Parturition augmentation in mares—efficacy and safety
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Foaling complications require prompt intervention to maximize foal viability. The majority of spontaneous foaling occurs late at night when personnel and support services are not readily available, making prompt identification of obstetrical problems difficult. Augmentation of parturition is the advancement of progression from stage I labor to stage II and is safely used in human obstetrics. We hypothesized that parturition augmentation can be used to safely and efficaciously advance foaling to ensure presence of personnel and support services. Our objectives were: 1) to determine the efficacy of augmentation; 2) determine the expected range of time between augmentation and foaling; and 3) to determine if there were side effects to mare or foal from the augmentation.

Mares were assigned to augmentation group (AUG) or control (CTL) and outcomes of foaling recorded. This is an ongoing study and this abstract reports the preliminary findings from 2013 and 2014. Seven mares were augmented (AUG group) with 3 IU of oxytocin i.v. when milk secretions were at pH < 6.5, and calcium > 250 ppm, with other signs of impending parturition (elongated vulva, relaxed pelvic ligaments, waxed teats). Eleven control mares (CTL group) were allowed to foal naturally. These mares foaled in the same barn during the same time frame. Differences between groups were evaluated using 2-way ANOVA in JMP Pro version 11.

Efficacy of augmentation resulted in 1 of the 7 augmented mares requiring a second dose of oxytocin. Average time from oxytocin injection to foaling was 40 minutes (range 20-70 minutes). There were no differences (P > 0.10) in the time between rupture of the chorioallantois and foaling (12 min CTL, 13 min AUG); foal weight (94 lbs CTL and 97 lbs AUG); interval between birth and standing (57 min CTL, 49 min AUG); and placental weight (11 lbs CTL and 13 lbs AUG) between the AUG and CTL mares. There was however, a delay in the time to suckle (81 min CTL and 124 min AUG; P = 0.03) and passing fetal membranes (49 min CTL and 116 min AUG; P = 0.04) in the AUG group compared with CTL group. One mare in the CTL and one mare in the AUG group (the mare that required the second oxytocin injection) had premature separation of the chorioallantois. In both cases, the chorioallantois was ruptured immediately and the foals were viable but required supportive treatment. In addition, one foal each in the CTL and AUG group had malposture (flexion of the elbow) that was corrected and the foals were viable. Preliminary results are promising for this augmentation protocol to advance parturition to ensure adequate personnel and support services to be available if needed. The augmentation protocol is efficacious and the only mare requiring a second dose of oxytocin had other underlying conditions. Response to augmentation was rapid with only one mare taking longer than one hour to foal after oxytocin injection. As a teaching tool, this protocol has allowed a greater number of students to observe live foalings and the timing from the rupture of the chorioallantois to completion of foaling was similar between AUG and CTL mares. Delay in the time from foaling until the first suckle is a concern. Three foals in the AUG and only one foal in the CTL group were tube fed colostrum at two hours after birth. There was also a significant delay in the time from parturition until passing of the fetal membranes; however, all of the mares passed the fetal membranes within the normal three hour window after foaling. In conclusion, the augmentation protocol at this preliminary stage of the experiment has been shown to be efficacious, with rapid response, but with minor side effects.

Keywords: Mare, parturition, augmentation, oxytocin