

5th September 2012 POSTERS

P_H.1

Symptoms of the Swiss birch and grass pollen season 2011

Pietragalla-Köhler B.¹, Gehrig R.¹, Pauling A.¹, Berger U.², Clot B.¹

¹ Bio-Environmental Applications, MeteoSwiss, Switzerland

² Department of Oto-Rhino-Laryngology, Medical University of Vienna, Austria

Objectives: The European Pollen Diary (www.pollendiary.com) was established for giving allergic people the possibility to record regularly their symptoms online on a private account. The Pollen Diary helps the patients to follow their symptoms and to compare them with the pollen counts. Moreover, from the scientific point of view the Pollen Diary provides valuable information on the reactions of patients compared to the measured pollen concentration.

Methods: The Pollen Diary allows to record the severity of symptoms of the nose, the eyes and lungs and an estimation of the overall symptoms. For the pollen season 2011 the allergic symptoms of Swiss users were set in relation to the concentration of airborne pollen. 80 users of the region of Zurich who made at least 30 entries into the European Pollen Diary have been included in the analysis. The pollen concentration was measured by the Swiss National Pollen Monitoring Network using Hirst type samplers.

Results: The birch pollen season 2011 in Zurich had an intense start. Between the 2nd and the 9th of March daily concentrations above 1000 pollen/m³ were registered. The Seasonal Pollen Index reached 12500 which is slightly above the average. 16 days with high pollen load (≥ 70) was recorded which is well below the average of 23 days. The grass pollen season in Zurich was average, but the number of days with high pollen load (≥ 50) reached 31 days which is above the average of 25 days. Using Spearman correlation between the calculated value of "overall symptoms total" and the daily pollen concentration of birch and grass pollen, 31 users were identified as allergic to birch pollen whereas 40 users proved to be allergic to grass pollen. 11 users were allergic to grass and birch pollen. For 20 users no significant correlation was found neither to birch nor grass pollen. Nose symptoms are the most frequently observed symptoms, followed by eye and lung symptoms. On days with high birch pollen load (≥ 70 pollen/m³) the percentages of users allergic only to birch pollen with symptoms were: nose 92% (Std.dev. 8.5), eyes 69% (Std.dev. 16.9) lungs 38% (Std.dev. 14.4). On days with high grass pollen load (≥ 50 pollen/m³) the percentages of users allergic only to grass pollen with symptoms were: nose 78% (Std.dev. 13.8), eyes 55% (Std.dev. 16.9) lungs 24% (Std.dev. 10.2). The intense birch pollen season in 2011 is reflected in a higher percentage of sufferers with severe symptoms compared to the average grass pollen season. The use of anti-allergic pharmaceuticals corresponded to the high pollen loads.

Conclusions: The Pollen Diary represents a new tool for better understanding the direct consequences of different pollen loads on allergy sufferers. Moreover, the tool helps to verify the threshold values used for pollen forecasts.

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The European project HIALINE (Health Impacts of Airborne Allergen Information Network):

three years of monitoring Betula pollen and allergens in Parma (Italy)

Albertini R.¹, Ugolotti M.¹, HIALINE Team²

¹ Department of Clinical Medicine, Nephrology and Health Sciences, University of Parma, Italy
² J. Buters, G. Reese, Germany; M. Thibaudon, France; M. Smith, Great Britain; C. Galan, Spain; R. Brandao, C. Antunes, Portugal; L. Grewling, Poland; A. Rantio-Lehtimäki, M. Sofiev, Finland; S. Jäger, U. Berger, Austria; I. Sauliene, Lithuania; L. Cecchi, Italy

Objectives: Exposure to allergens is pivotal in determining sensitization and allergic symptoms in individuals. Pollen grain counts in ambient air have traditionally been assessed to estimate airborne allergen exposure. However, the exact allergen content of ambient air is unknown. HIALINE therefore monitored atmospheric concentrations of Betula pollen grain and the matched major birch pollen allergen Bet v 1 across Europe. Monitoring the allergens themselves together with pollen in ambient air might be an improvement in allergen exposure assessment. New knowledge through the use of new experimental approaches in the field of aerobiological monitoring will enable better management in the prevention and clinical management of pollinosis. In order to promote the outcomes of the project we present the results of three years of birch pollen grain and the matched major Betula pollen allergen Bet v 1 monitoring in Parma, Italy.

Methods: We have monitored Betula pollen count and Bet v 1 allergen concentrations. Quality control was carried out for the pollen monitoring activities and determination of allergen concentrations. The pollens were sampled through a Hirst pollen trap. Allergens were collected with a Chemvol high-volume cascade impactor, extracted from pollen and quantified by ELISA. Antibodies for analysis were provided by the industrial partner in this project.

Results: 2009: (During 2009 HIALINE season in Parma is started after start of Betula biological season): peak day 21 pollens/m³; peak day 4/15; cumulative Betula pollen count 100; Bet v1 (pg/m³/24h): peak day 81.99, peak day 5/7 with 1 pollen/m³; cumulative 681, per pollen/season 6.81, per pollen/peak 81.99. During the period examined 93.88% of Bet v1 is recorded in the PM₁₀ fraction. 2010: peak day 43.9 pollens/m³; peak day 4/21; cumulative Betula pollen count 497; Bet v1 (pg/m³/24h): peak day 250.2, peak day 4/20 with 35.7 pollens/m³; cumulative Betula pollen count 1237, per pollen/season 2.49, per pollen/peak 7.0. During the period examined 91.3% of Bet v1 is recorded in the PM₁₀ fraction. 2011: peak day 39.79 pollens/m³; peak day 4/4; cumulative Betula pollen count 423.26; Bet v1 (pg/m³/24h): peak day 284.03, peak day 4/4; cumulative 1750.24, per pollen/season 4.14, per pollen/peak 7.14. During the period examined 89.7% of Bet v1 is recorded in the PM₁₀ fraction.

