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Neonatal administration of deslorelin acetate in domestic dogs: preliminary results
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In mammals, postnatal steroids have organizational effect. Inappropriate hormonal environment during the early development can interfere with pituitary-gonadal function adversely impacting on subsequent adult reproductive function.\textsuperscript{1} GnRH analogs have been used as endocrine disruptors during the critical postnatal time window in rodents, primates and felids.\textsuperscript{2,3} The aim of this study was to assess the retardation of puberty of 2 different doses of a long term release GnRH agonist administered during the postnatal period in domestic dogs. Secondly, the clinical safety of these treatments was also assessed. Twenty-three littermates of mongrel dogs (parent’s body weight 13±1.9 kg) were randomly assigned to subcutaneous implants of deslorelin acetate (Suprelorin, Virbac, France) 10 mg (D10; n = 6), 20 mg (D20; n = 9), or placebo (PLC; n = 8) within the first 24 hours after birth. The dogs were serially followed up (behavioral and libido observation [daily], physical examination [weekly], vaginal cytology [3 times a week], spermograms [weekly], and testosterone and estradiol serum determinations; Elecsys, Roche Diagnostics, Mannheim, Germany [weekly]) up to puberty when they were spayed/castrated. Puberty was defined as the appearance of the sexual behavior corresponding to each gender. In females, puberty was defined as the first appearance of cytological estrous while in males full balano-preputial separation accompanied by spermatozoa at semen collection.

Survival curves for puberty attainment were estimated using the Kaplan-Meier method and treatment groups were compared by the log-rank test. Libido and safety were compared among treatments groups by Fisher’s Exact test, while body weight at puberty was analyzed by one way ANOVA followed by Tukey comparison test. The level of significance was set at 0.05 (MedCalc, version 7.3.0.1). All PLC (median 275 days) and D10 (median 458.5 days) dogs attained puberty, while only 2 of D20 (median 483 days) group did (P<0.01). The two deslorelin doses did not differ (P>0.1). At the time of writing this preliminary report non-pubertal D20 dogs are 373±42.7 (mean±SEM) days old. In both deslorelin groups sexual hormones were at basal levels up to 8 weeks before puberty when they began to increase. None of the animals presented clinical side effects including post GnRH flare up (P>0.1).

It was concluded that both postnatal 10 and 20 mg deslorelin postponed puberty without side effects in these homogeneous adult body weight dogs. At the present moment dose effect could not be detected. Postnatal use of long term release GnRH agonists may have a potential for contraceptive purposes in dogs.

\textsuperscript{1} Mann DR, Fraser HM. The neonatal period: a critical interval in male primate development. J Endocrinol 1996; 149:191-197.