We have previously demonstrated that administration of 60 units of oxytocin twice daily on days 7 to 14 after ovulation induced prolonged corpora luteal (CL) function in mares, which may be a plausible method of suppressing estrus.\(^1\) The objectives of this study were to: 1) compare twice versus once daily administration of oxytocin on the duration of CL function and 2) determine the effect of oxytocin treatment on endometrial oxytocin receptor concentration. In experiment 1, jugular blood samples were collected every other day on days 0 (ovulation) to 50 for determination of progesterone concentration. On day 7, mares were randomly assigned to three groups: 1) untreated control (n = 7), 2) BID oxytocin-treated (n = 7) and 3) SID oxytocin-treated (n = 8), and the oxytocin-treated mares received 60 units oxytocin IM twice daily (BID group) or once daily (SID group) through day 14. Mares were considered to have prolonged CL function if progesterone remained >1.0 ng/ml through day 30. One of 7 control, 5 of 7 BID oxytocin-treated and 5 of 8 SID oxytocin-treated mares had prolonged CL function. There was no significant difference in the proportion of mares with prolonged CL function between the two oxytocin-treated groups, and collectively, oxytocin treatment increased (P<0.05) the proportion of mares with prolonged CL function compared to no treatment. In experiment 2, mares were randomly assigned to two groups (n = 5/group): 1) saline-treated control and 2) oxytocin-treated. Beginning on day 7, control mares received 3 cc sterile saline IM BID and oxytocin-treated mares received 60 units oxytocin IM BID through day 14. On day 15, approximately 1.0 g of endometrium was obtained transcervically from each mare for determination of oxytocin receptor concentration. There was no significant difference in the oxytocin receptor concentration between control and oxytocin-treated mares (1,465.7 ± 108 and 1,382.8 ± 108 fmol/mg protein, respectively). In summary, once daily administration was as effective as twice daily administration of oxytocin for prolonging CL function, and oxytocin treatment did not alter the concentration of endometrial oxytocin receptors.

**Keywords:** Equine, mare, oxytocin, corpus luteum, oxytocin receptor

**Reference**