazil.

Objectives: to explore OFC practices, barriers and solutions among Brazilian allergists and immunologists.

Method: online survey was e-mailed to 2,500 associates of the Brazilian Association of Allergy and Immunology (ASBAI) inquiring about OFC practices, training experiences and barriers concerning this procedure execution as workable solutions.

Results: 290 responses were obtained from the associates (11.6%). More than a half of them (56.1%) originating from the southeast region. 158/290 (54.5%) answered doing OFC, and among those, 62% more than 5 OFC monthly, mostly to cow's milk and hen's egg. OFC practice, mostly done on a private setting, was associated with training experiences during specialization. Lack of appropriate settings was pointed as the main barrier for not executing OFC.

Conclusion: although the intrinsic biases because of the methodology adopted, this was the first study to explore OFC practices in Brazil, clarifying and discussing this issue. OFC remain an under executed procedure in the vast territory of Brazil.

Conflict of interest: The authors did not specify any links of interest.

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100383 | Detailed analysis of the occurrence of antibodies e in the blood serum to allergen molecules as a way to determine risk groups for the existence of allergic diseases in the Polish pediatric population

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*Presenting author: W. Gromek

Background: One of the allergy diagnostic tools is the determination of specific antibodies (sIgE) in the patient's blood serum. In the case of allergic diseases (AD), the diagnosis can be made if a positive result of sIgE in the blood serum correlates to clinical symptoms. However, even the mere presence of these antibodies without concomitant symptoms allows us to create groups of people at risk of developing AD.

Aim of the study: Identification of allergens, risk groups and creating a map of allergy hazards in the study population based on the presence of sIgE in the bloodserum.

Method: The study group consisted of 3,062 children with suspected allergies diagnosed at the Department of Allergology and Pneumonology at the Institute of Tuberculosisand Lung Diseases in Rabka-Zdrój, the Children's Memorial Health Institute in Warsaw and in the Diagnostyka S.A. laboratory network in 2019-2022. The most advanced 3rd generation ALEXR test on the market (Macro Array Diagnostics Gmbh Vienna, Austria) was used to determine sIgE in blood serum. The study group was tested for 296 allergen extracts and molecules.

Results: The study group consisted of 42% girls (1,281) and 58% boys (1,781). The mean age was 7.0 years (±4.3). The most common sIgE-positive results were pollen of silver birch - rBet v 1 (39%), timothy - rPhl p 1 (39%), ryegrass - n Lol p 1 (37%). The highest mean sIgE results were obtained for the following allergens: Dermatophagoides farinae - rDer f 2 (average = 27.60 kU/l), Dermatophagoides pteronyssinus - rDer p 2 (27.48 kU/l), Dermatophagoides pteronyssinus - rDer p21 (26 .35 kU/l). In the case of food allergens, the highest percentage of sIgE positive results were found in the age group up to 12 months (average 13.2% of positive results), and in the case of inhalant allergens, the highest percentage was found among children aged 5 to 13 years (11.2%) and from 13 to 18 years (13.2%).

Conclusion: In the study population, the most sensitizing agents were proteins from the PR 10 group (Bet v 1 of birch and Mal d 1 of apple and Cor a 1.0401 of hazelnut). The second group of the most sensitizing proteins in the Polish pediatric population were β-expansins (Phl p 1 of timothy and Lol p 1 of ryegrass). The distribution of sIgE concentrations towards molecules of food and inhalant allergens coincides with the typical picture of the allergic march.

Conflict of interest: The authors did not specify any links of interest.

100394 | Gad m 1 - not a sufficient marker allergen for fish allergy diagnosis in Lithuanian population

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Background: Molecular sensitization patterns to fish allergens have not yet been studied in the Lithuanian population. Diagnosis of fish allergy may represent a challenge for the allergist. Gad m 1 is commonly used as a representative allergenic parvalbumin (PV) for fish allergy diagnosis.

Method: A retrospective study of sensitization profiles, obtained via ALEX^2 macroarray was conducted in Lithuania. The study included anonymized results of 1921 patients with allergy-like symptoms. Sensitization to ß-parvalbumins (ß-PV's) from 7 fish species were analyzed. Sensitization was defined as sIgE levels > 0.3 kUA/L. Pearson's correlation coefficient (quantitative variables) and Pearson's Chi-square test (categorical variables) was used for statistical analysis.

Results: The study sample included 1000 (52.06%) children under 18 years of old and 921 (47.94%) adults. Sensitization to any allergen via ALEX^2 was identified in 1343 (69.91%) patients. 103 (7.67%) patients were sensitized to ß-PV's. Sensitization to Cyp c 1 ß-PV was detected in 73 (70.87%) of parvalbumin sensitized patients, Clu h 1 – 83 (80.58%), Gad m 1 – 58 (56.31%), Sal s 1 – 86 (83.50%), Sco s 1 – 92 (89.32%), Thu a 1 – 90 (87.38%) and Xyp g 1 – 74 (71.84%). Statistically significant difference of sensitization frequency to ß-PV's was observed between children and adults ($p < 0.001$). Children were statistically more likely to be sensitized to ß-PV's. Pearson's correlation coefficient revealed a statistically significant negative correlation between age and sensitization to any fish ß-PV ($p < 0.001$, rho = −0.127) and to individual fish ß-PV's – Cyp c ($p < 0.001$, rho = −0.109); Clu h 1 ($p < 0.001$, rho = −0.125); Gad m 1 ($p < 0.001$, rho = −0.098); Sal s 1 ($p < 0.001$, rho = −0.129); Sco s 1 ($p < 0.001$, rho = −0.124); Thu a 1 ($p < 0.001$, rho = −0.121) and Xyp g 1 ($p = 0.025$, rho = −0.104). The younger the patient - the more likely they were to be sensitized to ß-PV's. 45 (43.69%) of ß-PV sensitized patients were sensitized to at least one ß-PV, without displaying Gad m 1 sensitization, showing that Gad m 1 alone is an insufficient marker for diagnosis.

Conclusion: The younger the patient - the more likely they were to be sensitized fish ß-parvalbumins. This might suggest a shifting tendency in our population, although further studies are needed to validate this statement. Testing for only Gad m 1 may be insufficient

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for accurate fish allergy diagnosis as a large number of patients are sensitized to fish ß-parvalbumins other than Gad m 1.

Conflict of interest: Authors Asta Miskiniene and Monika Miskinyte were employed by the company UAB In Novum. The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

100412 | The limited value of skin testing to anti-tuberculosis drugs: A case report

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Background: Tuberculosis (TB) is the second most infectious killer and prompt treatment initiation is essential for a favourable outcome. Hypersensitivity reactions (HSRs) require specialist allergist input and are complicated by the use of combination anti-TB drugs. Whilst skin tests are used in the assessment of HSRs, their predictive value for anti-TB drugs is not established.

Method: Tuberculosis (TB) is the second most infectious killer and prompt treatment initiation is essential for a favourable outcome. Hypersensitivity reactions (HSRs) require specialist allergist input and are complicated by the use of combination anti-TB drugs. Whilst skin tests are used in the assessment of HSRs, their predictive value for anti-TB drugs is not established.

Results: This case highlights the importance of establishing the positive predictive value of skin testing to anti-TB drugs. It also highlights the important distinction between adverse drug reactions (ADRs) and hypersensitivity reactions (HSR). Up to 60% of patients report ADRs to TB treatment (often benign cutaneous reactions), however the true incidence rates of HSRs are limited. HSRs are usually observed within the first few weeks of therapy. Severe cutaneous adverse reactions (SCARs) are rare. Immediate or type I HSRs are also rare, most are mild-moderate and seldom meet diagnostic criteria for anaphylaxis. Rifampicin is the most common culprit. Skin tests should be interpreted with caution, and a direct provocation test (DPT) should be considered.

Conclusion: Pragmatic assessment of anti-TB drug HSR is essential, specifically the importance of challenge despite a positive IDT in cases where diagnostic certainty could affect patient outcomes. Specifically because treatment interruption represents a risk factor for developing MDR-TB, which carries a worse prognosis and significant public health complications.

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Conflict of interest: The authors did not specify any links of interest.

100426 | Pru p7 IgE measurement in diagnostics of peach allergy: Is it aways necessary?

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Background: Peamaclein Pru p7 was first identified in 2013 and belongs to the superfamily of GRP (Gibberellin-Regulated Protein), vegetable proteins characteristically stable and resistant to thermal and acid degradation. Typical symptoms due to Pru p7 allergy are severe, including anaphylaxis with urticaria, facial angioedema and edema of the larynx.

Cypmaclein Cup s7 is homologous to Pru p7, with high structural identity and high cross-reactivity. It has been suggested that Cup s7 could act as a primary sensitiser, despite some individuals sensitized to GRPs don't show a sensitization to cypress.

Pru p7 has been proposed as a monosensitizing allergen in patients who experienced severe reactions to peach whose blood tests were negative for already known peach CRD (Component Resolved Diagnosis).

Here we evaluated the percentage of subjects tested positive for Pru p7 in the area of Bologna, and of subjects who also present a sensibilization to cypress pollen.

Method: Data collection is retrospective, required data are dosage of specific Pru p7 and Cup a1 IgE (FEIA Thermo Fisher immunoCAP), optional data include Pru p3, Cupressus Arizonae, a PR-10 and profiline IgE and clinical data.

Results: We identified 73 patients who underwent Pru p7 IgE detection between November 2020 and October 2022 in the Laboratorio Unico Metropolitano of Bologna AUSL.

4 patients-5.48% resulted positive for Pru p7 IgE, with a mean of 0.33 and a maximum of 0.72 kU/L, 3 of which were sensitized to cypress pollen and 1 was not tested for cypress. 2 patients were also sensitized to Pru p3. Total IgE ranged from 533 to 18246 kU/L, resulting in a low Pru p7/total IgE ratio. Known symptoms ranged from allergic oral syndrome to mild intestinal and respiratory manifestations.

The remaining 69 patients had Pru p7 IgE <0.10 kU/L.

Out of 73 patients, 22-30.14% had positive tests for Cup a1 IgE with a mean of 30.51 kU/L, 12-16.44% had positive tests for cypress extract with a mean of 10.97, 26-35.62% had positive tests for Pru p3 with a mean of 13.42.

Conclusion: We found very few patients sensitized to Pru p7 and with poor clinical meaning, despite prevalent sensibilization to cypress and peach in the same population.

Hence, in our experience and in the area of Bologna, we suggest that patients suspected for peach allergy shouldn't be sent by specialists in the first instance for the dosage of Pru p7 IgE, instead more common peach allergens should be tested first in order to prevent inappropriate requests.

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Table 1. IgE antibody and clinical profile of Pru p7 IgE-positive patients

	Total IgE kU/L	Pru p7 IgE kU/L	Pru p3 IgE kU/L	Cup a1 IgE kU/L	Cupressus Arizonae extract IgE kU/L	Bet v1 IgE kU/L	Profilin IgE kU/L	Food responsible for symptoms	Symptoms
1	2692	0,1	< 0.10	NA	68,7	61,6	0.22 (Pru p4)	Peach, apricot, cherry	OAS
2	533	0,12	27,7	56	NA	11,4	0,72 (Bet v2)	Dry fruit (almond, hazelnut…), tomato	BS
3	1257	0,38	< 0.10	NA	NA	56,9	< 0.10 (Pru p4)	Peach, apple, strawberry, grape, fig, melon, fennel, carrot, kiwi, ananas, dry fruit	OAS
4	18.246	0,72	>100	>100	52,1	>100	0,7 (Bet v2)	Unknown	Unknown

* OAS: Oral Allergic Syndrome, BS: Bronchospasm

Conflict of interest: The authors did not specify any links of interest.

ANAPHYLAXIS

100349 | Use of omalizumab in chemotherapy rapid drug desensitization: Can anaphylaxis be prevented?

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*Presenting author: Z. Yegin Katran

Background: Chemotherapy is still the gold standard in many cancer treatments. All chemotherapy drugs carry a risk of causing hypersensitivity reactions. Continuing the drug carries the risk of fatal anaphylaxis, especially if there is a history of drug-induced anaphylaxis. On the other hand, if chemotherapy is stopped early, it can cause cancer progression. The difference of chemotherapy from other drugs is that there is no alternative, which also means, 'it is essential for that patient at that particular period of time.' After the development of hypersensitivity, the target chemotherapy dose can be reached in most patients with premedication and rapid drug desensitization.

Method: Our knowledge on how to continue chemotherapy once anaphylaxis develops is very limited. There is no indication for use of omalizumab in chemotherapy premedication, but there are case series regarding its use.

Results: We shared our experience with the use of omalizumab in 4 patients with a history of anaphylaxis due to chemotherapy, who developed life-threatening anaphylaxis despite standard premedication and rapid drug desensitization in our clinic. Three of the patients had gynecological malignancies; carboplatin-induced anaphylaxis developed in 2of the patients; skin tests were done; methyl prednisolone, pheniramine maloate, and montelukast sodium were used for premedication. When anaphylaxis developed after rapid drug desensitization, omalizumab was added to the premedication. With the addition of omalizumab, all of the patients were able to complete the planned number of chemotherapy cycles.

Conclusion: In chemotherapy hypersensitivity, omalizumab can be used for premedication in patients who cannot successfully receive treatment despite standard premedication and rapid drug desensitization. Prospective studies with larger numbers of patients are needed in this regard.

Conflict of interest: The authors did not specify any links of interest.

100224 | Origin of youtube videos on epinephrine auto-injector use matters

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Background: The use of epinephrine auto-injector (EAI) in anaphylaxis is a matter for the patients due to fear of self-injection in an acute attack. YouTube videos as a source of information how to use EAI can be helpful. However, the reliability and quality of these videos are not known. Therefore, we aimed to evaluate the characteristics of the videos on the use of EAIs.

Method: A search on YouTube was conducted using the term of "adrenaline auto-injector", "auto-injector" and the marketing names for auto-injectors. The most relevant 157 videos were initially screened. The videos in languages other than English, advertisements-promotions, and videos containing details about high prices were excluded. The remaining 107 videos were independently examined by two allergy specialists. Data on views, likes, comments, the origin of the video and quality of content were recorded. All videos were classified according to Global Quality Score (GQS)-(5-point score list), usefulness scoring systems (poor-moderate-excellent) and harmfulness scoring system (not harmful true information- misleading information- potentially harmful). In addition, all videos were divided into 4 categories depending on their purpose including medical professional education, patients' education, patient experiences and awareness.

