

with pH to predict donkey parturition. Jennies had a high placental efficiency, as demonstrated by the high placental, dam, and foal ratios.

Keywords: Predicting parturition, foaling, periparturition, donkey, pH, electrolytes

Clinical and physiological ultrasonography of normal and abnormal donkey pregnancies

Humberto Magalhaes, Lucas Canuto, Igor Canisso

Department of Veterinary Clinical Medicine, University of Illinois, Urbana, IL

Ultrasonography of the fetoplacental unit is carried out to detect abnormalities and to stage pregnancy. Transrectal and transabdominal ultrasonography have well-established physiological parameters and clinical applications in horses, but these techniques have not been characterized or established in donkeys. Season and sex of the foal are known to affect pregnancy length in horses but their effects are not known in donkeys. Pregnancy loss in horses is associated with abnormal progesterin profiles but is not studied in donkeys. Major objective was to establish clinical and physiological ultrasonographic parameters of jennies carrying and delivering normal pregnancies and jennies undergoing premature delivery of stillborn foals. Additionally, effects of season and sex of the foal on gestational length (GL) were assessed. We hypothesized that season and sex of the foal affect GL, and pregnancy loss results in abnormal ultrasonography parameters and progesterin profiles. Multiparous jennies (n = 140) ranging 4 - 16 years in age were enrolled by 120 days of pregnancy. Jennies were artificially inseminated with fresh semen during the spring, summer, and fall, in a single calendar year, all on 1 farm. All jennies were submitted to transrectal ultrasonography (Well. D, Medical Electronics Co., Shenzhen, China) coupled with a 7.5 MHz linear transducer at 15 day intervals until delivery. A subset of jennies (n = 50) had transabdominal ultrasonography (Well. D, Medical Electronics Co.) coupled with a 3.5 MHz sectorial convex transducer, also performed at 15 day intervals until delivery. Parameters assessed during each evaluation included combined thickness of uterus and placenta (CTUP) and fetal parameters (eyeball diameter, thorax, heartbeat, and aortic diameter). Serum samples were collected from each jenny during each evaluation for the determination of progesterone concentrations by RIA. Foals were weighed after birth. Data were assessed for normality with Shapiro-Wilk's test, and then ANOVA and Tukey's (aortic diameter, heartbeat, and thorax) or Kruskal-Wallis followed by Dunn's (eyeball and CTUP). Mixed models were used to assess the effects of season and interactions with foal sex and GL. Statistical significance was set at $p < 0.05$. The incidence of late pregnancy loss was 3.5% (5/140 jennies). The GL was 365.4 ± 10.4 days (range; 345 - 390 days) for jennies carrying and delivering normal pregnancies and was 345 ± 32.3 days (range; 290 - 352 days) for the group experiencing pregnancy

loss. Spring bred jennies had the longest ($p < 0.05$) GL (375 ± 8.7 days), followed by summer bred (360 ± 32.3 days) and then fall bred (358.6 ± 5.8 days). Colts had longer GL than fillies (363 ± 10.2 versus 358.5 ± 9.3 days). There was no effect of GL on the foal's birth weight. There were significant associations between GL with eye orbit diameter ($r = 0.70$), fetal thorax ($r = 0.80$), fetal aortic diameter (0.60) and CTUP ($r = 0.60$). Fetal heartbeat ($r = -0.9$) was negatively correlated with GL. CTUP significantly increased from 150 days of pregnancy to term. Two jennies with premature deliveries had CTUP outside normal ranges and placental separation consistent with ascending placentitis; before abortion, these jennies also had an increase in progesterone concentrations in comparison to other jennies. The remaining 3 jennies undergoing premature delivery did not experience these changes. In conclusion, the study established clinical, physiological, and ultrasonographic parameters for donkey pregnancy. The incidence of late pregnancy loss was 3.5%. Spring-bred had the longest GL in jennies and colt-bearing pregnancies resulted in the longer GL than fillies; 40% of the abnormal pregnancies had abnormal CTUP, placental separation, and abnormal progesterone profiles.

Keywords: Fetoplacental unit ultrasonography, pregnancy loss, CTUP

No adverse effect of air exposure on stallion sperm motility after 48 hours of cooled storage

Emily May, Christian Bisiau, Paula Moffett, Jennifer Hatzel, Patrick McCue

Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO

Stallion semen may be collected, extended, and cooled for up to 48 hours prior to insemination. It is common practice to remove all the air from the package of extended semen prior to cooled storage. The aim of this pilot study was to assess the effects of air exposure on sperm motility parameters during 48 hours of cooled storage. We hypothesized that air exposure is associated with decreased sperm motility after 48 hours of cooled storage. A total of 12 ejaculates were collected (4 ejaculates from each of 3 stallions) using an artificial vagina. Semen was evaluated and diluted with a commercial extender (INRA 96, IMV Technologies, Maple Grove, MN) to a concentration of 25×10^6 progressively motile sperm per ml. The extended semen was aliquoted into 3 treatment groups. Group A: 40 ml of extended semen was placed into a 50-ml all-plastic syringe with all air removed (Henke-Ject®, Air Tite-Products Co., Inc., Virginia Beach, VA). Group B: 20 ml of extended semen was placed into a 50-ml syringe with all air removed. Group C: 20 ml of extended semen was placed into a 50-ml syringe along with 20 ml of air. The loaded syringes were placed into passive cooling containers (Equine Express II™ Cooled Semen Shipper™ boxes, Nasco, Fort Atkinson, WI) along with a frozen ice pack (PolarPack®, Sonoco, Hayward, CA). An aliquot (1 ml) of