Conclusions: The results in Italy should be compared with those from partners in other countries. It will be important to confirm some observations during the first and second year of the project activity which showed the presence of a different allergenic power in different geographical areas as observed for other types of pollen (Poaceae and Olea). The aim of the project was to measure the pollen's capacity to release allergens and this will result into an allergen exposure forecast, taking into consideration pollen counts and allergen release from different locations. The results of the project will help medical doctors, authorities and patients to better manage the different aspects related to pollinosis.

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The evaluation of quality of life in children with asthma after rehabilitation in sanatorium

Stencel-Gabriel K.¹

¹ Department of Pediatrics, Medical University of Silesia, Bytom, Poland

Objectives: The rehabilitation treatment in children with asthma is known as a treatment during asthma treatment. It reaches best results when provided in the sanatorium. The poor physical condition is often accompanied by psychological problems in children with asthma. Our goal was to evaluate the quality of life and the rehabilitation therapy in asthmatic children.

Methods: The study comprised of 58 children aged 5-18 recruited in 2 outpatient clinics. Children were treated both in the outpatient clinic (regular asthma treatment) and in the sanatorium (both sea or mountain resorts). Most of the children during the rehabilitation procedure with 3 different rehabilitation procedures (78%), 12% of children had more than 1 rehabilitation procedure. The control group consisted of 25 children who were asked to fill up QOL questionnaire. ACT (Asthma Control Test) was performed in both groups.

Results: ACT showed that 42% of children in the studied group presented with poorly controlled asthma symptoms comparing to 24% of poorly controlled asthma children in the control group. The children having symptoms since early infancy were found only in the studied group. During asthma exacerbation, the inhaled steroids and bronchodilators were given to children in the studied group comparing to 1/5 in the control group. The rehabilitation procedures included: respiratory effort exercises (20%); nebulization (16%); physical strengthening (15%); sollux lamp (14%); medical baths (9%). According to the parental questionnaire, 24% of children were first-time treated in sanatorium at year previously; 88% of parents showed interest in the repeated sanatorium treatment. During rehabilitation treatment, we observed in 43% of children the decreased symptoms (wheezing, shortness of breath), however 8% of children showed worsening of the symptoms. 66% of children had no improvement in physical activity and no improvement in psychological symptoms like anger, fear, sadness, discouragement, affliction accompanying the asthma exacerbation. 74% of children in the studied group showed increased fear of the asthma exacerbation. The life quality in children was evaluated in 0-10 point scale. The studied group was 6 in compare to 2 in the control group. The parental questionnaire showed that 50% of parents did not understand the need of continuation in the rehabilitation especially during a non-symptomatic period. Similarly, 50% of parents were giving only during symptoms worsening.

Conclusions: The proper parental education is crucial during the rehabilitation therapy and should be continued at home.

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Nasal cytology as a useful tool for allergic and non-allergic rhinitis treatment

Myszkowska D., Stobiecki M., Dąbal E., Lorenc J., Czarnobilska E.

Objectives: Scraping cytology of the nasal mucosa is one of the diagnostic methods in the evaluation of upper airways diseases. The main indications for this examination are: differentiation of rhinitis into allergic and non-allergic, the treatment selection and monitoring of the side effects of the drugs on nasal mucosa. Nasal cytology is simple to perform in all patients, independent on symptoms and patient age, non-invasive for patients. The aim of the study was to evaluate the results of cytological examination in a group of allergic rhinitis patients regarding the SPT results, sIgE level and diagnosis.

Methods: The nasal cytology was ordered in a group of 1573 patients diagnosed and treated in the Dpt of Allergology, University Hospital, Krakow in 2008-2011, to confirm the preliminary diagnosis put on the basis of the positive SPT and increased sIgE level or in case of negative results of these analyses. From this group the main research group (330 patients) was distinguished on the basis of the percentage of eosinophils (>2%). For research purposes the main group was divided into 2 semi-groups: the patients with eosinophilia in cytology (>2% (186 patients) and with eosinophilia > 20% (144 patients). The samples were collected by scraping technique from both interior nasal turbinates. The slides were stained by hematoxylin method, and examined under the light microscope (1000x). The epithelial and inflammatory cells were counted up to 100.

Results: In 71.30% of patients with lower percentage of nasal eosinophilia (3-20%) the results were positive, the SPT with pollen allergens and house dust mites prevailed. In 28.70% of patients with higher eosinophilia (>20%) the SPT results were confirmed by the increased sIgE level. In 28.70% of patients with lower nasal eosinophilia (3-20%) the SPT results were negative. The following diagnosis was dominated in this group: allergic rhinitis, atopic dermatitis and contact dermatitis. On the other hand in 45.80% of patients with nasal eosinophilia > 20% the positive SPT results were observed. In this group 9 patients have demonstrated the level of eosinophilia > 70%. Similarly, to the group with lower eosinophilia, the SPT with pollen allergens (20% of patients) and dust mites (25% of patients) dominated. In patients with negative SPT the level of eosinophilia ranged from 21-78%. In 1/3 of these patients the allergic rhinitis was diagnosed. About 8% of patients with higher eosinophilia was ordered to take nasal glucocorticosteroids, but 20% of patients were treated by antihistaminic only.

Conclusions: The nasal cytology is a real useful tool for allergic and non-allergic rhinitis differentiations, moreover it is an advice for treatment selection.