Results: 67.28 % of the videos were uploaded by healthcare workers (doctors, nurses, hospitals etc.). 32.71 % videos were uploaded by private individual's YouTube channels and TV shows. The median of GQS scores of videos posted by healthcare workers were higher than the posted by non-healthcare workers ($p = 0.01$). The median usefulness scores were higher ($p < 0.01$) and harmfulness scores were lower ($p < 0.01$) in the healthcare workers. Furthermore, the oldest videos were mostly in the patient experience group, while the newest ones were in the medical professional education group ($p = 0.02$). The median GQS and usefulness scores were found to be higher in both medical profession and patients' education groups ($p < 0.01$).

Conclusion: In this study, we determined that the YouTube videos on EAI uploaded by professional health care workers can be useful in obtaining correct and reliable information on the use of EAIs. Therefore, health care workers should be encouraged to provide educational videos for the patients and the patients should be informed to watch only professional training videos approved by their doctors.

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Table 1: Comparison of the videos depending on their purpose and origin

	MEDICAL PROFESSIONAL EDUCATION (n:6)	PATIENTS EDUCATION (n:87)	PATIENTS EXPERIENCE (n:10)	AWARENESS (n:4)	P		HEALTHCARE WORKERS (n:72)	NON-HEALTHCARE WORKERS (n:35)	p
Views median (IQR)	295 (63.75-23834.5)	4852 (409-34230)	5711 (1098-101109.25)	4351 (244.75-8840.5)	NS		2661 (331-24618.5)	5159 (1403-39308)	NS
Likes median (IQR)	5 (0.75-629.25)	18 (3-190)	25 (2.5-869.25)	33 (5.25-81)	NS		11.2 (2.25-203)	36 (3-190)	NS
Comments median (IQR)	0 (0-24.25)	0 (0-4)	2.5 (0-26.5)	0 (0-21)	NS		0(0-5.25)	0 (0-6)	NS
Duration minute median (IQR)	12.5 (1-32.75)	2 (1-4)	4 (1-6.5)	1 (0-2.75)	NS		2 (1-4)	3 (1-6)	NS
Uploaded many months ago median (IQR)	21 (17.75-25.25)	55 (29-93)	74.5 (51.25-98.5)	48 (22.25-78.25)	**0.02**		44.5 (23.25-90)	67 (37-93)	NS
Harmfulness Score median (IQR)	1 (1-1.25)	1 (1-1)	1 (1-1.25)	1 (1-1.75)	NS		1 (1-1)	1 (1-2)	**<0.01**
GQS median (IQR)	4.5 (2-5)	4 (3-5)	1.5 (1-2.25)	2 (1.25-2)	**<0.01**		4 (3-5)	3 (2-4)	**0.01**
Usefulness Score median (IQR)	2.5 (2-3)	2 (2-3)	1 (1-2)	1.5 (1-2)	**<0.01**		2 (2-3)	2 (1-3)	**<0.01**
Views/month median (IQR)	15.Oca (3.59-1087.78)	70.16 (13.76-686.20)	75.14 (19.33-1086.20)	59.657 (6.713-258.302)	NS		44.10 (8.36-695.47)	107.30 (25.65-445.97)	NS
Likes/month median (IQR)	0.197 (0.0682-28.5759)	0.357 (0.083-3.224)	0.391 (0.068-9.293)	1.011 (0.236-1.521)	NS		0.27 (0.08-3.49)	0.37 (0.08-1.93)	NS

Conflict of interest: The authors did not specify any links of interest.

100131 | A case of recurrent severe anaphylaxis linked to breeding pigeons

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63-year-old patient presented to the Clinic of Internal Medicine, Asthma and Allergy for the evaluation of recurrent anaphylaxis. The patient experienced altogether 4 cases of presumed anaphylaxis, all of which happened in the spring, at home, early in the morning, waking the patient up from a full night's sleep. There was no direct association with any of the typical anaphylaxis co-factors such as food ingestion (as the last meal was digested each time at least 8 h before the onset of symptoms), medication intake, physical exercise, infection. The episodes showed characteristic, reproduceable sequence of events, starting with general malaise and pruritus which woke the patient up from sleep, facial flush, dyspnoea and within minutes developed into full blown anaphylactic shock with urticaria and loss of consciousness. On the last occasion the patient's partner took the patient's blood pressure which was undetectable so she administered 0.5 mg of epinephrine intramuscularly and called for an ambulance. On paramedics arrival the patient was already conscious and responsive with BP 78/45 mmHg. Although urticaria subsided within hours, the patient recalled that each time one of the skin lesions – a target like erythema with a macula inside – was painful and lasted for a few days.

The patient's medical history was positive for arterial hypertension (valsartan, hydrochlorthiazid), benign prostatic hyperplasia (modified release tamsulosine), tachycardia (ivabradine), obstructive sleep apnoea, smoking (44 pack-years). A detailed diagnostics with 24-h blood pressure monitoring, echocardiography, central nervous system computed tomography and neurologic examination was unremarkable. The patient had positive tilt-test which did not explain the symptoms. Basal serum tryptase was within normal 9.2 ng/mL. ELISA based in vitro multiplex allergy test (ALEX2) showed positive result only to *Argas reflexus*, the European pigeon tick, a parasite that feeds on human blood when devoid of its primary host. It is commonly found in urban areas where pigeons nest i.e. attics. A. reflexus typically bites at night leaving clearly visible mark on the prayer's skin. A detailed history revealed that the patient lived in an old building on the top floor, right under the attic where pigeons were bred in the past. A diagnosis of anaphylaxis due to A. reflexus bites was established and the patient was advised to clean the domestic area with special anti-mite venom which put an end to anaphylaxis episodes.

JM case reports session: 19243.

Conflict of interest: The authors did not specify any links of interest.

100374 | Circulating EDN concentrations are increased in human anaphylaxis

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Background: Anaphylaxis is a systemic and life-threatening hypersensitivity reaction involving in most cases acute mast cell degranulation. To date, measurement of circulating mast cell tryptase (MCT) is the recommended marker for degranulation assessment. However, we previously shown that in up to 40% of clinically proven anaphylaxis, no significant elevation of MCT can be observed.

MCT has been shown to promote eosinophil degranulation, while in return, eosinophil granule proteins can activate mast cells *in vitro*. Moreover, physical interactions between these two cells have been observed in tissue sections from asthma and atopic dermatitis patients, suggesting a complex mast cell-eosinophil interplay in chronic allergic inflammation. However, eosinophil involvement during the acute phase of allergy has not yet been evaluated. We thus investigated eosinophil degranulation in human drug anaphylaxis.

Method: Plasma Eosinophil-Derived Neurotoxin (EDN) and Mast Cell Tryptase (MCT) were measured in 18 plasma samples from patients with documented drug anaphylaxis. Each patient was sampled during the acute phase (sampling delay, median [range]: 1.5 [0.6–5] hours) and at baseline (sampling delay, median [range]: 24h [12.5h-6 months]) using a fluorescence enzyme immunoassay on an Immunocap 250 instrument. (ThermoFisher Scientific, Uppsala, Sweden). Clinical parameters were extracted from clinical records.

Results: Tryptase and EDN were significantly increased during the acute phase of the hypersensitivity reaction (Tryptase median [Q1-Q3]: 47.6 [19.1-212] ng/ml; EDN median [Q1-Q3] 31.5 [10.3-71.9] ng/ml) compared to baseline (Tryptase median [Q1-Q3]: 4.7 [2.2-11.9] ng/ml; $p = 0.004$; EDN median [Q1-Q3] 12.9 [6.9-36] ng/ml); $p = 0.004$). Tryptase and EDN concentrations were mildly correlated

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during the acute phase ($r = 0.583$) but not at baseline ($r = 0.08$). EDN values were not associated with severity in this preliminary study, but this could be due to a lack of power. We are currently confirming these results on a large number of patients, which will allow stratification analysis according to severity, as well as establishing EDN reference range in healthy human plasma.

Conclusion: Our results indicate that EDN is released during acute hypersensitivity reactions, opening the way to further research on eosinophil activation as a potential additional biomarker of anaphylaxis, especially in patients with no evidence of mast cell degranulation.

Conflict of interest: The authors did not specify any links of interest.

100529 | Real-life stability of epinephrine in adrenaline autoinjectors. Results from a 6-month outpatient observation

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*Presenting author: P. Lacwik

Background: According to prescribing information, epinephrine autoinjectors (EAI) should be stored at 20–25°C, with excursions permitted to 15–30°C. However, those recommendations appear in conflict with the idea of ensuring prompt accessibility to epinephrine in out-of-hospital setting, where strict adherence to storage conditions may not always be possible.

The aim of this study was to assess the real-life stability of epinephrine in EpiPen Senior® in patients undergoing venom immunotherapy in a tertiary allergology centre.

Method: We purchased 90 0.3 mg EpiPen Senior® EAIs from a local certified pharmaceutical wholesaler and distributed each to patients with history of anaphylaxis treated in the Clinical Department of Pneumonology and Allergology. Each patient was thoroughly educated in terms of proper storage and avoidance of sunlight and heat exposure. After 6 months, each patients returned the epipen, which was then stored in stable room temperature until the expiration date. 9 EAIs were kept at room temperature for the whole duration as controls. At the expiration date, the contents of each EAI were injected into test tubes and epinephrine concentration was measured using high-performance liquid chromatography. Each sample was tested 6 times to improved accuracy.

Results: The mean epinephrine concentration in the control sample group was 99,45% (mean effective dose 0,2984 mg). In the patient group, the mean concentration was 94,53% (mean effective dose 0,2836). The lowest concentration recorded was 91,62% and the highest 98,84%. One EpiPen was lost due to having been used after a bee sting.

Conclusion: Real-life conditions may cause the epipen in autoinjectors to deteriorate within the expiration date. However, with proper patient education regarding the storage and carrying conditions, the drug degradation is negligible.

Conflict of interest: The authors did not specify any links of interest.

100241 | Unstoppable rise of drug induced anaphylaxis in children, single center study

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*Presenting author: H. Ercan Saricoban

Background: Anaphylaxis is a serious, life-threatening systemic hypersensitivity reaction.The frequency of anaphylaxis is increasing day by day.

Method: In our study, the clinical and laboratory evaluation of patients who admitted to Yeditepe University Hospital, Department of Pediatric Allergy and Immunology due to anaphylaxis between 2018 and 2023 were retrospectively analyzed.

Results: Fifty patients, 17 girls (34%) were evaluated.The median age was 5.75 (0.5-16).Anaphylaxis occurred at home ($n = 28$ (56%)), hospital ($n = 19$ (38%)) and school ($n = 3$ (6%)).Symptoms were in skin ($n = 46$ (92%)), respiratory system ($n = 29$ (58%)), gastrointestinal system ($n = 21$ (42%)) and cardiological system ($n = 8$ (16%)).There was a combination of skin+respiratory system ($n = 26$ (52%)), skin+gastrointestinal system ($n = 18$% (36%)), respiratory+gastrointestinal system ($n = 11$ (22%)).The allergens were drug ($n = 26$ (52%)), food ($n = 21$ (42%)), inhaler agent ($n = 3$ (6%)). Drugs were administered $n = 12$ (46%) intravenously, $n = 7$ (26%) orally, $n = 3$ (11%) transdermally, $n = 2$ (7%) intramuscularly, and $n = 2$ (7%) inhaled. Antibiotics ($n = 10$ (38%)), cephalosporins ($n = 6$ (60%)), most commonly ceftriaxone and drugs used in allergy treatment ($n = 7$ (26%)), most commonly methylprednisolone ($n = 4$ (57%)) was detected. Nuts ($n = 11$(52%), (especially walnuts ($n = 5$ (45%)), milk and dairy products ($n = 5$(23%)) were the most common foods.32(64%) of the patients had concomitant disease.These were asthma ($n = 6$(18%)), upper respiratory tract infection ($n = 6$(18%)), allergic rhinitis ($n = 3$(9%)) and acute lymphoblastic leukemia ($n = 3$(9%)). 32(64%) patients had a history of known allergies and 7(14%) had a history of anaphylaxis.17(34%) of the patients were referred from an external center and were stable when they admitted to us.Adrenaline was administered to 29(58%) patients.27(54%) of them were hospitalized.Biphasic reaction was not observed in any patient.Tryptase level was measured in 19(38%) and 3(15%) were high.Eosinophils were measured in 4(82%) patients, and it was found to be elevated in 3(7%) patients.Advanced allergy tests were performed on 27(54%) patients.The causative agent was detected in 22(81%) of these, while 5(19%) patients were found to have idiopathic anaphylaxis.

Conclusion: Although the most important factor of anaphylaxis in children is known as food, in our study, it was determined that drugs were the most common cause.It is noteworthy that the drugs used in the treatment of allergy also have a risk of anaphylaxis.The increase in drug-induced anphylaxis in children in recent years necessitates a

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careful decision on the use form and application method of the drug to be used in the treatment. It is important to know the anaphylaxis action plan and the use of adrenaline autoinjector by the community, due to the increasing frequency of allergy and anaphylaxis.

Conflict of interest: The authors did not specify any links of interest.

100488 | Beware of the quiet ones! A silent myocardial infarction post anaphylaxis to shellfish in Trinidad and Tobago

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*Presenting author: I. Ogeer

Background: As the popularity of shellfish continues to climb, shellfish allergy is now one of the most common food allergies in the world and a cause of severe reactions [Wang et al]. The cardiovascular system is heavily involved in allergic reactions but the development of myocardial injury in the setting of anaphylaxis is a unique occurrence. The case below highlights this phenomenon.

Case: A 66-year-old female with a history of shellfish allergy but no other known medical conditions and no prior history of alcohol or cigarette use presented with facial oedema and pruritus after ingesting cooked shrimp. Of note, prior consumption of shellfish resulted in minimal pruritus only.

She used oral antihistamines (AH) at home with no improvement. She denied any cardiovascular or gastrointestinal symptoms. Vital signs were stable, however examination revealed facial oedema and hoarseness with no significant cardiovascular findings. Treatment consisted of repeated doses of intramuscular and nebulized epinephrine, intravenous steroids and AH. Symptoms improved and she was admitted for monitoring.

Chest radiograph showed no abnormalities and electrocardiogram had no signs of ischemia. Her complete blood count, renal function and lipid profile were all within normal limits however her initial troponin was elevated. A rise was noted in subsequent troponin values consistent with myocardial ischemia and a cardiac consult was arranged. Her echocardiogram revealed a moderately hypokinetic anterior wall with a preserved ejection fraction and a diagnosis of a non-ST-elevation myocardial infarction was made. The recommended treatment was initiated. Discharge plan included patient counselling on shellfish avoidance and an urgent outpatient coronary angiogram with follow up in both medical and cardiac clinics.

