Proceedings of the
8th International Symposium
on Canine and Feline Reproduction
ISCFR

June 22-25, 2016
Paris, France

In a joint meeting with the XIX EVSSAR Congress

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Comparison of the ovarian and uterine reproductive parameters, and the ovarian mRNA and protein expression of LHR and FSHR between the prepubertal and adult female cats.

Nicole Sirisopit Mehl¹, Muhammad Khalid², Sayamon Srisuwatanasagul¹, Theerawat Swangchan-Uthai¹, and Sudson Sirivaidyapong¹.

¹Department of Obstetrics, Gynaecology and Reproduction, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand. ²Department of Production and Population Health, The Royal Veterinary College, University of London, UK, and ³Department of Anatomy, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand. s_sudson@yahoo.co.uk

Ovarian cycle in mammals is controlled by gonadotropins (LH and FSH)¹ and their receptors in the reproductive tract. Limited information available shows that LHR and FSHR expression is related to the follicle diameter². Additional information in this area would be valuable regarding the techniques used for reproductive assistance and/or contraception not only in domestic cats but also in wild felid species. This study aimed to evaluate and compare the ovarian and uterine characteristics along with the ovarian mRNA and protein expression of LHR and FSHR between the prepubertal and adult female cats. The uterine horns and ovaries were collected from prepubertal and adult female cats at their follicular, luteal and interstрус stages of the estrous cycle (n = 6/group), at the Faculty of Veterinary Science, Chulalongkorn University. Endometrial and myometrial thickness, uterine gland diameter, ovarian weight and type of follicles were analyzed. The mRNA and protein expression of LHR and FSHR was analyzed by IHC and qPCR, respectively. GLM was used to compare all the parameters studied among the experimental groups. The ovarian weight (g) of pre-pubertal cats (0.08±0.01) was lower (P < 0.05) than that of adult cats (0.11±0.01). While no differences were recorded in the numbers of primordial and primary follicles between the study groups, adult luteal cats had lower (P < 0.05) numbers of secondary follicles (4.00±1.03) compared to prepubertal cats (9±3.61). The uterine gland diameter (µm) and myometrial thickness (µm) in pre-pubertal cats (25.13±7.56 and 398.32±50.7) were lower than adult cats at their follicular (40.44±5.22 and 515.85±115.2) and luteal (40.75±6.17 and 506.43±114.3) stages of the estrous cycle (P < 0.05), respectively. No differences were observed in the endometrial thickness between the experimental groups. While there were no differences in the ovarian expression of FSHR mRNA, LHR protein or mRNA between the prepubertal and adult cats, lower FSHR protein expression was found in pre-pubertal cats (5226±11.23) compared to adult luteal cats (107.82±19.71) (P < 0.05). In conclusion, no differences were observed in the ovarian protein or mRNA expression of gonadotropin receptors between the prepubertal and adult cats except that lower FSHR protein expression was observed in prepubertal cats compared to the adult cats at their luteal stage of the estrous cycle. Moreover, higher values for the uterine gland diameter and myometrial thickness in adult cats suggest an active/mature uterine function in adult compared to prepubertal cats.

This study was supported by the RGJ Ph.D. programme and the Research Unit of Obstetrics and Reproduction in animals of Chulalongkorn University.
