ABSTRACTS

ISCFR 2012

July 26-29, Whistler, Canada

7th International Symposium on Canine and Feline Reproduction

In a joint meeting with

EVSSAR 2012

15th Congress of the European Veterinary Society for Small Animal Reproduction

Editors: Gary England, Michelle Kutzler, Pierre Comizzoli, Wojciech Nizanski, Tom Rijsselaere and Patrick Concannon

Reprinted in IVIS with the permission of the ISCFR Organizers
Hormone-induced luteolysis on physiologically persisting corpora lutea in Eurasian and Iberian Lynx – A prerequisite for artificial insemination

Painer, J¹; Jewgenow, K¹; Dehnhardt, M¹; Hildebrandt, TB¹; Naidenko SV²; Sánchez, I³; Quevedo, MA³ and Göritz, F¹

¹Leibniz Institute for Zoo and Wildlife Research, PF601103, D-10252 Berlin, GERMANY; ²A.N.Severtsov-Institute of Ecology and Evolution, 119071 Moscow, RUSSIA and ³Zoobotánico Jerez and Iberian Lynx Ex-situ Conservation Program, 11405 Jerez, SPAIN.
painer@izw-berlin.de

OBJECTIVES AND METHODS: Lynx have a unique ovarian physiology with persistent Corpora lutea (CL) and elevated progesterone levels throughout the year (1), which cause a strong seasonal reproductive cycle and impede artificial estrus induction outside the breeding season. Within the Iberian lynx captive breeding program, female lynx often breed unsuccessful of yet unknown reason. In the case of genetically valuable females their reproductive potential is lost for a whole year. A hormone-induced luteolysis followed by estrus induction would offer a second opportunity within the current season for either natural mating or artificial insemination (AI).

The aim of the present study was to evaluated the luteolytic effect of Cloprostenol (Prostaglandin-F2-alpha-analog) in Iberian (Lynx pardinus) and Eurasian (Lynx lynx) lynx. After breeding season, two Iberian and three Eurasian female lynx were treated with 2.5µg/kg bodyweight (BW) Cloprostenol once a day for 5 (in the case of Iberian lynxes only 3) consecutive days by dart injection. Two of the Eurasian lynx received an additional 5µg/kg BW Cabergolin (3) (Prolaktin inhibitor) daily per os, one of which also got 10mg/kg Aglepristone (Antigestagen) subcutaneously on day 0 and day 2. The luteal function was assessed by ultrasound and by serum hormone analysis on day 0, day 3 or day 5 of luteolysis and 5 to 7 months after the treatment.

For ultrasound assessment and blood sampling the animals were immobilized in dorsal recumbency. An ultrasound machine (Voluson i, GE) was equipped with a 12 MHz linear transducer. Ovaries were identified caudal to the kidneys. The diameter of the ovaries, the CL, the Arteria ovarica and the interovarial blood vessels of the several CL’s were measured. Pulsed wave colour Doppler ultrasonography measured 6 - 8 cm/s velocity of flow (2) in the A. ovarica, which was set in the Doppler spectrum pre-settings. The vessels were scanned in ≤ 60° angle (2) to the transducer. Hormone analysis was performed as described previously (1).

RESULTS: The effect of Cloprostenol on luteolysis in two lynx species was assessed. First results showed no advantage of combining Cloprostenol with Cabergolin and/or Aglepristone. In the Eurasian lynx, on day 0 of luteolysis mean CL total area was 1.44 ± 0.15 cm², mean diameter of A. ovarica was 0.24 ± 0.02 cm and mean P4 levels were 7.2 ± 1.8 ng/ml. On day 5, all parameters distinctly declined to 1.3 ± 0.11 cm², 0.19 ± 0.02 cm and 1.2 ± 0.3 ng/ml P4, respectively. In the two Iberian lynxes, which underwent 3 days of Cloprostenol treatment, only a reduced vascularisation was detected and P4 dropped from 19.7 ±4.9 ng/ml to 2.4 ± 0.1 ng/ml. A significant drop in P4, hence signalling a functional luteolysis, was observed in all 5 animals. Only the Eurasian lynxes which underwent 5 days treatment showed partial structural regression of CL by a decrease in size of total CL area. The number of CL, however, was maintained over a period of at least 5 months. One animal showed side effects during the first injection of Cloprostenol, with moderate seizures and mild vomition, which were treated with 0.01 mg/kg BW Atropin.

CONCLUSION: A treatment of 2.5µg/kg BW Cloprostenol over 5 consecutive days lead to successful functional and partial structural luteolysis of physiologically persisting CL in Eurasian lynx. (funded by BMBF033L046)