Conclusion: Myocardial injury in the setting of anaphylaxis has been documented and may be due to anaphylaxis itself, (Kounis syndrome) or may be drug induced [Jayamali Et al]. With epinephrine and corticosteroids being identified as contributors. However, these lifesaving therapies should not be held; rather patients should be counselled on their possible adverse effects and caution should be applied with subsequent dosing. Screening for cardiac disease in the setting of anaphylaxis is not routine but should be considered as it can present atypically in patients with low cardiac risk.

JM case reports session: 19242.

Conflict of interest: The authors did not specify any links of interest.

100100 | Cassava anaphylaxis: A rare case report

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Introduction: Cassava is a root vegetable from the Manihot esculenta plant and is known interchangeably as manioc and tapioca. It is most commonly eaten in Africa and Central and South America, but is becoming increasingly more popular worldwide. There are not many documented cases of allergic reaction to cassava. However, cassava allergy can be linked to Latex fruit syndrome as people who are allergic to latex may experience allergic reactions due to cross-reactivity (1,2). We document a rare clinical case where a patient had an anaphylatic reaction to cassava, and showed no co-sensititization with latex.

Case: A 46 years-old woman, with history of persistent non allergic rhinitis and asthma presented to the outpatient clinic with a history of ingestion of tapioca made with butter and 2 h later reported symptoms of maculopapular exantema with pruritus and dyspnea and orophryngeal She denied other respiratory or mucocutaneous symptoms, cardiovascular ou gastrointestinal symptoms. She went to the Emergency Department and was treated on antihistamine iv and corticosteroid iv, with resolution of her symptoms 5 h later. No information on vital signs and basal tryptase was given.

She denied tapioca ingestion after this episode.Prick-to-Prick Skin Tests were negative to tapioca 0 mm (histamine 9mm). Total IgE was 8 kUA/L. The basal tryptase was 4.43 ug/L. The ImmunoCAP™ ISAC assay was negative.

She underwent Oral Provocation Test (OPT) with cassava (crepe prepared with water), and OPT was positive 20 min after the last dose, with symptoms of oropharyngeal tightness, dyspnea and generalized maculopapular exantema with pruritus associated. She was given cetirizine 10 mg p.o. and prednisolone 40mg p.o. with resolution of symptoms in 20 min.

Discussion/Conclusion: A diagnosis of food allergy to tapioca was made and given the severe presentation the patient was given an adrenaline auto-injetor and oral corticosteroid and antihistamines.

Consumption of cassava in becoming more popular globally as it used in food industry as a thickening agent, and it is naturally gluten free. However cassava allergy is rare. There is a cross-reactivity described in literature between cassava and latex. However, our patient was not sensibilized to latex. An immunoblotting is in course in order to determine the main proteins responsable for the allergic reaction.

JM case reports session: 19242.

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Conflict of interest: The authors did not specify any links of interest.

ASTHMA 3

100118 | Phenotypic and treatment efficacy analysis of mold-sensitive asthmatic patients; SAFS, ABPA, ABPM

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*Presenting author: Ş. özden

Background: These are divided into 3 groups, patients with Aspergillus fumigatus sensitivity and total IgE higher than 1000 IU/ml, Allergic bronchopulmonary Aspergillosis (ABPA); Patients with total IgE less than 1000 IU/ml, severe asthma fungal susceptibility (SAFS); Those with non-Aspergillus fumigatus (Aspergillus nigar-versica-flavus, candida or penicillium-susceptible) susceptibility express Allergic bronchopulmonary mucososis (ABPM) and are likely to benefit from specific treatments. In our study, we aimed to analyze the subgroups of asthmatic patients susceptible to mold fungus and to evaluate the clinical inflammatory responses after the treatments they received.Mesophilic fungi (22-25C for reproduction) susceptible asthmatic patients progress mostly in seasonal periods with inhalant allergen exposure and do not cause respiratory tract infection. Thermotolerant mold fungi (25-50C for reproduction) sensitivities (Aspergillus, candida and penicillium) may exacerbate asthma due to their invasion into the lungs.

Method: Asthmatic patients who were followed up for asthma and whose mold susceptibility was detected by prick test and/or specific IgE-IgG were evaluated retrospectively. Mold susceptible asthmatics were grouped into ABPA, SAFS, and ABPM (Figure 1). The patients were evaluated according to the treatments they received (antifungal± steroid ± biological treatment). The basal and post-treatment clinical and laboratory parameters of the patients were compared.

Results: The mean age was 51.0±10.87; A total of 17 mold and fungus sensitive asthma patients, 9 (52.9%) women, were evaluated. When classified according to the diagnostic criteria, the number and percentages of patients with ABPA, SAFS and ABPM were determined as given in figure 1. 8 (47.1%) patients were only antifungal, 4 (23.5%) patients were antifungal and steroid, 5 (23.5%) patients because they did not benefit from these specific treatments; 4 were treated with omalizumab and 1 with mepolizumab, and the mean duration of treatment was 4.00 ± 1.42 months. While clinically and spirometrically significant improvements were detected in the patients after both antifungal treatment and biological agent treatment, a significant decrease was found in Total IgE and eosinophil levels (Table 1).

Conclusion: Mold sensitivity should be considered and questioned when there are recurrent asthma attacks or clinical worsening. Patients sensitive to thermotolerant mold fungus should be examined for thermotolerant mold fungi other than Aspergillus fumigatus, and the progression of the disease should be prevented with appropriate specific treatments.

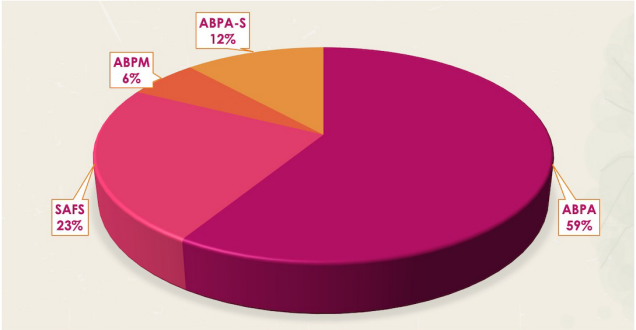

Figure 1

Table 1

	Pre-treatment	Post-treatment	p value
ACT,Mean±SD	18.00±2.18	22.53±1.66	<0.001*
FEV_1,Median (min-max)	1930.00 (1210.00-4370.00)	2300.00 (1410.00-4470.00)	0.010**
Peripheral blood eosinophil count, Median (min-max)	270.00 (10.00-3950.00)	70.00 (0.00-1200.00)	<0.001**
Total IgE, Median (min-max)	1307.00 (12.00-8819.00)	845.00 (11.00-5972.00)	<0.001**

ACT: Asthma Control Test,*:Paired sample t test,**: Wilcoxon t test

Conflict of interest: The authors did not specify any links of interest.

100153 | Impact of childhood diseases and familial asthma history on adult asthma characteristics: Results from Turkish adult asthma registry (TAAR)

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Background: The effects of childhood diseases and familial asthma history are not well defined in adult asthmatics. Therefore, we aimed

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to investigate the influence of childhood diseases and presence of asthma history in family members on asthma phenotypes, disease control, prognostic factors and treatment.

Method: Demographic and clinical features of 2053 adult asthmatics from 36 centers were recorded in a web-based dataset within the scope of the TAAR project. The association between various childhood diseases and familial asthma history with asthma phenotypes, disease activity and control, prognostic factors and the current treatment modalities were investigated by both univariate and multivariate analyses.

Results: Majority of the patients were female (74.8%) and the mean age was 46.68±14.76 year. Among childhood diseases, having recurrent respiratory infections was related to early onset of asthma, measles was associated to symptom duration, experiencing severe attack in the last year, being uncontrolled, obesity related and steroid dependent asthma and pneumonia was related to symptom duration, impaired asthma control, number of asthma related hospitalization and steroid dependent asthma (Table 1). Family history had significant effect on symptom duration, severe asthma, obesity related asthma, excessive SABA usage, impaired asthma control and having at least one attack in the last year (Table 1). Severe asthma was more common in patients with food and drug allergy in childhood and positive familial asthma history than without these factors [$p = 0.046$, OR(CI) = 1.7(1.01-2.88); $p < 0.001$, OR(CI) = 0.37(1.22-3.46); $p = 0.022$, OR(CI) = 1.27(1.03-1.56)]. Need for omalizumab and mepolizumab treatments were more common in patients with food and drug allergy and measles respectively [$p = 0.028$, OR(CI) = 1.91(1.07-3.42); $p < 0.001$, OR(CI) = 0.29(1.14-3.97); $p < 0.001$, OR(CI) = 3.9(1.86-8.2)].

Conclusion: We indicated that some childhood diseases and familial asthma history had a significant impact on adult asthma characteristics particularly on onset of symptoms, severity, control, phenotypes and treatment.

Table 1: Impact of childhood diseases and familial asthma history on asthma characteristics

Factors	Asthma characteristics	Results of multivariate analyses
Childhood diseases		
Measles	Symptom duration	p<0.001, β=2.47
	Experiencing severe attack in the last year	p=0.006, β=-0.43
	Being uncontrolled	p=0.012, OR(CI)=1.41(1.07-1.85)
	Obesity related asthma	p<0.001, OR(CI)=1.71(1.09-1.75)
	Steroid dependent asthma	p=0.008, OR(CI)=7.04(1.66-29.8)
	Getting treatment from 5th step	p=0.003, OR(CI)=1.5(1.15-1.95)
	Mepolizumab treatment	p<0.001, OR(CI)=3.9(1.86-8.2)
Recurrent respiratory infections		
	Early onset of asthma	p=0.027, OR(CI)=1.64(1.06-2.54)
Pneumonia	Symptom duration	p=0.001, β=3.6
	Impaired asthma control	p=0.005, OR(CI)=1.73(1.18-2.54)
	Number of asthma related hospitalization	p=0.034, β=0.22
	Steroid dependent asthma	p=0.002, OR(CI)=3.84(1.61-9.15)
Venom allergy	Impaired asthma control	p=0.025, OR(CI)= 2.34(1.11-4.94)
Eczema	Eosinophilia	p=0.001, OR(CI)=0.09(1.03-6.89)
Food allergy	Obesity related asthma	p=0.043, OR(CI)=2.09(1.02-4.27)
Familial asthma history	Symptom duration	p<0.001, β=3.11
	Severe asthma	p=0.022, OR(CI)=1.27(1.03-1.56)
	Obesity related asthma	p=0.007, OR(CI)=1.38(1.09-1.75)
	Excessive SABA usage	p=0.001, OR(CI)=2.14(1.36-3.35)
	Impaired asthma control	p=0.011, OR(CI)=1.35 (1.07-1.7)
	Having at least one attack in the last year	p=0.002*

Conflict of interest: The authors did not specify any links of interest.

100193 | Combined dietary intervention with SCFOS/LCFOS and bifidobacterium breve limits airway hyperresponsiveness in a mouse model for house dust mite allergic asthma

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Background: Dietary fibers and their bacterial fermentation products support immune maturation, the development of a balanced microbiome and may have beneficial effects in (allergic) asthma. In this study, two different mixtures of short-chain and long-chain fructo-oligosaccharides (FOS) or *Bifidobacterium breve* (BB) or their synbiotic combination (FOS/BB) were investigated for their efficacy to prevent acute house dust mite (HDM) induced allergic asthma in a mouse model. In addition, *ex vivo* effects of bacterial metabolites (short chain fatty acids) on HDM lung restimulation were studied.

Method: 7 week old male BALB/cAnNCrl mice received a semi-synthetic diet containing either scFOS/lcFOS in a specific ratio (FOS1 or FOS2) (1%w/w), or *B.breve* ($2*10^9$ CFU/g), or a synbiotic combination of these, for 26 days ($n = 12$ per group). On day 14, the mice were intranasally sensitized for HDM (1 µg/40 µL) and on day 21–25 they were daily intranasally HDM challenged (10 µg/40 µL). On day 26, airway hyperreactivity in response to methacholine was measured and mice were sacrificed. In a second study, control

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diet fed mice were sensitized/challenged with a higher HDM dose (5/15μg in 40μL) ($n = 6$). Eosinophilic airway inflammation and *ex vivo* HDM lung restimulation were investigated 3 days after the last challenge. The latter was done in presence or absence of 0.1 or 1 mM acetate, propionate or butyrate.

Results: A synbiotic mixture of scFOS/lcFOS and *B.breve*, but not the single components, effectively limited airway hyperreactivity in HDM allergic mice compared to allergic mice fed control diet ($p < 0.05$). This effect depended on the ratio of scFOS/lcFOS used in the diet. In the next study, the 5/15μg HDM dosing resulted in enhanced eosinophilic airway inflammation. Lung cells that were *ex vivo* restimulated with HDM showed induced IL-13 ($p < 0.05$) release, and a similar tendency for IL-5 ($p = 0.07$). Depending on the concentration used, acetate, propionate or butyrate prevented the rise in IL-13, and for IL-5 a similar pattern was observed.

Conclusion: These preliminary data show that a synbiotic mixture of FOS/BB, but not the single components, protects against development of airway hyperresponsiveness 24h after challenge, depending on the ratio of scFOS/lcFOS. Future studies are warranted to further assess the efficacy of these diets and their fermentation products in controlling airway inflammation.

Conflict of interest: The authors did not specify any links of interest.

