ABSTRACT BOOK

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BUSERELIN-ACETATE AS AN OVULATION INDUCTOR IN AFRICAN LIONS (PANTHERA LEO).

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BACKGROUND-AIM
Ovulation induction (OI) is required for the application of assisted reproduction techniques in felids. Most OI protocols include the use of repeated doses of exogenous gonadotropins, which often trigger side effects such as immunogenic responses, hyperestrogenism, superovulation, or luteal insufficiency. Minimally-invasive hormonal protocols that induce safe ovarian responses in non-domestic felids are thus still needed.
METHODS
This study examined the effect of a single dose of buserelin-acetate (BA; 20 µg, im, Receptal®, Intervet, South Africa) to induce ovulation on days 4 (n=3), 5 (n=5), and 6 (n=2) of estrus in African lions. For 12 months, daily monitoring of five captive lionesses enabled detection of females in natural estrus (high frequency of specific behavioral signs such as purring, flirting run, lordosis, allowing mount, and rolling; and high proportion of superficial cells, absence of neutrophils, large number of bacteria, and clean background in the vaginal smears). In parallel, blood sampling (n=188; 37.6 ± 4.07 samples per female; range: 23-47) took place 1-7 times per week, during positive reinforcement training. A competitive enzyme immunoassay utilizing antibodies against 5ß-pregnane-3ß-ol-20-one-3HS:BSA was used for serum progestagen (sP) quantification. Transrectal ultrasounds of the reproductive tract were performed on day 6 of estrus.
RESULTS
Induced ovulation occurred in all cases, on average 60.1 h (n=10, range: 24-96 h) after BA administration. Ovulation was confirmed by absence of estrous signs (although some lionesses showed estrous signs up to 72 h after ovulation), a predominant proportion of parabasal and intermediate epithelial cells associated, or not, with neutrophils and a dirty background in the vaginal smears, a rise in sP concentrations, and presence of ovarian corpora lutea (0.8 ± 0.84 CL; n=8 complete examinations; range: 0-2 CL). The CL observed about 48 h after BA administration, had a median diameter of 8.8 mm; the CL observed about 30 h after BA administration had a median of 12.5 mm. Induced pseudopregnancy was about 59 days in length (n=10; range: 56-65 days).
CONCLUSIONS
BA proved to be a valuable tool to induce ovulation in African lions. Its use may help to improve assisted reproduction techniques for this and other threatened large felids.

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"UNITED WE STAND": COMBINING REPRODUCTIVE TRACT ULTRASONOGRAPHY AND VAGINAL CYTOLOGY TO DETERMINE OVARIAN CYCLE STAGE IN WILD FELIDS.

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BACKGROUND-AIM
Despite current conservation efforts, most non-domestic felids are threatened with extinction. Reproduction is key to species survival. However, many wild and captive felids reproduce poorly. Thus, a deeper understanding of their reproductive physiology is needed to implementing assisted reproduction (ART) into these species conservation. This study aimed to compare vaginal cytology and female reproductive tract ultrasonography (US) in six species of captive non-domestic felids (Panthera leo, n=20; P. pardus kotiya, n=1; P. pardus tulliana, n=1; P. uncia, n=1; Catopuma temminckii, n=6; Neofelis nebulosa, n=1; and Acinonyx jubatus, n=1) for assessing the reproductive cycle.
METHODS
Transrectal US and vaginal smears were performed during routine anesthetic procedures over a period of three years. The ovarian cycle stage was determined separately by assessing the presence and size of ovarian follicles and corpora lutea (CL), and the percentage of cornified vaginal epithelial cells. Where possible, samples from the same animal were then compared and the ovarian cycle stage corrected when necessary.
RESULTS
Assessed US and cytologies revealed many commonalities between species. Overall, pro-estrus was characterized by small ovarian follicles and 60-90% cornification, while big follicles and >90% cornification were observed in estrus. Females in diestrus presented CL and 10-60% cornification. Quiescence ovaries and <10% cornification were detected in anestrus. Transrectal US proved to be a finer tool, enabling determination of the cycle stage in 71% of the animals assessed, compared to the 67.7% predicted with vaginal cytology alone. The combination of both techniques allowed a more accurate cycle stage prediction (87.1%). This was supported by a positive correlation between the size of the biggest follicle and percentage of epithelial cornification in P. leo (n=8; r=.76; p=0.030), and Catopuma temminckii (n=5; r=.89; p=0.042).
CONCLUSIONS
Besides being practical tools to routinely assess the reproductive cycle, these two techniques in combination may also be used for further research into the normal reproductive cycle of wild felids, which may be used to improve ART success rates, and in turn the conservation breeding programs of these endangered species.

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