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Estrogens as Potential Diagnostic Markers in Mares With Experimentally Induced Ascending Placentitis

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These preliminary results suggest that determination of 17β-estradiol sulfate but not estrone sulfate may be a useful diagnostic marker for ascending placentitis in mares. Authors’ addresses: Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky, Lexington, KY 40546 (Ball, Canisso, Esteller-Vico, Troedsson); K.L. Maddy Equine Analytical Chemistry Laboratory, University of California, Davis, CA 95616 (Stanley); e-mail: b.a.ball@uky.edu. *Corresponding and presenting author. © 2013 AAEP.

1. Introduction
There is a critical need for sensitive measures for early detection of ascending placentitis in mares. The objective of this study was to evaluate plasma concentrations of estrogens in mares: (1) with experimentally induced placentitis (with/without fetal fluid sampling); and (2) carrying normal pregnancies (with/without fetal fluid sampling).

2. Materials and Methods
Mares (260–280 days of gestation) were assigned to the following experimental groups: (1) control mares with (n = 2) or without fetal fluid sampling (n = 2) and (2) mares with induced ascending placentitis with (n = 4) or without fetal fluid sampling (n = 6). Placentitis was induced by means of intracervical inoculation of Streptococcus equi spp. zoopneumoniae. Blood samples were obtained at inoculation (day 0) and then daily for 6 days. The concentration of estrone sulfate was determined by immunoassay, and the concentration of 17β-estradiol sulfate was determined by mass spectrometry. The data were analyzed by means of a mixed model with mare as a random effect.

3. Results and Discussion
Treated mares (9/10) aborted 6.7 ± 0.5 days after inoculation, and one control mare aborted subsequent to fetal fluid sampling. The treated mare that failed to abort and the control mare that did abort did not have signs of placentitis and were excluded from the analysis. Estrone sulfate concentrations did not differ between control and inoculated mares; however, 17β-estradiol sulfate decreased significantly (P < 0.05) within 1 day after inoculation.
inoculation in treated mares compared with control mares. These data indicate that estrone sulfate was not a useful biomarker for acute placentitis in mares, whereas 17\beta-estradiol sulfate decreased precipitously in mares subsequent to experimental induction of ascending placentitis.

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