100348 | Rapid subcutaneous desensitization for the management of delayed hypersensitivity reactions to mepolizumab: A case report

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35-year woman suffered from allergic rhinitis,asthma for more than 5 years. She was using high-dose budesonide-fortmetarol, leukotriene receptor antagonist. In the last 3 months, 15 min after IV administration of metamizole sodium and paracetamol, the complaints of nasal congestion and wheezing have been added. Skin prick test showed the following:d. pteronyssinus,D. farina posıtıve. pulmonary function test, FEV1 was 58% (1880 ml), FVC was 76% (2850 ml), FEV1 /FVC: 66 and a positive bronchodilation test. Eosinophil count in the blood was 6900 (44.5%), other cell lines were normal. Chest X-ray and thorax computed tomography were normal. Troponin and echocardiography were normal. Bone marrow biopsy was performed for hematological evaluation.Empiric anti-parasitic treatment and 0.5 mg/kg methyl prednisolone were started. ANA, ANCA were tested twice;they were negative. There was an increase in the eosinophilic series as a result of the bone marrow biopsy; FIP1L1, PDGFRA mutations and BCR-ABL translocations were negative and PDGFRB mutation was positive. A diagnosis of chronic eosinophilic leukemia was made. Imatinib treatment was started and steroid was discontinued. Eosinophil values decreased below 1000 initially, but increased again when methyl prednisolone was discontinued and continued with a single imatinib. In this process, asthma control also deteriorated. Methylprednisolone 0.5 mg/kg was added back to the treatment. While she was taking methylprednisolone and imatinib, omalizumab was added to treatment when she had frequent emergency visits and hospitalization due to asthma attacks. Since imatinib treatment alone was not sufficient, interferon treatment was started because there was always a need for steroids. When eosinophils were still high in whole blood, dasatinib treatment was started. Mepoliuzmab was started after applying to the Ministry of Health for an off-label application to the patient, whose need for steroids continued despite 1 year of omalizumab treatment, and who had low asthma control test scores. While she was receiving mepolizumab and dasatinib, methyl prednisolone treatment could be stopped. Six days after the sixth dose of mepolizumab, at the sixth month of dasatinib treatment, maculopapular rashes developed on the hands and spread to the whole body. The skin biopsy result of the patient evaluated by dermatology was consistent with drug eruption. Skin prick test and intradermal test were performed with mepolizumab and dasatinib. (Figure 1) It turned out negative. A patch test was prepared with mepolizumab at 10% concentration and with dasatinib at 30% concentration (Figure 2). Patch tests were negative at 48–72–96 h. Dasatinib was restarted by Hematology and she was taking without any problems. In the patient who was evaluated by us for the continuation of mepolizumab treatment, desensitization was planned because there was no alternative in our country and mepolizumab was a must. There was no desensitization scheme recommended in the literature for mepolizumab. We also prepared dilutions at 3 different concentrations for mepolizumab. (100 mg/mL, 10 mg/ mL and 1 mg/ mL) We performed the desensitization procedures in 10 steps with an increasing dose of mepolizumab every 30 min (Table 1) The cumulated dose in the desensitization procedure was 100 mg. 100 mg/subcutaneous mepolizumab was administered once a month with desensitization. It has been applied for about 16 doses without any allergic reaction.

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Conflict of interest: The authors did not specify any links of interest.

100510 | Poly I:C pre-treatment induced the anti-viral interferon response in airway epithelial cells

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Background: Type I and III interferons are among the most important antiviral mediators. Increased susceptibility to infections has been described to be associated with impaired interferon response in asthma. In this work, we focused on the modulation of interferon dysfunction after rhinovirus (RV) infection. Therefore, we investigated the impact of the rhinovirus infection on the interferon

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responses and looked for therapeutic strategies to overcome their deficiency in asthma.

Method: In control and asthmatic subjects from the human cohort study "AZCRA" (Investigation of the role of cytokines, chemokines and their receptors in the inflammatory process in asthma patients) conducted at the University Hospital Erlangen, we used nasal epithelial cells (NEC) from the nasal swabs and infected them with RV1b or left them uninfected and cultured them for 3 days. Further, we infected the lung epithelial cell line A549 with rhinovirus and pretreated or treated it with the immunomodulatory substance poly I:C which is known to interact with toll-like receptor 3 (TLR3), mimicking double-strand RNA viruses.

Results: In our human study AZCRA, we found an induction in the number of airway infections in asthmatic participants (up to six 6) in the last 12 months, compared to the maximum of two in the control group. Therefore, we wanted to analyze the antiviral immune response of the airway epithelium to RV in both groups. Here we found that RV infection decreased IFN type I transcription in the NEC from controls and especially asthmatics. By contrast, IFN type III responses were downregulated by RV in the asthmatic group only. Finally, we discovered that pre-treatment with the immunomodulatory substance poly I:C induced the transcription of IFN type I and III antiviral responses 48 h after Rhinovirus infection in A549 cells.

Conclusion: Altogether these data suggest that poly I:C pretreatment could be a promising strategy for the induction of transcription of Interferon response prior to viral infections. These results might help to improve current therapeutic strategies for RV-induced asthma exacerbations.

Conflict of interest: The authors did not specify any links of interest.

100524 | Real-life efficacy of biologicals in patients with severe asthma phenotype overlap. Experiences from a tertiary pulmonary centre

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Background: Currently, with an ever-increasing choice of novel monoclonal antibodies, selection of the best therapy is not always clear. No established guidelines for selection, discontinuation or switching biological therapy of severe asthma have been proposed yet.

Our objective was to assess the prevalence and immunological characteristics of patients with asthma phenotype overlap among patients treated for severe asthma in a tertiary pulmonary centre.

Method: We analysed medical records of 112 patients treated in the National Severe Asthma Programme in years 2013-2023.

For each patient, we established the eligibility for anti-IgE and anti-IL5/IL5r treatment, using local inclusion criteria. Finally, we analysed the differences in clinical characteristics between groups with and without phenotype overlap, focusing on Pulmonary and laboratory features, as well as severity and exacerbation history.

Results: 54 (48%) patients treated with biologics had overlapping eosinophilic and IgE-related phenotypes. In this subgroup, the anti-IL5/-IL5r treatment was associated in better improvement in ACQ (−2.1 vs −1.6) and AQLQ (1,5 vs 1,1) compared to anti-IgE treatment after 12 months. In patients with 2 concomitant asthma phenotypes, anti-IL5/IL5r treatment was chosen more often, compared to anti-IgE (38 vs. 16, respectively). Out of 36 patients with strictly eosinophilic asthma, 20 (61%) had positive sIgE to seasonal and perennial allergens, despite the lack of any clinical allergy symptoms.

Conclusion: Phenotype overlap of allergic and eosinophilic asthma is relatively common and associated with worse initial asthma control compared to patients with features of a single, distinct phenotype.

Most patients with severe asthma are sensitized to more than one alergen group, even among patients with no clinical allergy symptoms

Targeting eosinophilia appears to result in better clinical improvement than anti-IgE treatment.

Conflict of interest: The authors did not specify any links of interest.

BIOLOGICALS

100213 | Generation of caninized checkpoint inhibitors anti-PD1 and anti-PD-L1 mabs with specific IGG1 and IGG4 canine constant regions for cancer treatment in dogs

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Background: Despite the similarities between dogs and humans regarding cancer types, cancer-related morbidity, and mortality, the anti-cancer checkpoint inhibitors against PD-1 and PD-L1, most successfully applied in human oncology, are not accessible in canine cancer. However, PD-1 and PD-L1 are also expressed in dogs, with 66.2% and 75.7% human-dog amino acid similarity, respectively.

We aimed in this study to express caninized IgG1 or IgG4 anti-PD1 and anti-PDL1 checkpoint inhibitors and to investigate their effects on canine cancer cell lines *in vitro*.

Method: For canine antibody expression, Expi293F and ExpiCHO cells were transfected with vectors containing canine IgG1 or IgG4 constant regions, and the variable region of the humanized monoclonal antibodies pembrolizumab (anti-PD-1) and atezolizumab (anti-PD-L1). The recombinant canine antibodies were purified from

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supernatants by affinity chromatography and analyzed by SDS-PAGE. Pembrolizumab, atezolizumab, and their canine counterparts were labeled with the AF647 antibody labeling kit and applied in flow cytometry using canine cancer cell lines D17, CF33, and CF41.

Results: Expi293F and ExpiCHO cell transfections rendered the expression of atezolizumab IgG4, with a yield of 1.2 mg/ml after 1 week. SDS-PAGE revealed that the antibody was correctly assembled. In flow cytometry, the humanized pembrolizumab and atezolizumab recognized homologous PD-1 and PD-L1 on all tested canine cancer cells D17, CF33, and CF41 (geometric MFIs for pembrolizumab 2712, 833, 678; for atezolizumab 1786, 710, 100, respectively); our purified recombinant caninized atezolizumab IgG4 was able to detect PD-L1 on D17, CF33, and CF41.

Conclusion: The PD-1 and PD-L1 molecules expressed by canine cancer cell lines are recognized by the humanized monoclonal antibodies pembrolizumab and atezolizumab. Our new caninized atezolizumab IgG4 is correctly assembled and similarly able to bind the PD-L1 expressed by canine cancer cells. Further functional properties of atezolizumab IgG4 are presently being investigated. Our results open up an innovative checkpoint inhibitors treatment option for canine cancer patients.

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Conflict of interest: The authors did not specify any links of interest.

100526 | Successful treatment of a refractory P200-pemphigoid with dupilumab

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Background: Dupilumab, a monoclonal anti-interleukin-4Rα-antibody, has proven to be a highly effective and safe biological for the treatment of several diseases. Approved dermatological indications are atopic dermatitis and prurigo nodularis. However, its mode of action by blocking T_H2-mediated inflammation has also shown to be effective in bullous pemphigoid (BP) - a common autoimmune blistering skin disease characterised by debilitating itch mainly affecting elderly patients. We would like to present a case of a successful treatment of a refractory p200-pemphigoid with dupilumab.

Case: A 65 y/o male patient presented with intractable itch and tense blisters, erosions as well as erythematous, urticarial lesions predominately expressed on the limbs. The diagnosis of a pemphigoid, here a rare case of a p200-pemphigoid, was made by histological and serological results. In the span of 1.5 years the patient received several immunosuppressant agents remaining steroid-dependent over the whole course of treatment. As disease control could not be achieved and the patient suffered adverse effects from the treatments, we initiated the treatment with dupilumab 300 mg q2w. The off-label use of the biological lead to fast amelioration of itch and skin lesions and, importantly, allowed the tapering and subsequential withdrawal of prednisolone.

Conclusions: Over the past years the pruritic T_H2-signaling pathway has also become more prominent in BP. T_H2-cells promote disease activity by stimulating B-cell production of autoantibodies against hemidesmosomes and accelerating pruritic inflammation mediated by mast cells and eosinophils. Dupilumab can reduce the pathological activation of this pathway by inhibiting the key T_H2-effector cytokines interleukin-4 and interleukin-13. Thus, disease control can be achieved in even refractory, rare pemphigoid cases without the typical adverse effects of immunosuppressant drugs. So far, this treatment remains off-label, however phase2/3 trails for bullous pemphigoid under dupilumab are currently underway.

Written informed consent was provided.

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Conflict of interest: The authors did not specify any links of interest.

100231 | Biological treatment of severe asthma during pregnancy

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Background: Few studies are available on the safety of the use of monoclonal antibodies during pregnancy. In a monographic consultation, we have analyzed the use of biologic therapy in a sample of pregnant women with severe bronquial asthma.

Method: Retrospective descriptive study of a group of asthmatic women followed up during pregnancy. In the group of pregnant women with a diagnosis of severe bronchial asthma, we have analyzed those who had received biological therapy at some point in gestation or throughout the pregnancy, as well as their relationship with changes in fetal biometry, weight of the newborn born and Apgar test. The evolution of asthma and the fetal and infant repercussions were collected in each of the pregnancies in which exposure to a monoclonal antibody was confirmed.

Results: Of a total of 140 asthmatic pregnant women, 42% were diagnosed with severe asthma, in previous follow-up by the Difficult-to-control Asthma Unit. In a subgroup of 13 patients, exposure to a monoclonal antibody was confirmed at some point during pregnancy, with a mean age of 33 years (± 6.3). In 10 cases exposure to omalizumab was recorded, and in 3 patients administration of mepolizumab of at least one dose at some point during gestation. The maximum dose received was 8(150 mg per unit) for omalizumab and 7(100 mg per unit) for mepolizumab. Treatment was maintained in two patients throughout the gestational period, one pregnant with

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omalizumab and the other received treatment with mepolizumab until delivery. The delivery was natural in 8 patients and in 5 patients after caesarean section. All the included patients underwent close follow-up during pregnancy by the Asthma Unit and the High Risk Obstetrics Unit. No differences were observed in fetal biometry or newborn weight. There was no evidence of an increased risk of major congenital anomalies among pregnant women exposed to monoclonal antibodies compared with the unexposed group of pregnant women with severe asthma.

Conclusion: As in other previous studies of biological therapy administered to a limited number of pregnant women, we have not observed an apparent increase in the frequency of fetal malformation. The lack of safety data on these drugs determines that the decision to use them must be approached individually and by consensus in each case, depending on the clinical situation and the potential benefits and risks for the mother, fetus, and newborn.

Conflict of interest: The authors did not specify any links of interest.

100030 | Experience of omalizumab treatment of severe bronchial asthma combined with severe vernal keratoconjunctivitis

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Background: The first clinical experience of omalizumab biological therapy for severe bronchial asthma (BA) combined with severe vernal keratoconjunctivitis (VKC) in Kazakhstan. The treatment results with omalizumab for the first time in the Republic of Kazakhstan in patients with severe AD in combination with severe SCC allow recommending this drug to patients refractory to standard therapy. Allergic asthma often coexists with various pathologicalconditions, primarily allergic, sharing a common inflammatorypathophysiological mechanism. Immunoglobulin E (IgE) plays a central role in the pathogenesis of this multimorbidity. Multimorbidity strongly influences asthma control, severity, and response to treatment and contributes to the overall socioeconomic burden of the disease. Thus, IgE-mediated immunological pathways represent an attractive target for asthma and multimorbid conditions intervention.

Method: The efficacy of omalizumab was evaluated in 3 patients (men). The age of the patients ranged from 24 to 47 years. Patients had severe atopy profiles with blood eosinophilia and a high level of total IgE. All patients had a severe AD clinic combined with VKC with extremely high doses of inhaled allergens were refractory to standard therapy and required systemic glucocorticosteroids. Thus, omalizumab therapy was the only possible therapy to control severe AD combined with severe SCC in these patients at the present stage.

Results: All patients take omalizumab according to an individuallyselected regimen.After 6 weeks of therapy with omalizumab, patients showed clinically significant improvement in ocular symptoms.After 3 months of treatment with omalizumab, asthma control and complete resolution of spring keratoconjunctivitis were achieved.

Conclusion: The results of omalizumab treatment of patients with severe AD in combination with severe SCC for the first time in the Republic of Kazakhstan allows them to recommend this drug to patients refractory to standard therapy.

Conflict of interest: The authors did not specify any links of interest.

100502 | Successful treatment of hyper eosinophilic syndrome with dupilumab: A case report and review of the literature

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Intoduction: Duplinumab is a human monoclonal antibody against interleukin (IL4) receptor that inhibit IL-4 receptor and IL 13 signaling It has demonstrated efficacy in treatment for many disease represent with the eosinophils infiltration to sites of inflammation, such as asthma, atopic dermatitis, chronic spontaneous urticaria, and eosinophilic esophagitis (1).

Case presentation: We report a middle age female, diagnosed with idiopathic hyper eosinophilic syndrome (HES, presented with generalized lichenification and sever pruritus for 15 years, after failed treatment with steroid and benralizumab, the patient was treated with dupilumab resulting in significant improvement in pruritus.

