Suppression of estrus in mares using a commercially available canine GnRH vaccine

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The objective of this study was to determine the effect of GnRH vaccination using a commercially available canine vaccine on cyclicity in the mare. The hypothesis was that this vaccine would induce GnRH antibody formation resulting in anestrus in previously cycling mares. Ovarian structures (follicles and corpora lutea) were monitored by transrectal palpation and ultrasonography three days per week. Jugular venous blood was collected from mares at time of palpation. After 4 weeks of initial monitoring, mares were divided into two groups, placebo-treated (n=5) and vaccinated (n=6). The vaccinated group received 5 mL IM (5x the canine dose) of Canine Gonadotropin Releasing Factor Immunotherapeutic® (Pfizer Animal Health, New York, NY, USA); whereas the placebo-treated group received an equal volume of sterile diluent provided by the vaccine manufacturer. In June 2008, initial intramuscular injections were administered into the semimembranosus muscle and not more than 2.5 mL of vaccine or diluent was injected at one site. Injections (placebo or vaccine) were repeated 3 weeks after the initial injection (July 2008). After each injection, mares were closely monitored daily for local and systemic vaccine reactions. None (0/11) of the vaccinated or placebo-treated mares developed any local or systemic adverse reactions following either the first or second injection. All placebo-treated mares (5/5) have continued to cycle normally through December 31, 2008. All GnRH vaccinated mares (6/6) stopped cycling (follicles <20 mm in diameter with no corpus luteum present) within 2 weeks after second vaccination. None (0/6) of the vaccinated mares had antibodies to GnRH prior to vaccination as determined by an enzyme linked immunosorbent assay (ELISA). GnRH antibody titers were detected in all (6/6) of the vaccinated mares by four weeks following the second injection. This protocol appears to be a safe and effective means of estrus supression in mares. The reversibility of this protocol is currently under investigation as is the use of this method as a immunologic alternative to ovariectomy in embryo recipients.

Keywords: Anestrus, estrus supression, equine, GnRH, vaccine