Safety and efficacy of a controlled release deslorelin acetate product (SucroMate™) for induction of ovulation in mares

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Deslorelin acetate (da) implants (Ovuplant) were shown to release this GnRH analog (da) for an extended period of time resulting in suppressed concentrations of FSH and reduced follicular activity and extended interovulatory interval in some mares after Ovuplant treatment. This study evaluated the safety of administering 1x (1.0 mL), 3x (3.0 mL) and 5x (5.0 mL) dose of SucroMate™ Equine (CreoSalus, Inc., Louisville, KY). SucroMate™ Equine is composed of 1.8 mg da in 1.0 mL sucrose acetate isobutyrate (SAIB):propylene carbonate (70:30 Wt:Wt). Thirty-two mares were assigned to one of four doses (placebo, 1x, 3x, 5x da) and received the same dose IM for three consecutive estrous cycles once mares had an ovarian follicle of 30 to 40 mm and had been in estrus at least two days. Variables measured to assess animal safety included complete physical examinations, heart and respiratory rate and rhythm, body temperature, nine general observations associated with potential adverse reactions, hematology and clinical chemistry, and urinalyses. Skin temperature and reaction at injection site were taken prior to each treatment and one, three and six h after treatment and daily for seven days until day 21. There were no differences between da dose groups and the placebo group with respect to any of the variables measured to assess animal safety during any of the three treatment cycles. All injection site reactions, which were mild to moderate for all groups, had resolved for mares in the 1X group by three days following treatment. Blood samples were collected for measurement of LH and FSH prior to treatment, six to 12 hr after treatment, twice-daily during estrus, and every third day after ovulation until the next estrus, or day 18 of pregnancy. Data were analyzed by repeated measures analysis of variance. The profiles of LH in the SucroMate™ Equine treated groups in all three cycles exhibited an expected surge following treatment and a gradual return to pretreatment levels by 24 hr. For days three to 18 post-ovulation, the values of LH in the da groups were similar to those in the placebo group. At 6-12 hr post-injection mares in the 1X group had higher (p < 0.05) FSH compared to all other groups. During all three treatment cycles, concentrations of FSH during days three to 18 after treatment were similar for 1X and placebo groups. Time to ovulation and duration of estrus was shortened in all da treated mares compared to placebo mares (85 and 21% ovulated within 48 hr). The interovulatory interval in da mares ranged between 18 to 23 days compared to 21 to 24 days for those treated with placebos. Number of mares pregnant was 6 of 7 (86%), 6 of 6 (100%), 6 of 8 (75%), and 5 of 5 (100%) for placebo, 1X, 3X and 5X da groups, respectively. In conclusion, administration 1.8 mg deslorelin acetate (1X) was safe and effective for induction of ovulation during three consecutive estrous cycles with no adverse effect on animal safety, decrease in FSH during diestrus, change in interovulatory intervals, or decrease in pregnancy rates.

Keywords: Deslorelin, ovulation, mares