Discussion: Appropriate selection of therapy in HES required many considerations such as degree of eosinophilia or combined with end-organ failure, underlying pathophysiology of eosinophilia, and possible adverse effects of therapy. Several drug have been approved to treat HES including Steroid, Cytotoxic agents, monoclonal anti–IL-5 antibody drug (2), recently three HES case reported with different age, gender and clinical presentation have been fully responded to dupilumab after failure of standard treatment (table1) (3-5).

Conclusion: To our knowledge, this is the first report of dupilumab application in a Saudi patient with idiopathic HES. Furthermore larger randomized and controlled trial are needed to confirm efficacy and to explore the mechanisms of action of dupilumab in the treatment of HES

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Authors	Age	Gender	Comorbidity	Clinical manifestation	Adjuvant therapy	Prognosis
Wieser JK, Kuehn GJ (3)	57	Male	Obesity, DM	Diffuse lichenified and excoriated papulonodules	Hydroxyurea	Full recovery, no relapse
Du X, Chen Y (4)	51	Woman	Asthma	Generalized itchy erythematous patches and plaques	Oral prednisone	Full recovery, 1 replaced after she discounted dupilumab
Jiang X (5)	35	Male	No	Severe erythematous papules with pruritus	Oral methylprednisolone	Fully recovery, no relapse
Current	56	Women	DM, asthma	Diffuse lichenified with pruritus'	No	Full recovery, no replace

JM case reports session: 19242.

Conflict of interest: The authors did not specify any links of interest.

DERMATOLOGY 2

100065 | Assisted reproductive techniques in patients with hereditary angioedema due to C1-inhibitor deficiency

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Background: Hereditary angioedema due to C1-inhibitor deficiency (HAE-C1INH) is a rare hereditary disease caused by mutations in the SERPING1 gene and affects 1/50.000 individuals worldwide. This disease is characterized by recurrent and unpredictable angioedema attacks. Several triggers have been identified, being estrogens among them.

In women with HAE-C1INH, assisted reproductive techniques such as artificial insemination (AI) or in vitro fertilization (IVF) may increase the frequency and severity of attacks due to the increase in both endogenous and exogenous estrogens induced by hormonal treatment.

Objective: To describe how assisted reproductive techniques influence the course of hereditary angioedema due to C1 inhibitor deficiency and to analyze whether long-term prophylaxis (LTP) with plasma-derived human C1-inhibitor (pdC1INH) during fertility treatment prevents angioedema attacks.

Method: Retrospective descriptive study. Review of the course of the disease during assisted fertility techniques in female patients diagnosed with HAE-C1INH, under follow-up in the CSUR (National Reference Center) for Hereditary Angioedema of La Paz University Hospital (Madrid, Spain). The study was approved by the Ethics Committee (PI-4598).

Results: Seven women with HAE-C1INH underwent assisted fertility treatments, 4 of them because of infertility and 3 to avoid disease inheritance.

A total of 12 fertility treatments were performed:

- **Two IVF with own egg**: One was performed with LTP (IV pdC1INH 1,000U twice a week) with adequate tolerance and 1 without prophylaxis, with increased frequency of angioedema attacks.
- **Three IVF with preimplantation genetic diagnosis (PGD)**: All performed with LTP (IV pdC1INH 1,000U twice a week), 1 without increase of angioedema crises and 2 without attacks.
- **Four IVF with egg donation:** Two were performed with LTP (IV pdC1INH 1000U twice a week) without worsening and 2 were performed without LTP with increase in the frequency of angioedema attacks in one of them.
- **Three AI:** All were performed without LTP; 1 with a slight increase in the number of angioedema attacks and 2 without attacks.

Conclusion: Hormonal treatment used for ovarian stimulation and endometrial preparation increases the frequency of angioedema attacks in female patients with HAE-C1INH. LTP with IV pdC1INH during fertility treatment is effective in controlling attacks.

Conflict of interest: The authors did not specify any links of interest.

100134 | Serum ASCA-IgA, ASCA-IgG, CCL17, L-FABP, and IL-18 concentrations are associated with disease severity in children with atopic dermatitis

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Background: Atopic dermatitis (AD) is a common chronic inflammatory skin disease affecting up to 20% of children in the early years of life in industrialized countries. The complex etiology of AD involves abnormal immunologic and inflammatory signaling pathways, including a disrupted skin barrier or exposure to inflicting environmental agents. However, to date, no standard predictive biomarkers have been identified that reflect objective and subjective signs and

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symptoms of AD and provide reliable and objective outcome measures. In this study, we aimed to identify potential biomarkers that could correlate with the severity and progression of AD in infants and toddlers.

Method: We collected serum from 98 infants or toddlers with AD at the first patient visit (age 3–12 months) and one year later. The severity of the disease was evaluated using SCORAD index. Serum samples were analysed by ELISA for 22 biomarkers related to the gut barrier function, microbial translocation and immune system regulation.

Results: We found a statistically significant correlation between Anti–Saccharomyces cerevisiae antibody IgA (ASCA IgA), Anti–Saccharomyces cerevisiae antibody IgG (ASCA IgG), CCL17, L-FABP and IL-18 with the severity of AD. The strongest correlation was observed for CCL17 ($p = 0.0044$; $r = 0.4634$) and L-FABP ($p = <0.0001$; $r = 0.4808$). This was followed by IL-18 ($p = 0.0175$; $r = 0.2854$), ASCA IgA ($p = 0.0192$; $r = 0.2877$) or ASCA IgG ($p = 0.0263$; $r = -0.2674$). There was no significant correlation between the severity of AD and serum levels of calprotectin, CD14, defensin, E-FABP, I-FABP, IgE, IL-6, IL-10, IL-31, LBP, MBL, osteoprotegerin, TSLP, CCL3, CCL11, CXCL13 and osteopontin.

Conclusion: Our findings suggest that ASCA IgA and ASCA IgG antibodies, L-FABP, CCL17, and IL-18, could be potential biomarkers associated with AD pathogenesis and severity in infants and toddlers. These findings could lead to better diagnosis, prognosis, and treatment of AD in the future.

Conflict of interest: The authors did not specify any links of interest.

100176 | Skin and intestinal microbiota influence the epicutanous sensitization and food allergy in mouse model

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Background: Atopic dermatitis (AD), one of the most common skin disorders, is very often accompanied by the subsequent development of food allergy (FA) due to epicutaneous sensitization (EC) by food allergens. Environmental factors such as skin and intestinal microbial dysbiosis contribute to its development. We aimed to assess the role of skin and intestinal microbiota in the development of the AD and FA symptoms in experimental mouse model.

Method: Three weeks old germ-free mice were gavaged with fecal microbiota from healthy infant or infant with manifested AD symptoms. Swab of infant skin microbiota was applied on the mouse skin before and after EC sensitization on the half of the experimental mice (FS group) only. Mice were three times EC sensitized by 1-week exposures to ovalbumin (OVA, 2mg/ml) applied as a patch to tape stripped skin. Then, mice were orally gavaged three times a week for 2 weeks with 50 mg OVA. Fifteen minutes after the gavage, drop in body temperature was assessed. Microbiome analysis was performed in samples of skin swabs and feces collected throughout the experiment. The specific OVA antibody response was measured in sera by ELISA or by rat basophile leukemia cell-based assay. Histopathological changes and mast cell infiltration in skin and jejunum were evaluated.

Results: Epicutaneous sensitization and oral challenge by OVA led in mice colonized by fecal and skin microbiota (FS group) from AD infant to higher manifestation of anaphylactic hypothermia compared to mice colonized by healthy microbiota. Similarly, they exhibited trend to increased levels of OVA-specific antibodies in sera. On the other hand, histological analysis showed the significant occurrence of mast cells and tissue structure changes in skin and jejunum of these mice. Microbiome analysis revealed distinct bacterial pattern of both colonization.

Conclusion: The colonization of mice by fecal microbiota together with skin microbiota from pediatric AD patient have impact on skin and intestinal morphology as well as number of mast cells in mice after the EC sensitization and FA induction.

Conflict of interest: The authors did not specify any links of interest.

100441 | Sensitizing additives and impurities in raw materials

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Background: Raw material used in cosmetic products may contain skin sensitizing additives and impurities which are not always declared, nor on the product declaration or in the Material Safety Data Sheet (MSDS). If dermatologists or researchers are not aware of this, it could mean missing out important allergens and wrongly point to a chemical as being the culprit allergen when it's an additive causing the problem.

Method: Signing Non discloser agreements and asking for full information about raw materials with Technical data sheets (TDS), Product dossier, and 100 % composition breakdown will allow to get full knowledge about both additive and impurities in a raw material.

Results: By asking for other documents than MSDS we were informed that:

Candelilla cera contains Benzyl alcohol as an impurity in a concentration up to 200ppm, which means that, if a high concentration of Candelilla cera is used in a leave-on product, the perfume name Benzyl alcohol (referring to the cosmetic regulation) must be declared on the packaging of cosmetic products.

C12-15 Alkyl benzoate contains both Benzyl alcohol and Benzyl benzoate, hence it would be relevant to patch test for perfume allergy in a patient suffering from dermatitis from products containing this chemical.

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Cocamidopropyl betaine may be preserved with Methylisothiazolinone, but this is not always declared on the final product.

Conclusion: The presence of skin sensitizing additives and impurities in raw materials used for cosmetic products poses a significant concern, since these are not always declared on the product or in the Material Safety Data Sheet (MSDS), it is crucial to obtain a comprehensive understanding of the raw material composition by requesting documents such as Technical data sheets (TDS), Product dossier, and 100% composition breakdown. Through this approach, specific examples such as Benzyl alcohol as an impurity in Candelilla cera and Benzyl alcohol and Benzyl benzoate in C12-15 Alkyl benzoate have been identified as potent triggers for perfume allergy.

Conflict of interest: The authors did not specify any links of interest.

100480 | Cheilitis caused by contact allergy to toothpaste

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Allergic contact dermatitis (ACD) is an immunoinflammatory disorder caused by an antigen-specific T cell-mediated, delayed type hypersensitivity reaction elicited by the contact exposure of an allergen with the skin in a subject who has been previously sensitized to that specific allergen. The clinical presentation may vary depending upon the nature and concentration of the allergen and on the period of exposure, presenting as acute, subacute or chronic dermatitis, and in most cases, ACD lesions are primarily confined to the site of contact.Identifying the culprit agent may be challenging, but the offending allergen identification is important, since allergen contact avoidance is the key to preventing recurrence.

A 52-year-old female patient presented with a history of two months of recurrent episodes of lips swelling with small blisters and erythematous skin on her upper lip. Symptoms were well controlled by systemic corticosteroids and antihistaminic administration, however discontinuation of the therapy resulted in relapse of the dermatitis. Past medical history was unremarkable apart from hypothyroidism and she did not recall any changes in her hygienic or cosmetic routine in the last months, except for the switching to a new toothpaste. Since the morphology, regional distribution and temporal course of the clinical manifestations suggested ACS, patch tests were performed on the upper back with a dental (metal) series. Patch test readings were performed at day 2 and day 3. On day 2 no reactions were observed to any of the tested aptens, whereas at day 3 the patient showed a positive reaction to stannous oxalate (++) and sodium tetrachloropalladate (++).

Examination of all the hygienic and cosmetic products ingredients revealed the presence of stannous fluoride in the toothpaste (Sensodyne Sensitivity®) the patient was using, while no Nickel was in it. Consequently first, a semi-open test was performed using a 1% concentration of the suspected toothpaste with a 48 and 72-h reading, which resulted in a negative outcome. Next we conducted an open test using toothpaste "as is" (concentration 100%) to exclude an irritative cause. The toothpaste was removed after 24 h, and the result was negative. Finally, we performed a patch test using dilutions of 5, 10, 20, and 30 percent in water. At the 48-h reading, all dilutions yielded negative results. However, at the 3- and 7-day readings, the 20 and 30 percent dilutions produced positive results, with increasing positivity on day 7, indicating a delayed-type allergic reaction.

Following replacement of the toothpaste with a stannous fluoride-free product the stomatitis resolved and did not recur. Considering the clinical presentation, the patch test results and the resolution of symptoms after the removal of the suspected causative allergen, a diagnosis of allergic contact stomatitis was made. Contact allergies to toothpaste and its ingredients have already been described, however these have been previously assessed only to a very limited extent. With this case report we aim to highlight a potential cause of allergic contact dermatitis in which the culprit allergen could be under-recognized.

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Conflict of interest: The authors did not specify any links of interest.

100496 | The coexistence of psoriasis and allergic dermatitis: A case report

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Introduction: Correct diagnosis of hand dermatosis can be challenging. The medical history, clinical presentation, duration and course of the disease, relation to work, hobbies and co-morbidities, as well as concomitant medications should be considered. Positive history of psoriasis does not exclude the coexistence of contact dermatitis, atopy, or irritation. [Kolesnik M et al, 2018, Eczema in Psoriatico: An Important Differential Diagnosis Between Chronic Allergic Contact Dermatitis and Psoriasis in Palmoplantar Localization].

Case presentation: A 24-year-old female patient presented to our clinic with complaints of hyperemia, itching, burning sensation of the hands. These complaints first appeared 6 months ago. She had no history of similar problems. A little over a year ago the patient started working as a pastry cook. The patient does not smoke, is slightly overweight BMI 26.4, no comorbidities and does not take any medications regularly.

A month after the onset of her complaints, she consulted an allergist. The clinical picture and the investigations performed were the basis for the diagnosis of allergic contact dermatitis: total IgE 264 IU/mL in blood tests (ref. value <94), strong reaction to Vespula vulgaris (wasp) in the specific IgE panel; clear reaction to thymol; weak reaction to bee venom; rye; egg white and yolk. Diagnostic patch test not

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performed. The patient was advised on hand protection, skin care and prescribed antihistamines. Despite treatment and being on sick leave, the above complaints persisted.

In March this year, the patient was referred to the Dermatology Clinic, where we performed a skin punch biopsy, fungal examination, and microbiological culture test. Microscopically, no fungal structures were found, *Staphylacoccus aureus* and *Candida sp.* were isolated. Histologically, an irregularly thickened parakeratotic layer on the epidermis contained plasmocoagulae, bacterial colonies. Stratum granulosum absent. Acanthosis of the epidermis; distal parts of the spines rounded, in various places connected to each other. Mitoses are present in the nuclei of the cells of the basal layer. Capillaries dilated, pericapillary lymphohistiocytic infiltration with the presence of some eosinophilic leucocytes. Conclusion The histological picture is consistent with psoriasis.

Conclusion/discussion: Although the patient's history and clinical picture, as well as the allergy tests, are consistent with a diagnosis of allergic contact dermatitis, it would probably be useful to perform more extensive investigations to check for the presence of other possible diseases or co-existence of several skin conditions.

