Maternal serum and allantoic fluid concentrations of activin A in experimentally induced equine placentitis Harutaka Murase, Kristen Scoggin, Barry Ball

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Activing belong to transforming growth factor ² superfamily. Activing have a common ² subunit and are homodimers with 3 isoforms (A, B, and AB). Although activins are principally gonadal hormones, they are also secreted from other reproductive tissues with functions such as placental development, immunity, or inflammation. Intrauterine infection is suggested to elevate placental mRNA expression and amniotic fluid concentration of activin A in pregnant women. We hypothesized that activin A is increased in serum and fetal fluids of pregnant mares with placentitis. Objective was to determine maternal serum and allantoic fluid concentrations of activin A in mares with experimentally induced placentitis. At ~ 270 days of pregnancy, placentitis was induced in mares (n = 14) via intracervical inoculation of Streptococcus equi zooepidemicus (n = 14 mares), whereas uninoculated mares (n = 15) served as controls. Serum was collected daily and allantoic fluid was collected by transabdominal ultrasound-guided centesis in a subset of mares 5 days after inoculation. Serum concentrations of activin A were determined at -8, -6, -4, -2, -1, and 0 days preceding abortion and in allantoic fluid by ELISA (#DAC00B, R&D Systems, Inc., Minneapolis, MN). Differences in serum activin A concentrations were determined by a random effects mixed model ANOVA and differences in allantoic fluid concentrations were compared by a one tailed Student's t test (JMP 14). There were effects of time (days from abortion) and group by time interactions (p < 0.01 for each) on serum concentrations of activin A, with greater concentrations in placentitis mares compared to controls, beginning on day 6 prior to abortion. Allantoic fluid concentrations of activin A were higher (p < 0.05) in mares with placentitis compared to control mares at day 5 after inoculation. Activin A increased in maternal serum and in allantoic fluid from mares with experimentally induced placentitis secondary to S. equi zooepidemicus. Activin A has been described as an acute mediator of inflammation in horses and other species. Although source of increased activin A in mares with induced placentitis is unknown, it is likely derived from uteroplacental unit.

Keywords: Activin A, chorioallantois, equine, placentitis

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