The effects of dexamethasone and prednisolone on pituitary and ovarian function in the mare
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Persistent mating induced endometritis (PMIE) is among the most common causes of infertility in the mare. Recently, it was reported that glucocorticoids used to modulate the post-mating inflammatory response resulted in an increase in pregnancy rates. The objective of this study was to evaluate the effects of repeated treatment with glucocorticoids on pituitary and ovarian function in mares. Eighteen cycling Quarter Horse mares in early estrus were randomly assigned to one of three treatment groups: dexamethasone 0.05 mg/kg IV BID, prednisolone 0.5 mg/kg PO BID, or placebo for five days. Mares were examined by ultrasound daily to evaluate reproductive function. Blood samples were collected to measure luteinizing hormone (LH), progesterone, and cortisol levels. Dexamethasone treatment resulted in greater (p < 0.05) suppression of endogenous cortisol (9.4 ± 1.1 ng/mL) compared to prednisolone (41.9 ± 4.0 ng/mL) or placebo mares (32.4 ± 3.8 ng/mL). Mares treated with dexamethasone exhibited significantly lower uterine edema scores than prednisolone or placebo treated mares after 24 hours. A significant reduction in ovulation rate was noted in dexamethasone treated mares (2/5, 40%) compared to prednisolone (5/6, 83%) or placebo treated (6/6, 100%) mares. An absence of an LH surge was observed in 3 of 5 dexamethasone treated mares and 1 of 6 prednisolone treated mares. In conclusion, repeated administration of dexamethasone was associated with decreased uterine edema, suppression of LH and a high rate of ovulation failure. It is recommended that treatment with dexamethasone be limited to one or two days in the management of PMIE.

Keywords: Equine, ovulation failure, prednisolone, dexamethasone