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100519 | Angioedema as a first manifestation of urticarial vasculitis: Single center experience

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Background: Complement component analysis is valuable for differentiating the various types of angioedema. Complement C4 may be decreased in systemic lupus erythematosus (SLE), glomerulonephritis, immune complex disease, cryoglobulinemia, hereditary angioedema (HAE), and congenital C4 deficiency. All of the listed conditions can be associated with angioedema.

Method: We describe seven female patients (mean age at the beginning of the disease 36.2 ± 10.8 years) who presented with non-pitting swelling of the face, lips and/or eyelids.

Results: Since angioedema did not respond to antihistamines, HAE was suspected. In 3/7 patients angioedema was accompanied by urticarial and/or purpuric lesions from the beginning. All the patients have significantly decreased levels of C4 in the presence of normal amounts and functional activity of C1 inhibitor (C1-INH). In 4/7 patients decreased levels of C3 were determined. Levels of C1q in sera of 3 patients were found to be slightly reduced or normal. In all of the patients very high concentrations of anti-C1q antibodies were found (in 6/7 levels >100 U/mL). Protein electrophoresis was normal in all patients. Skin biopsy was performed in 3/7 patients. Diagnosis of *hypocomplementemic urticarial vasculitis (HUV*) was confirmed by histology revealing leukocytoclastic vasculitis. Patients were examined regularly over a follow-up period which lasted from 1 to 8 years (mean 4.6±1.5). During that period the first patient developed a full-blown SLE along with a progressive *chronic obstructive pulmonary disease (COPD). Second patient showed the evolution to severe COPD.* The other four patients continued to have only cutaneous manifestations of the disease during the follow-up period of 1 to 4 years. One of them showed only angioedema during the 1 year follow up.

Conclusion: HUV (or anti-C1q vasculitis) is a type III hypersensitivity reaction characterized by urticaria with persistent acquired hypocomplementemia. However, HUV usually includes urticaria like rash, which is not observed with inherited or acquired C1 INH deficiency. The kalikrein-kinin system has been reported to be activated in vasculitis leading to the release of bradykinin. Although HUV is uncommon systemic vasculitis with various clinical manifestations, it is important to be aware that its first presentation may be angioedema.

Conflict of interest: The authors did not specify any links of interest.

DRUG ALLERGY 2

100036 | Natural course of NSAID hypersensitivity: Development of tolerance and progression to chronic urticaria

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Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most frequently reported agents of drug hypersensitivity, with NSAIDs-induced urticaria/angioedema (NIUA) representing the most common phenotype. NIUA has been suggested to proceed by years the onset of Chronic Urticaria (CU), while a significant proportion of NIUA patients will develop tolerance within six years of the initial diagnosis. Data on the natural course of Single-NSAID-Induced Urticaria/Angioedema and Anaphylaxis (SNIUAA), another clinical phenotype of NSAIDs hypersensitivity reactions, remain scarce. The present study aims to assess the natural course of NIUA and SNIUAA regarding progression rates to CU and the development of tolerance.

Method: We retrospectively evaluated the medical files of patients visiting the Allergy Unit "D. Kalogeromitros" of Attikon University Hospital in Athens, Greece, with a history of acute urticaria induced by NSAIDs. The study comprised three groups a/patients with NIUA (urticaria and/or angioedema to at least two different NSAIDs or positive aspirin Drug Provocation Test) and b/patients with SNIUAA (urticaria and/or angioedema and/or anaphylaxis to a single NSAID of multiple structurally related agents, with tolerance to aspirin or another strong COX-1 inhibitor) and c/ a control group of patients without a history of CU who tolerated NSAIDs. In addition, all patients (groups a and b) were re-evaluated by the end of 2022, 11 ± 9.2 years after the initial reaction, to assess the development of CU and NSAIDs tolerance.

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Results: A total of 64 patients [43 (67,2%) with NIUA and 21 (32,8%) with SNIUAA; 82.8% female, mean age 53 ± 15.2 years] and 52 controls were included in the study. At the evaluation, two patients with NIUA (4.6%) developed CU approximately 10 years after the initial reaction while none of the patients with SNIUAA developed CU. Only one patient of the control group (1.9%) developed CU during the 3 years follow-up period ($p < 0.05$). Regarding tolerance, 19 patients (7 SNIUAA and 12 NIUA) reported NSAID intake with the original culprit NSAID [aspirin or strong COX1 inhibitor in 8/19 (42.1%)] 15.8 years (range 2-44) after the initial reaction. Only one patient from the SNIUAA group reported acute reaction, while 94.7% reported tolerance.

Conclusion: NIUA might precede the onset of CU by years in some patients. One-third of patients with either SNIUAA or NIUA may develop tolerance to NSAIDs over time, and thus reevaluation after the initial diagnosis is essential to identify those patients avoiding NSAIDs despite being no longer hypersensitive

Conflict of interest: The authors did not specify any links of interest.

100154 | Recurrent angioedema after haloperidol injection

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Haloperidol is widely used antipsychotic medication, especially in patients with agitation, mania and, psychosis condition. Angioedema is very rare side effect of this medication and there are only several cases in the literature published up today.

38 year old male patient, known case of schizophrenia, chronic obstructive lung disease, epilepsy, hepatitis B and C, went to psychiatry examination due to anxiety and agitation. He told his physician that he is allergic to haloperidol (he had the tongue swelling few years before), but the doctor nonetheless gave haloperidol injection to the patient. 30 min later patient developed extreme tongue swelling, and therefore he came to Emergency center. ENT examination revealed tongue sweeling, without other swellings in oral cavity, pharynx and larinx. He was admitted to hospitalization in Urgent allergy unit Emergency center Belgrade. He was treated with corticosteroids, antihistamines, proton pump inhibitors, infusions. Two days later he was discharged with total resolution od symptoms. Patient refused further allergy testing.

To our knowledge, this is the first case of recurrent angioedema followed by haloperidol injection published.

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Conflict of interest: The authors did not specify any links of interest.

100198 | Discovery of exonic variants in nonsteroidal anti-inflammatory drugs-induced acute urticaria/angioedema from RNAseq data

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Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) are the main triggers of drug hypersensitivity reactions. The most common type of NSAID-hypersensitivity has been linked to alterations in the arachidonic acid (AA) metabolism and eicosanoids biosynthesis (cross-hypersensitivity, CRH), and NSAID-induced urticaria/angioedema (NIUA) is the most frequent clinical phenotype. Despite eicosanoids alterations, the pathogenic mechanism underlying CRH has not been fully elucidated yet. Although current evidence support a role for genetic factors in CRH, including NIUA, with different associations with single nucleotide polymorphisms (SNPs) being described, we are far from the identification of a genetic variant helpful as a biomarker. Here, we aimed to characterise exonic variants (SNPs and INDELS) from differentially expressed genes identified from our group by means of an RNAseq study carried out in NIUA patients and controls.

Method: RNAseq was performed using total RNA from PBMCs of NIUA patients during the basal state and the acute phase of a reaction, and from NSAID-tolerant individuals. To detect SNPs and INDELS, the GATK analysis pipeline was used, and those variants fulfilling commonly used filters (sequencing depth, allelic frequency, genotype-quality, among others). Next, we conducted an association analysis with the R package PODKAT, which implements a method able to associate rare and private variants, selecting those with an adjusted p-value <0.05 as significantly associated. Such variants were annotated with ANNOVAR. Finally, gene ontology enrichment (GOE) was done using the list of genes affected at least by one associated variant.

Results: Sixty-seven variants significantly associated with NIUA, being 64 of them rare (frequency <1% in the origin population). These variants encompassed 52 genes, such as *IL17RA*, *JAML*, *PIP5K1C* and *CD302*. Furthermore, GOE found such variants to be involved in key immunological processes, such as neutrophil chemotaxis (*JAML/IL17RA/PIP5K1C*), cellular response to oxidative stress (*PKD2*), and histamine transport (*LYN*).

Conclusion: Our data support the participation of cellular pathways beyond AA metabolism in NIUA, and suggest the participation of neutrophils in the underlying mechanism. Although further studies are required, variants identified in this study could shed light into the immunological/cellular mechanisms leading to the NIUA phenotype.

Conflict of interest: The authors did not specify any links of interest.

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100356 | Hypersensitivity reactions to non-steroidal anti-inflammatory drugs (NSAIDs). A retrospective study

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Background: Drug hypersensitivity reactions (DHRs) are a diverse group of immune-mediated reactions that occur after exposure to a drug. Their wide use and accessibility make non-steroidal anti-inflammatory drugs (NSAIDs) the leading cause of DHRs. The immunological response to NSAIDs may be selective (SR), IgE or T-cell mediated, or cross-intolerant (CI) when the COX pathway is inhibited. DHRs to NSAIDs (HR-NDAIDs) vary from mild local skin symptoms to severe generalized symptoms as anaphylaxis. The aim of this retrospective study was to characterize HR-NSAIDs in a Spanish third-level Hospital which assists a 265000 people's area, Hospital la Arrixaca-Murcia.

Method: We selected all the patients from our outpatient clinic who suffered a hypersensitivity reaction to NSAIDs in 2021. Reactions were classified according to the EAACI's classification: NECD, NERD, NIUA, SNIDHR, and SNIUAA. Controlled oral provocations were performed in most patients.

Results:

- There were 121 patients with HR-NSAIDs, 78 women and 43 men, with a mean age of 43 years (ages ranging from 17 to 83).
- 62% of HR-NSAIDs were SR, 58% SNIUAA (70 patients) and 4% SNIDR (5 patients); 38% were CI, 28% NIUA (35 patients), 7% NECD (6 patients) and 3% NERD (4 patients).
- Controlled oral provocation was performed in 113 patients; 9 were positive provocations which confirmed allergy; 104 were negative, of these: 22 weren't provoked with the drug responsible for de HR (10 were CI reactions and 12 SR to metamizole); 13 had a subjacent food allergy, their reactions were interpreted as food-dependent NSAID-induced HR (FDNIH).
- Ibuprofen was the most frequent drug to produce HR (40%), followed by
- Metamizole (30%) and acetylsalicylic acid (ASA) (11%), as a cross-reactivity marker. The remaining 20% were, in decreasing order of frequency, HR to naproxen, paracetamol, dexketoprofen, diclofenac and selective COX-2 inhibitors.
- In 64% of cases, a single NSAID was responsible for the clinic; in 27% two and in 9%, three or more.
- HR-NSAIDs clinical presentation were: urticaria-angioedema (UAE) (33%), anaphylaxis (21%), urticaria (17%), angioedema (15%), asthma, exantema and EMP (6, 5 and 3%, respectively)

Conclusion: In our population, SNIUAA was the most frequent type of reaction, ibuprofen the most implicated NSAID and UAE the most prevalent clinical reaction.

Conflict of interest: The authors did not specify any links of interest.

100396 | Desensitization to liposomal amphotericin B in a patient with tonsillar leishmaniasis

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Background: Leishmaniasis is an infectious disease caused by the protozoa Leishmania spp. The presentation of the disease in the form of acute tonsillitis in immunocompetent patients is extremely rare. The liposomal amphotericin B (LAMB) formulation represents the best therapeutic option for this condition. Anaphylaxis to LAMB appears to be rare.

Case report: A 63-year-old male, with history of anaphylaxis after hymenoptera sting (vespa crabro), was diagnosed with tonsillar leishmaniasis and treated with intravenous LAMB at a dose of 3 mg/kg/day. Three minutes after starting the infusion, the patient developed widespread joint pain, a strong back pain and hypotension. Amphotericin infusion was immediately stopped. As the patient told us, he had that same back pain after the vespa crabro sting.

Methods: An informed consent from the patient was taken. We performed skin prick tests with LAMB. Desensitization was started following Castells' protocol. When drug administration was over, we performed skin tests again.

Results: Prick test were negative, positive intradermal test (Amphotericin B 0.05 mg/ml) confirmed the allergic nature of the reaction. We proposed a 12-step desensitization protocol to LAMB (total cumulative dose 50 mg), then amphotericin was administered in continuous infusion, reaching the target dose of 270 mg/day (3 mg/kg/day).

Discussion: Drug desensitization is a procedure usually attempted for those drugs, where there is no effective alternative and the adverse reaction is proven to be IgE-mediated or clinical history is strongly suggestive of mast cell-mediated reaction. Drug desensitization is a temporary state that has to be maintained by giving the drug daily, allergic sensitivity returns back once the drug is stopped and cleared from the body. Our patient tolerated the desensitization protocol well. The treatment was stopped at day 5 and when it was started again at day 6 the patient experienced back pain again. He was treated with acetaminophen and desensitization protocol was started again. The treatment was taken until day 10, when we performed skin tests again and no positive reactions were seen.

Conclusion: LAMB desensitization was completed successfully, showing that it was safe and effective.

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Conflict of interest: The authors did not specify any links of interest.

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100491 | Assessment of beta-lactam allergy labels with an electronic medical record in Catalonia: A multicenter study

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Background: Hypersensitivity to beta-lactam (BL) antibiotics is one of the most frequent reported drug allergy. Nevertheless, less than 20% of allergy-labelled patients are truly allergic as published in previous studies. Being labelled as allergic to BLs could lead to the use of alternative antibiotics with more adverse effects and higher costs. In our population it is frequent to find labels of BL allergy in electronic medical records that have not been assessed and verified.

Method: OBJECTIVE: To detect patients with BL allergy label in their electronic medical records and to assess how many of them are false after a correct diagnostic evaluation. MATERIALS AND METHODS: A multicentre prospective observational study was performed with patients labelled as allergic to BLs in their electronic medical records from 2014 to 2018. Demographical data and the BL that produced original reaction were recorded. After that, diagnostic assessment included clinical history, skin tests (ST) and drug provocation test (DPT) in order to confirm or exclude the diagnosis of BL allergy.

Results: A total of 249 patients completed the study out of which 160 (64%) were females with a mean age of 55.8 ± 15 years. The most frequent BL allergy labels detected were for penicillin (59), amoxicillin/clavulanic acid (61), amoxicillin (51) and unknown (35). A total of 204 patients underwent ST, showing positivity in 41 cases. DPT were performed in 224 patients with good tolerance in 195 cases. The re-evaluation of patient's sensitivity was required in 32 cases, with 3 conversions to positive cases. After the allergy diagnosis work-up, 186 (74.7%) were diagnosed as non-allergic to BL antibiotics.

Conclusion: In our study population, the amount of patients labelled as allergic to BLs in their electronic medical records were similar to previously published studies, with proportions near to 75-80% being falsely labelled as allergic to BLs. In a context of increasing global burden of bacterial antimicrobial resistance, proactive dellabelling of false BL-allergy is of major importance.

