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Practical use of low-dosed progestins for the control of reproduction in domestic queens.

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Progestins are marketed as veterinary drugs for the control of reproduction in small animals. The available literature indicates that dosages used to treat clinical conditions in queens have varied remarkably over the last half century, and for many compounds the minimum effective dose has not been established yet. The aim of this study was to prove the efficacy of two progestins for oestrous suppression in the queen, using dosages which are lower than those commonly used in the literature. Ten domestic, healthy, intact, adult and non-diestrual (acceptable progesterone limit value <1.0 ng/ml) queens of 5 mo-7 yr of age and 2.4 to 4.2 kg body weight were selected for this research among feline patients referred to the Veterinary Teaching Hospital of the University of Padova, Italy. Seven queens were treated with one SC injection of 20 mg/kg proligestone (PLG - Covinan®, Merck), and 3 queens received 5 drops/kg (1 drop = 20 mcL) daily per os (0.010-0.012 mg/kg/day) of megestrol acetate (MA - Estroplill®, MSD) for 6-10 weeks consecutively. Prior to treatment, each queen underwent clinical exam, complete blood work, progesterone (P4) assay, vaginal cytology and uterine ultrasonography; owners were also given a questionnaire on behaviour and reproductive patterns for each cat. The above procedures were repeated 30 and 90 days following treatment with the addition of a GnRH-stimulation test (50 mcg gonadorelin IM followed by blood sampling 2 hours later to assay estradiol and P4); once queens were back in heat the owners could decide whether to submit their cats to ovariohysterectomy and histological exam of the reproductive tract. Data were analysed with two-way ANOVA and descriptive linear regression.

Results demonstrated an effective suppression of the hypothalamic-pituitary-gonadal axis in all queens, along with the inhibition of follicular development, ovulation and estrous behaviours. The average effect lasted 6.5 ± 2 months for PLG (comparable with full-dosed therapy), and 36 days after withholding treatment with MA (shorter than the one obtainable with longer treatments, 80 days)². Three queens (2 PLG and 1 MA) were mated and queued normal litters after the end of the contraceptive effect. General clinical conditions remained at optimal level throughout the study, except for one queen which developed cystic endometrial hyperplasia and pyometra after one month following PGL injection. This queen was erroneously treated despite her P4 being above threshold level (1.3 ng/ml). A case of hair discoloration was observed at the injection site. A moderate growth of mammary parenchyma was noted 4 months after the first administration of MA, which regressed spontaneously after surgical sterilization. Body weight did not change, and there were no behavioural changes except for aggressiveness which increased in one cat. P4 remained at basal level in 9/10 queens, confirming the absence of ovulation; on the contrary, estradiol reached basal values only in the MA group (< 20 pg/ml), while a low ovarian activity seemed to persist in PLG-treated queens (60-70 pg/ml) even if no oestrual signs were displayed. Vaginal cytology showed a pattern typical of anoestrus in 9/10 cats, with 70% non keratinized cells and 30% keratinized cells; in one PGL-treated queen keratinized cells increased during the first three months of treatment, and dropped right after. On ultrasonography, uterine patterns and diameters remained constant (0.3-0.8cm) in 9/10 cats. Histology did not revealed any pathological change of the ovaries or the uterus. Both PLG and MA can be used effectively in the queen at dosages lower than currently accepted protocols provided that diestrus is ruled out. Mammary and skin side effects may occur even at low dosages: However, low MA and PLG dose protocols in queens may be safer when considering future fertility. Accurate selection of patients is of utmost importance. [1] Romagnoli S (2015) - Progestins to control feline reproduction: historical abuse of high doses and potentially safe use of low doses. Journal of Feline Medicine and Surgery 17: 743-752; [2] Romagnoli S & Sontas H (2010) - Prevention of breeding in the female. In: BSAVA Manual of Canine and Feline Reproduction and Neonatology, Eds. G. England & A. von Heimendahl, Cambridge: British Small Animal Veterinary Association, pp. 23-33.