

Long term reproductive effects of 3 dogs given deslorelin acetate at birth

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Although long term, detailed reproductive assessments of canine contraceptive treatments are scarce, they provide additional valuable information about protocol efficacy and safety. The aim was to describe the reproductive status of 2 males (Dog 1 and Dog 2) and 1 female. These were crossbred dogs, littermates, 28 months old, body weight 11.1 ± 1.7 kg and had just achieved puberty. Within 24 hours after birth, they had been given subcutaneous implants of 18.8 mg of deslorelin acetate (Suprelorin, Virbac, France), for contraceptive purposes.¹ All 3 dogs were exposed to other fertile dogs for mating throughout an entire estrous period. After blood sampling for hormone concentrations and pregnancy diagnosis, they were gonadectomized. The gonads were grossly and histomorphometrically (Image Pro Plus v6.0 Media Cybernetics, Silver Spring, MA) examined. Before surgery, serial physical examinations revealed a small vulva in the female as well as unilateral delayed (6 months old) testicular descent and bilateral inguinal cryptorchidism in Dogs 1 and 2, respectively. In these 2 dogs, seminal samples could not be collected due to azoospermia and aspermia, despite their ability to achieve an erection. Although the female ovulated (serum progesterone 15 ng/ml; Elecsys, Roche Diagnostics, Mannheim, Germany) and became pregnant, the males did not achieve mating. Serum Anti Müllerian hormone (AMH-Gen II, Beckman Coulter, Brea, CA) concentrations were 21.3 and 4.9 ng/ml in Dogs 1 and 2, respectively and 0.35 ng/ml in the female. Serum testosterone was normal in Dog 1 but non detectable in Dog 2, whereas estradiol 17 β concentrations (Elecsys, Roche Diagnostics, Mannheim, Germany) in the female were physiologic. Gonadosomatic index was ≤ 0.02 in the 3 dogs. The ovaries had 48% atretic, 44% primordial and 8% primary follicles, as well as corpora lutea. The high and low proportions of the 2 former follicles may indicate enhanced recruitment due to low AMH concentrations. Testes of Dog 2 had small seminiferous tubules composed of spermatogonia and Sertoli cells i.e. Sertoli cell only syndrome. Testes of Dog 1 had disorganized spermatogenesis up to the spermatid level, vacuolization and a spermatids Sertoli cell ratio of 3.07, much lower than in the less efficient species. The area of the Leydig nuclei was 40% smaller in Dog 2 than in Dog 1, indicating abnormal steroideogenic function and correlating with the nondetectable serum testosterone concentrations. It was concluded that this contraceptive protocol caused delayed puberty, abnormalities in both testicular descent, and spermatogenesis, as well as ovarian and hormonal findings that could be associated with premature reproductive failure in the female.

Keywords: Canine, gonad, neonatal, reproduction control, sterilization

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Reference

1. Faya M, Marchetti C, Priotto M, et al: Postponement of canine puberty by neonatal administration of a long term release GnRH superagonist. *Theriogenology* 2018;15:118:190-195.