Conflict of interest: The authors did not specify any links of interest.

100494 | Successful subcutaneous desensitization to dupilumab

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Dupilumab is a monoclonal antibody against Interleukin 4 receptor-α (IL4Rα) that blocks IL4 and IL13 signalling, downregulating type2 inflammatory responses. Most common adverse events are injection-site reactions and conjunctivitis, but IgE-mediated systemic reactions have been reported rarely.

Here we discuss the case of a 41-year-old woman with uncontrolled chronic rhinosinusitis with nasal polyposis and severe allergic asthma that fifteen minutes after the administration of Dupilumab at induction dosage (600 mg), developed a grade II (Brown anaphylaxis criteria) reaction with local wheal at injection sites, headache, nausea, and dizziness; no arterial hypotension was reported from the Sending Physician. The symptoms responded well to Chlorphenamine maleate 10 mg and Methylprednisolone 40 mg intravenously. After 3 h, due to a re-flare of the reaction, the patient presented to the Emergency Department, where she subdued to observation until symptoms regression. That led to drug interruption.

Due to Dupilumab being considered the best first-line treatment and patient's reported improvement after induction, her pulmonologist referred her to our Centre to evaluate drug desensitization.

Skin prick test with undiluted (150 mg/mL) drug and intradermal testing with 1:100 (1,5 mg/mL) and 1:10 (15 mg/mL) dilutions resulted negative.

Desloratadine 5 mg was administered 30 min before the procedure. Because no predetermined protocol for Dupilumab existed, a 3-solution, 8-step subcutaneous desensitization protocol was established (Table 1). Doses were subcutaneously administered in the arms, every 20 min. Starting with a 1.5 mg dose at 1:100 dilution, gradually increasing doses were administered until the cumulative dose of 300 mg was reached. The procedure was followed by at least 2 h of clinical observation and was well tolerated by the patient.

Two weeks later a second 2-solution, 4-step desensitization protocol was performed without any reactions. For the third administration, the dose was given divided in two, while in the fourth access, the patient tolerated the full dosage, without premedication.

To our knowledge, this is the first reported case of desensitization to Dupilumab. Because no protocols existed, we established a new rapid subcutaneous desensitization protocol, which was well tolerated by the patient and allowed her to continue the administration with the best treatment.

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Table 1 – Subcutaneous desensitization protocol for Dupilumab

STEPs	Dilution	Concentration (mg/ml)	Cumulative Time (min)	Dose injected per step (mg)	Cumulative dose (mg)	Volume infused per step (mL)
DAY 1						
1	1:100	1,5	0	0,75 + 0,75	1,5	0,5 + 0,5
2	1:10	15	20	1,5	3	0,1
3	1:10	15	40	2,25	5,25	0,15
4	1:10	15	60	5,25	10,5	0,35
5	1:10	15	80	12	22,5	0,8
6	1:1	150	100	37,5	60	0,25
7	1:1	150	120	90	150	0,6
8	1:1	150	140	150	300	1
DAY 2						
1	1:10	15	0	15	15	1
2	1:1	150	20	45	60	0,3
3	1:1	150	40	90	150	0,6
4	1:1	150	60	150	300	1
DAY 3						
1	1:1	150	0	150	150	1
1	1:1	150	20	150	300	1
DAY 4						
1	1:1	150	0	300	300	2

Conflict of interest: The authors did not specify any links of interest.

EPIDEMIOLOGY

100173 | Atopy and mental health

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Background: Allergic disorders are thought to affect between 10-40% of the UK population. However, the associated disease burden is not well understood. This study describes the mental health burden associated with allergic disorders.
Method: We undertook a population-based retrospective matched open cohort study using participating UK general practices from the IQVIA medical research database between 1st January 1995 and 19th October 2022. Read codes were utilised to identify all patients with allergic disorders (defined as food/drug allergies, urticaria, allergic rhino-conjunctivitis and experience of anaphylaxis) who were matched (by age (±1 years), sex, general practice, and Townsend deprivation quintile) to up to four control patients in the dataset with no diagnoses of allergic disorders in their electronic health record. Cox regression analysis was used to calculate adjusted (age, sex, deprivation, smoking status, alcohol use, body mass index and exposure to eczema and asthma) hazard ratios (aHR) for the development of mental ill health (depression, anxiety, severe mental illness (SMI), eating disorders, obsessive compulsive disorder (OCD) and self-harm) during follow up.
Results: 1,826,963 patients with allergic conditions were matched to 2,452,274 controls. During the follow up period, 290,887 patients (incidence rate (IR) 27.2 per 1000 person-years) with allergic conditions developed mental ill health compared to the 208,006 (IR 18.1 per 1000 person-years) controls, translating to an adjusted HR of 1.49 (1.48-1.49). All individual analyses (when examining per mental health outcome) demonstrated a positive association, but notably, the risk of developing OCD was aHR 1.57 (95% CI 1.52 – 1.67).
Conclusion: Considering the prevalence of allergic disorders, a positive association of this magnitude translates into a substantial associated public mental health burden. It is therefore important to implement policies aimed at enhancing: (1) detection of mental ill health in patients with allergic disorders, (2) secondary and tertiary prevention interventions to reduce the burden of mental ill health associated with exposure to allergy and (3) clinical awareness of such associations and subsequent knowledge of management. Considerations should also be made around the dual delivery of allergy and psychology services to optimise the mental wellbeing of patients who have been diagnosed with an allergic disorder.
Conflict of interest: The authors did not specify any links of interest.

100409 | Association between mothers' health literacy and early childhood allergy prevention: Results from the Kuno-kids health study

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Background: Early childhood allergy prevention (ECAP) encompasses several recommended as well as not recommended parental behaviours related to nutrition of mother/child and the living environment. Previous studies showed that health literacy (HL) is related to positive health behaviours directed at the child. This study aimed to analyse the association between mothers' HL and ECAP behaviours practiced in German families.
Method: 1662 mothers participating in the KUNO-Kids health study in the area of Regensburg, Germany were surveyed on HL (health care scale of the Health Literacy Survey-EU questionnaire) and several ECAP behaviours. Latent class analysis was used to identify patterns in ECAP behaviours. Multinomial logistic regression models were performed for the total analysis sample as well as stratified for children at-risk and not at-risk for allergies.
Results: A model with three classes showed the best fit ("recommended behaviour" $n = 871$, "allergen-avoiding behaviour" $n = 490$, "mixed" $n = 301$). Compared to the class "recommended behaviour", the class "allergen-avoiding behaviour" was negatively (OR = 0.968, $p < 0.001$), and the class "mixed" was not associated with HL (OR = 0.999, $p = 0.905$). Results were similar for both children at-risk and not at-risk for allergies.
Conclusion: We identified different patterns of ECAP behaviours. Improving HL could contribute to the implementation of recommended ECAP behaviours in families, especially to the reduction of allergen-avoiding behaviours. However, further research on underlying pathways is needed.
Conflict of interest: The authors did not specify any links of interest.

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100375 | Celiac disease and IgE-dependent allergy: Does the opposite dominant immune mechanism exclude the coexistence of these diseases?

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Background: The dominant mechanism of immunological response is the opposite in IgE-mediated allergy (A-IgE) and celiac disease (CD). The activated T helper type 2 cells play a pivotal role in A-IgE and their function prevents the development of cellular response and tissue destruction, typical of CD. Nevertheless, in both diseases, the part of T regulatory cells is impaired, which theoretically may result in concomitant A-IgE and CD. The aim of the study was to evaluate if A-IgE and CD can coexist.

Method: To verify the possibility of the coexistence of CD and A-IgE, the following keywords were searched in the database PubMed: „allergy OR sensitization OR anaphylaxis AND celiac OR coeliac" until 28th December 2022. This systematic review was performed in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. The review protocol has been submitted for registration to PROSPERO system (ID number 383887).

Results: In total, 2013 publications were found. After rejecting studies unrelated to the occurrence of A-IgE in CD, the analysis included 18 publications (6 observational studies and 12 studies describing a total of 15 cases). The authors of 4 research articles confirmed that CD patients might also suffer from A-IgE, while in 2 research articles, the relationship between these diseases was denied. The analysed studies used various tests to diagnose sensitization/allergy. The sensitization in the subjects with CD ranged from 16.6-20.0% when specific immunoglobulins E in the blood serum were tested to more than one allergen. The most frequently tested allergens were these containing gluten: wheat, rye and barley. Wheat was the most frequent allergen source causing A-IgE symptoms in subjects with CD (4.0-7.0%).

Conclusion: The analysis indicates the possible coexistence of A-IgE in CD subjects. As the GFD may promote wheat sensitization and decreased oral tolerance, strict elimination of cereals needs to be thoughtfully prescribed. Clinical manifestations of both diseases might overlap, which may lead to allergy underdiagnosis in CD patients. Screening for A-IgE in CD subjects should be considered, especially when symptoms persist after the GFD introduction. The review implies the need for further research on the coexistence of CD and A-IgE and an explanation of mechanisms responsible for the coexistence of these diseases.

Conflict of interest: The authors did not specify any links of interest.

OCULAR ALLERGY

100277 | Allergy to phenylephrine eye drops – A case report

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Introduction: Although rare, topic ocular medications can be a culprit in drug allergy, with manifestations of angioedema or allergic conjunctivitis. Phenylephrine is the most frequent drug implicated in ocular allergy. Despite that, is difficult to make a diagnosis of allergy with topical ocular drugs due to low specificity and sensitivity.

Clinical case: We describe a clinical case of a 75 year old female patient with multiple eye drops application to a ophthalmologic fundoscopy in 2001, including Tropicamide, Phenylephrine and Oxybuprocaíne, which developed oedema, pruriginous and painful erythema and conjunctival hyperemia, 4 h after procedure. She needed topical therapeutics not specified for treatment.

From 2001 to 2013, she had multiple similar episodes, resulting in suspension of Tropicamide and Phenylephrine with no study in Immunoalergology. She tolerates Povidone k25 and Oxybuprocaíne with no adverse reaction.

From the clinical study, skin prick and intradermal tests were negative for all drugs, for which we realized skin patch tests, whose results were positive at 48h and 96 h for Phenylephrine and negative for other eye drops.

This patient was labelled as late allergy to Phenylephrine. Since correct diagnosis, she had no new allergy manifestations and tolerates very well other pharmacological groups.

Conclusion: Symptoms appearance few hours after eye drop application could make us to admit an immediate allergy. However, literature describes allergic reactions to Phenylephirne as late type allergy, with influence of inflammatory or cytotoxic T-cells. Thus this case is an allergy from cellular mechanisms and not IgE-mediated, remembering doctors of this type of allergy and to proceed with patch tests, despite low sensitivity as a diagnostic tool.

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000542 | Gender difference of vitamin D serum levels in Moroccan asthmatic children

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*Presenting author: B. Elgharbaoui

Background: In the last years, the general population has become more aware of vitamin D deficiency and insufficiency, and many lung diseases, including asthma, are now linked to vitamin D. The majority of studies, both cross-sectional and observational, show a relationship between vitamin D deficiency and asthma. This study aims to investigate the relationship between Vitamin D serum levels, gender, and asthma control in children.

Method: 85 asthmatic children (34 females and 51 males) were evaluated for 25- hydroxyvitamin D, and level of asthma control. The mean age of the children was 7.83 ± 3.67 months. The concentration of vitamin D (25(OH)D3) was measured using liquid chromatography-tandem mass spectrometry, and levels of asthma control were assessed according to Global Initiative for Asthma guidelines and the Childhood Asthma Control Test.

Results: The mean serum concentration of 25-hydroxyvitamin D (25(OH)-D) was 16,12±5,17 in females with asthma, and 19,7±6,69 in males with asthma ($p = 0.03$). Moreover, no correlation between 25-hydroxyvitamin D (25(OH)-D) and the childhood Asthma Control Test was found (Spearman $r = -0.036$; $p = 0.742$).

Conclusion: In these cohorts of children; vitamin D deficiency is more prevalent in females with asthma than males with asthma; and lower levels of vitamin D are not associated with reduced asthma control.

Conflict of interest: The authors did not specify any links of interest.

000545 | Audit of primary care referrals to a secondary allergy clinic – does it meet standards set out in NICE CG 116?

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Background: Pressures on the healthcare system are increasing everyday which deems the need for audits to improve adequate utilization of resources and provide time critical care to patients who desperately need them. The NICE Guidelines CG116 regarding food allergies in under 19s was published in Feb 2011 and clearly sets out standards of history taking and referral. Our aim was to audit the quality of referrals from primary care regarding food allergies to a secondary allergy clinic over a period of 2 months to assess the appropriateness of the referral in accordance with the NICE guidelines

Method: A retrospective Audit of referrals received over a period of 2 months from 1/12/21- 31/1/22. All referrals for food allergies (IgE and non-IgE mediated) were included. Referrals for other allergic conditions not related to food allergies were excluded. Referrals which met one of the following criteria was considered appropriate

The child or young person has

1. faltering growth
2. one or more acute systemic reactions (Hives, Lip/facial swelling was not considered systemic reactions)
3. one or more severe delayed reactions
4. confirmed IgE-mediated food allergy and concurrent asthma
5. significant atopic eczema where multiple food allergies are suspected

There is:

1. persisting parental suspicion of food allergy (especially in children with difficult or perplexing symptoms) despite a lack of supporting history
2. strong clinical suspicion of IgE-mediated food allergy but allergy testing negative
3. clinical suspicion of multiple food allergies

Results: A total of 91 referrals were received during the time frame of 2 months, of which 72 (79%) met criteria for food allergy and were hence included in the audit. Children were between 5 weeks and 15 years, 56% males Vs 44% females. Of them, 43% were 0–2 years, and 38.8% were above 5 years of age. Only 53% of these referrals met criteria for referral to a secondary clinic.

Conclusion: Though the guidance has been around for a decade, the audit highlighted the fact that approximately 47% referrals did not meet criteria for referral to secondary care and could have been managed in primary care. This could be due to lack of awareness of guidelines or availability of expertise, infrastructure, and time in primary care. Increasing awareness of guidelines by targeted education in primary care could lead to an improvement in the referral process which would help reduce burden in secondary care and decrease wait times for patients who need to be assessed by the specialist

Conflict of interest: The authors did not specify any links of interest.

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000603 | The vitamin D receptor gene polymorphisms and asthma control in Moroccan children: Are they linked?

