ABSTRACT BOOK

ICAR2020+2

Bologna, Italy

19th International Congress
on Animal Reproduction

BOLOGNA (ITALY), 26th-30th JUNE 2022

O33
UTERO-PLACENTAL IMMUNE EVENTS IN THE DOG DURING PREGNANCY

M. Tavares Pereira [7], R. Nowaczyk [6], R. Payan-Carreira [5], S. Miranda [1], S. Aslan [3], D. Kaya [2], S.S. Ay [4], M.P. Kowalewski [7]

[1]Animal and Veterinary Research Center (CECAV), University of Trás-os-Montes and Alto Douro, Vila Real, Portugal

[2]Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Kafkas University, Kars, Turkey

[3]Department of Obstetrics and Gynecology, Faculty of Veterinary Medicine, Near East University, Nicosia, North Cyprus

[4]Department of Obstetrics and Gynecology, Ondokuz Mayıs University, Samsun, Turkey

[5]Department of Veterinary Medicine, School of Science and Technology, University of Évora, Évora, Portugal

[6]Division of Histology and Embryology, Department of Biostructure and Animal Physiology, Faculty of Veterinary Medicine, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland

[7]Institute of Veterinary Anatomy, Vetsuisse Faculty, University of Zurich (UZH), Zurich, Switzerland

BACKGROUND-AIM

Maternal tolerance towards the embryo is crucial for the maintenance of pregnancy. However, events like implantation and parturition are associated with increased inflammatory activity in several species. Nevertheless, in contrast with other species, information regarding the uterine immune milieu during canine pregnancy is still scarce.

METHODS

Thus, in the present work, the gene availability of several immune factors was assessed in canine utero-placental compartments collected from the pre-implantation uterus (days 10-12) and corresponding non-pregnant controls, during implantation (day 17), post-implantation (days 18-25), mid-gestation (days 35-40), and prepartum luteolysis (term). Additionally, differences between natural and preterm induced parturition/abortion were assessed in samples collected 24h and 72h after administration of aglepristone to terminate gestation in mid-pregnant bitches.

RESULTS

Among the main findings, embryo presence prior to implantation was associated with an apparent increase in immune activity, suggested by higher transcriptional levels of MHCII, CD4, CD25, NCR1, IL6, -8 and -10, CCR7, IDO1 and AIF1 ($P<0.05$). An apparent shift towards anti-inflammatory events during implantation was suggested by upregulation of FoxP3 and IL12a ($P<0.05$), concomitant with the downregulation of CD4, IL8, -10 and CCR7 ($P<0.05$). Maintenance of pregnancy was associated with decreased immune activity, suggested from the decreased availability of MHCII, CD206, FoxP3 and NCR1, IL12a, TNFR1 and TLR4 during post-implantation ($P<0.05$), and further decreased IL1β in mid-gestation ($P<0.05$). Both natural and induced luteolysis were associated with increased availability of CD163, CD206, CD4, IL8, CCL3 and TLR4, while IL6 was downregulated ($P<0.05$). Prepartum luteolysis was further marked by the upregulation of TNFR1 and CCL13 ($P<0.05$). In contrast, MHCII, CD25, IL10, TNFa, AIF1 and IDO1 were upregulated after aglepristone treatment ($P<0.05$), but not at term. Despite some differences between natural and induced luteolysis, both appear to represent pro-inflammatory events.

CONCLUSIONS

Altogether, the present work provides new insights into uterine and placental pro- and/or anti-inflammatory signals during the establishment, maintenance and termination of canine pregnancy.

SNSF grant number: 31003A_182481

Organising Secretariat

Via Carlo Farini 81 - 20159 Milano – Italy
Phone: +39 02 66802323 - Fax: +39 02 6686699
Email: info@icar2020-2.org

For information on any specific topic, please refer to the following e-mails:
General information: info@icar2020-2.org
Abstracts & Posters: posters@icar2020-2.org
Registrations: registrations@icar2020-2.org