ABSTRACTS

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Behaviour and the pituitary-testicular axis in dogs before and after surgical or chemical castration with the GnRH agonist deslorelin

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OBJECTIVES AND METHODS: Chemical castration by use of a GnRH agonist implant is an alternative to surgical castration. As behavioural changes resulting from surgical castration are unpredictable the full reversibility of the effects of GnRH-agonist implants might render them suitable to reliably predict these changes (1). The aim of this trial was to compare the effects of surgical castration (SC, n=18) and chemical castration (CC, n=24; Suprelorin®, 4.7 mg deslorelin/implant, Virbac Nederland BV, Barneveld, The Netherlands) on behaviour and the pituitary-testicular axis in dogs.

Shortly before and 4-5 months after administration of the implant, aggression, fear/insecurity, play behaviour and sexual behaviour of the dogs were assessed by a modified behaviour test, based on a validated test for socially-acceptable behaviour (2) and by questionnaires. Furthermore, a GnRH-stimulation test was performed for measuring plasma LH and testosterone concentrations by previously described radio-immunoassays (3). This study was approved by the Ethical Committee of the Faculty of Veterinary Medicine, Utrecht University.

RESULTS: Behaviour. The behaviour tests showed no change in fear/insecurity and aggression after treatment and SC and CC did not differ significantly. However, about half of the owners reported a decrease in aggressive behaviour towards other male dogs in both groups (SC: 8 of 13 dogs; CC: 10 of 21 dogs) in the questionnaire. This result is similar to previously reported data in other studies (4,5). An increase of play behaviour was seen in the tests in both groups, which was similar to the increase of play behaviour reported in the owners’ questionnaire (SC: 8 of 18 dogs; CC: 10 of 23 dogs). A similar and significant decrease of sexual behaviour, such as mounting, was observed by the owners in both groups. However, significantly more owners of SC than CC dogs reported a > 90% decrease of sexual behaviour towards oestrous bitches.

Endocrinology. In both SC and CC dogs, before and after castration, plasma LH concentrations were significantly higher than the basal value at T=10 and T=60 min after GnRH administration. This result differed from previously reported data obtained in chemically castrated dogs that showed no increase of the plasma LH concentration after GnRH administration (6).

In both the SC and CC dogs basal and GnRH-stimulated plasma testosterone concentrations decreased after treatment (P<0.001). After treatment the basal plasma testosterone concentration in SC and CC were similar but the GnRH-stimulated plasma testosterone concentration was higher in the CC dogs than in the SC dogs at T=60 min (P=0.02) and T=90 min (P=0.008).

CONCLUSION: Overall, this study shows that surgical and chemical castration induce similar effects with regard to the decrease of plasma testosterone concentration and behavioural items, such as aggression, fear/insecurity, play behavior and sexual behaviour in dogs. However, the perceived effect on sexual behaviour towards oestrous bitches was greater following orchidectomy compared to chemical castration. Furthermore, despite the similarly low basal plasma testosterone concentrations in both groups after treatment, the pituitary testicular axis was not completely down-regulated in all chemically castrated dogs.