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*Presenting author: B. Elgharbaoui

Background: In the last years, vitamin D and its nuclear receptor VDR have related to a higher incidence of asthma and other allergic diseases. Polymorphisms in the VDR gene may alter the actions of vitamin D and then influence the development of asthma.The current study aimed to elucidate the genetic association of VDR polymorphisms (FokI, Taq I) with asthma control in Moroccan children and with serum vitamin D levels

Method: The study included 55 asthmatic children (22 females and 33 males) recruited from the Pediatric Pulmonary and Allergic Diseases Unit, Ibn Sina Children's University Hospital, Rabat, Morocco. All participants were genotyped for two SNPs; VDR (FokI) and (TaqI) using Taq-Man allele discrimination assays, the concentration of vitamin D (25(OH)D3) was measured using liquid chromatography-tandem mass spectrometry, and levels of asthma control were assessed according to Global Initiative for Asthma guidelines and the Childhood Asthma Control Test.

Results: A significant association was found between VDR polymorphism (FOKI) and asthma control ($p = 0.03$), and there were insignificant associations between VDR SNPs (FokI, TaqI) and serum 25-hydroxyvitamin D levels (FokI: $p = 0.10$; TaqI: $p = 0.74$).

Conclusion: In conclusion, VDR FokI polymorphism was found to be associated with asthma control in Moroccan children, while there were no significant associations between VDR SNPs (FokI, TaqI) and serum 25-hydroxyvitamin D levels.

Conflict of interest: The authors did not specify any links of interest.

001271 | Audit of primary care referrals to a secondary allergy clinic – was an adequate allergy focused history obtained as set out in nice CG 116?

V. V. Dayalan; N. Rao

Wythenshawe Hospital, Wythenshawe, UK

*Presenting author: V. V. Dayalan

Background: NICE Guidelines CG116 regarding food allergies in under 19s was published in Feb 2011 and clearly sets out standards for taking an allergy focused history. Our aim was to audit the quality of referrals from primary care regarding food allergies to a secondary allergy clinic over 2 months to assess if an adequate allergy focused history was obtained as set out in the NICE guidelines

Method: Retrospective Audit of referrals received over 2 months from 1/12/21- 31/1/22. All referrals for food allergies (IgE/non-IgE) were included. Referrals made for other allergic conditions were excluded. Referrals were assessed based on whether an Allergy focused history was obtained as set in NICE guidelines

- personal history of atopy
- family history of atopy or food allergy
- age of the child when symptoms first started
- speed of onset of symptoms following food contact
- duration of symptom
- severity of reaction
- frequency of occurrence
- reproducibility of symptom
- what food and how much exposure causes a reaction
- what the suspected allergen is
- the child's feeding history and any food avoidance
- details of medication for the presenting symptoms and response to this

1 point was given to each of the above information if present in the referral

Results: A total of 91 referrals were received during the time frame of 2 months, of which 72 (79%) met criteria for food allergy and were included in the audit. Of these referrals, there was 0% which had a complete allergy focused history. 12.5% referrals covered >10/12 points while 34.7% referrals covered <6/12 points in obtaining an allergy focused history. Suspected foods included Milk 33.3%, Egg 25%, Peanut 29.1%, Tree nuts 19.4%, Fish 5.5%, Pine nut/Wheat/Banana/Citrus fruits 4.1%, Shellfish/Sesame/Soy/Pineapple/Tomato 2.7%, Kiwi/Apple/Strawberry 1.3% and others (Lentil, Chickpeas, Chicken, Mushroom) 8.3%. Predominantly children 0-2yrs had milk and egg allergies (54.8% and 29% vs 21.4% and 25%) while 3-15yrs had peanut and tree nut allergies (16.1% and 6.4% Vs 50% and 71.4%).

Conclusion: The most common suspected food allergen continues to be milk, egg, peanuts and tree nuts. An age-related predominance to certain groups was seen. Despite the NICE guidelines being around for more than a decade, it is clear that most referrals do not have an adequate allergy focused history. Further work needs to be undertaken to understand the barriers to taking an allergy focussed history. Targeted education in primary care could lead to an improvement in the referral process

Conflict of interest: The authors did not specify any links of interest.

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000836 | Next generation therapeutic strategy against pectate lyase allergens

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*Presenting author: N. Ghosh

Background: Pectate lyase is one of the major allergens reported from allergy-causing pollen grains of the Asteraceae and Cupressaceae family. Asteraceae pollen grains are the main cause of weed pollen allergy in Europe, North America, and Asia. A large number of the population is also susceptible to Cupressaceae pollen grains. Pectate lyase is a pan-allergen. So patients allergic to pectate lyase allergens may be given relief by using a single candidate vaccine against all pectate lyases. This study aims to find out the cross-reactivity among different allergenic pectate lyases reported from Asteraceae pollen grains and to design a candidate vaccine against pectate lyase.

Method: Pectate lyase allergen Hel a 6 was purified from *Helianthus annuus* (sunflower) through anion exchange and gel filtration chromatography. The cross-reactivity of Hel a 6 with other pectate lyase allergens of Asteraceae family such as Amb a 1 and Art v 6 was studied through inhibition ELISA, inhibition western blot and histamine release assay. The B cell epitopes of Hel a 6, Art v 6 and Amb a1 were predicted using ABCpred and BCEpred server. The sequence conservation of predicted epitopes and reported IgE epitopes of pectate lyases from other air-borne pollen allergens were compared. Epitopes with more than 55% sequence conservation were used to design multi-epitope chimeric vaccine using immuno-informatics. The epitopes were joined with a linker molecule and a carrier molecule for the immunogenicity of the vaccine construct. PreS protein of hepatitis B virus and Cholera toxin B (CTB) along with fractions of tetanus toxoid (TTFr) were used as carrier molecule and the stability of the constructs were measured. The capability of the vaccine constructs to induce IL-10-mediated protective response was also assessed bioinformatically.

Results: Around 60-80% cross-reactivity was found between Hel a 6, Amb a 1, and Art v 6 through inhibition ELISA. Cross-reactivity among them was also confirmed by inhibition blot as well as through mediator release from Hel a 6 sensitized effector cells which were cross stimulated with Amb a 1 and Art v 6. Conserved IgE epitopes were taken to design the vaccine construct. CTB and TTFr-linked molecules showed greater stability. Both constructs were capable of inducing a protective response.

Conclusion: Multi-epitope vaccine designing is a novel approach for the treatment of pectate lyase allergic patients. The IgE epitope sequences of different pectate lyases are more or less conserved, rendering this candidate vaccine effective against a huge number of allergens.

Conflict of interest: The authors did not specify any links of interest.

000156 | Changes of IL-17 and IL-22 level after nasal challenge with dermatophagoideus pteronnysinus allergen in patients with persistent allergic airway diseases

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Background: The prevalence of allergic airway diseases (AAD) – allergic rhinitis (AR) and allergic asthma (AA) – increases despite modern methods of diagnosis and treatment and better access to them. The most common allergen that causes persistent allergic inflammation is house dust mites. There is evidence that T lymphocyte helper (Th) 17 and Th22 may be involved in the pathogenesis of persistent AAD.

Method: Patients with mild to moderate AR (without exacerbation) with or without well controlled asthma and healthy volunteers underwent nasal challenge with *Dermatophagoideus pteronnysinus*. Before and at 2 and 22 h after nasal challenge evaluation of total nasal symptom score (TNSS) and total nasal resistance (TNR) using rhinomanometry was performed and peripheral blood and nasal lavage fluid were collected for investigation of IL-17 and IL-22 using ELISA method.

Results: Twenty-three subjects (10 with AR, 6 with AR and AA and 7 healthy individuals) were involved into the study. Significant decrease in TNSS after 2 h (1.00 (2.00)) vs. 2.00 (2.00), $p < 0.05$) and a tendency of increase of TNR after 22 h after nasal challenge (0.27 (0.55) vs. 0.41 (0.34) kPa*s/L at 150 Pa) were observed in patients with AAD. Serum IL-22 level increased after 2 h (5.42 (11.47) vs. 7.48 (17.72) pg/ml, $p < 0.05$) whereas IL-22 in nasal lavage fluid significantly increased after 2 and 22 h after nasal challenge (1.44 (2.15) vs. 1.44 (2.15) vs. 5.50 (2.09) pg/ml, $p < 0.01$) in patients with AAD. Serum IL-22 increased significantly in patients with AR and AA after 2 and 22 h after nasal challenge (2.54 (9.87) vs. 38.73 (35.87) vs. 19.37 (117.33) pg/ml, $p < 0.05$), but IL-22 level in nasal lavage increased significantly only in patients with AR. IL-17 level in serum and nasal lavage significantly decreased after nasal challenge (10.06 (6.77) vs. 6.76 (2.15) vs. 6.48 (1.69) pg/ml, $p < 0.01$ and 10.91 (12.69) vs. 5.84 (0.79) vs. 5.50 (1.02) pg/ml, $p < 0.01$) in patients with AAD. TNR at 22 h after nasal challenge positively correlated with serum IL-22 at 2 h after nasal challenge ($rs = 0.67$, $p < 0.05$) and with IL-17 in nasal lavage fluid at 2 h after nasal challenge ($rs = 0.68$, $p < 0.05$).

Conclusion: Serum and nasal lavage fluid IL-22 increased whereas IL-17 level decreased after nasal challenge with *Dermatophagoides pteronyssinus* in patients with persistent allergic airway diseases. Higher levels of these cytokines were related with higher nasal obstruction.

Conflict of interest: The authors did not specify any links of interest.

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100247 | Microbial metacommunity transmission and assembly during COVID-19 lockdown mediate risk of atopic disorders in early life

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Background: Gut microbiome assembly is primarily shaped by environmental factors. There is a "window of opportunity" in early life where immune system interactions with environmental factors alters the risk of immune mediated pathology including allergy. Infants raised during social distancing measures to control the spread of SARS-CoV-2 provided an opportunity to elucidate maturation factors impacting the early life gut metacommunity.

Method: We analyzed fecal microbiota composition at 6 and 12 months of age in infants born and raised during the highest level of COVID-19 lockdown restrictions in Ireland (CORAL cohort; $n = 351$) and compared them with published age matched pre-pandemic data sets. Detailed questionnaires of infants' environments, health and diets were collected at enrolment and at 6 and 12 months. Atopic dermatitis assessment and skin prick testing was completed at 12 months.

Results: *Clostridia* levels were significantly lower ($p < 0.001$) at 6 and 12 months of age in CORAL infants, which correlated with a microbial exposure index. Faecal *Bifidobacteria* levels were higher in CORAL infants at 12 months of age ($p < 0.0001$), possibly due to higher rates of breastfeeding and lower usage of antibiotics. Microbiota composition was the most significant component of models predicting risk of atopic dermatitis (AUC 0.86) and food allergen sensitization (AUC 0.98) at 12 months and mediated the effects of multiple environment factors on disease risk.

Conclusion: This unique study of children born in COVID-19 lockdown demonstrates the dominance of human dietary and environmental exposures over post-natal horizontal transfer of specific taxa in early human life.

Conflict of interest: Jonathan Hourihane is current president for the Clemens Von Pirquet Foundation. Funding for the study was in part secured from the CVP Foundation.

001192 | Allergy to drugs?

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Case report: The hypereosinophilic syndrome is a multiorgan disease characterized by large counts of eosinophils in peripheral blood observed during at least six months without any evidence for other known causes of eosinophilia. We present a 66-year-old woman that consulted the emergency room of our hospital in several occasions since July 2022. Her main symptoms were general skin itching, hives and difficult to sleep doe to dyspnea, cough, and general discomfort. During the directed anamnesis, the patient reports diarrhea and abdominal pain. Peripheral eosinophilia > 6000/mcl is still maintained. Hypereosinophilic syndrome was diagnosed after eight months of follow-up and exclusion of other causes. Corticosteroids and hydroxycarbamide were administered as first-line therapy. Unfortunately, the patient was unresponsive to steroids. Heart involvement was ruled out by cardiac MRI.

Methods: Eosinophils in June: 200/per cubic millimeter. Eosinophils in July: 6000/per cubic millimeter. Eosinophils in August: 8000/per cubic millimeter. October: 6000/per cubic millimeter. December: 6000/per cubic millimeter. Skin Biopsy: Infiltration of eosinophils, neutrophils, and lymphocytes presented in the vasculature and interstitial spaces of the dermal layer.

Results: We started treatment with monthly subcutaneous injections of benralizumab (at a dose of 30 mg) in December 2022. Improvement of eosinophilia and lack of symptoms are reported.

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Conflicts of Interest: The authors did not specify any links of interest.

100503 | Eosinophilic esophagitis in a patient with Ehlers–Danlos Syndrome

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Background: Eosinophilic esophagitis (EoE) is an emerging chronic inflammatory disease mediated by immune hypersensitization to multiple foods and strongly associated with atopy and esophageal remodeling. Ehlers–Danlos syndrome (EDS) is an inherited heterogeneous group of connective tissue disorders (CTD), characterized by abnormal collagen synthesis, affecting skin, ligaments, joints, blood vessels, and other organs.

Method: A 37-year-old woman, nonsmoker, diagnosed with EDS hypermobility type (EDS/HDS), well-controlled asthma with inhaled

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corticosteroids and montelukast; and alpha1 antitrypsin (AAT) deficiency (phenotype MZ) began with frequent food impactions while eating and acid reflux. She had recently undergone H. Pylori eradication treatment. We carry out in vivo and in vitro studies.

Results: The prick tests with aeroallergens, milk, egg, soy, wheat, rice, legumes, corn, fish, and nuts were negative. Specific IgE determinations to different food batteries and aeroallergens were also negative. A gastroscopy with three biopsies (including proximal and distal esophagus) was performed. Endoscopic findings: trachealization (appearing as concentric rings of esophageal narrowing) exudatives (white plaques) and edema. Biopsy: presence of more than 20–40 eosinophils per high-powered field in the three biopsies.

Conclusion: The symptoms of EoE were often confused for gastroesophageal reflux. IgE determinations and food prick tests are not useful in the diagnosis of EoE, even in the case of patients with EDS. We present a case of EoE in a EDS. According to the bibliography consulted, several studies have demonstrated EDS/HSD patients with eosinophilic esophagitis(EoE). It was found that there is an eightfold increase in risk of EoE in patients with CTD, and these patients may be at an increased risk for diffuse extraesophageal gastrointestinal diseases when compared to EoE patients without CTD.

References:

Abonia et al. High prevalence of eosinophilic esophagitis in patients with inherited connective tissue disorders. J Allergy Clin Immunol 2013;132:378-385.

Xue Z et al. Association of eosinophilic esophagitis with autoimmune and connective tissue disorders, and the impact of treatment response. Dis Esophagus 2022 Dec 31; 36(1).

Conflicts of interest: The authors did not specify any links of interest.

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