

and the plasma progesterone profile was greatest ($P < 0.05$) in the high-dose group. We concluded that OIF from seminal plasma had a dose-dependent effect on ovulation rate and CL form and function in llamas, and the effect was at physiologically relevant doses.

Keywords: Seminal plasma; Camelids; Ovulation-inducing factor; Ovulation; Semen

Reference

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INFLUENCE OF AGE, SEX, BREED ON THE OCCURRENCE OF RECTAL TEARS: 99 CASES (1985–2006)

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Equine rectal tears remain an important problem in veterinary practice. Although previous studies have characterized different treatments and outcomes following rectal perforation in the horse, there is relatively little information available concerning the associations of age, breed or sex on the occurrence of rectal perforation in the horse. Therefore, the objective of this retrospective study was to characterize the age, breed, sex and type of examination in horses presented for rectal tears to a referral hospital and compare these parameters with those of the general hospital population. For this study, medical records of 99 horses presented to the Veterinary Medical Teaching Hospital (VMTH) between April 1985 and August 2006 for rectal tears were reviewed. Age, breed, sex and type of examination were recorded for comparison with all of the equine inpatients presented during this interval. The Chi-square test of Homogeneity or Kruskal-Wallis Test was used to determine if age, sex or breed of the population with rectal tears differed from those of the overall equine inpatient population during this interval.

Horses with rectal tears included 42 Arabian Horses, 23 Quarter Horses, 13 Thoroughbreds, 4 American Paint Horses, 3 American Miniature Horses, 5 crossbreds and 9 ‘other’ breeds. There were 64 mares, 29 geldings and

only 6 stallions in the study population. Horses ranged from 6 months to 32 years of age. Median age at admission was 12 years. The majority of the rectal tears had been associated with colic examinations ($n = 44$) or reproductive examinations ($n = 35$). Eleven rectal tears had been associated with medical examinations ($n = 4$), dystocias ($n = 4$) and ‘others’ ($n = 3$); the remaining nine rectal tears were of unknown origin due to a lack of information in the data base.

Overall, the percentage of horses with a rectal tear represented 0.1% of all cases presented to the VMTH. Rectal tears were more common in older horses, with a greater frequency of rectal tears in horses >9 years of age ($P < 0.0001$). Mares and geldings represented the largest proportion of rectal tears; mares were more likely to have a rectal tear ($P < 0.0001$) than stallions or geldings. Although the total hospital population was mainly comprised of Thoroughbreds and Quarter Horses, rectal tears occurred proportionally more often in Arabian and American Miniature Horses ($P < 0.0001$). In conclusion, Arabian and American Miniature Horses were overrepresented in the population of horses presenting for rectal tears and horses >9 years of age had a greater occurrence of rectal tears.

Keywords: Rectal tears; Age; Sex; Breed; Horse

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USE OF BOVINE OOCYTES TO EVALUATE IN VITRO FERTILIZING CAPACITY OF EQUINE SPERM

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Inappropriate capacitation of sperm is likely one reason for poor success with equine IVF. We tested the suitability of bovine oocytes for evaluating fertilizing capacity of equine sperm by comparing: (1) gradient density versus swim up for sperm separation; (2) heparin concentrations; and (3) zona pellucida (ZP) intact and ZP-free oocytes. Percoll density gradient swim-up separation was used in four replicates with 2 and 10 $\mu\text{g/mL}$ of heparin in the fertilization medium and ZP-intact or ZP-free oocytes (2×2 factorial design). Bovine oocytes ($n = 280$) were aspirated from 2 to 8 mm follicles from abattoir-derived ovaries. Oocytes were matured for 23 h at 38.8 °C in 5% CO_2 in

air in MCDM [1], supplemented with 0.5% fatty acid free BSA, 15 ng/mL NIDDK-oFSH-20, 1 µg/mL USDA-LH-β-5, 1 µg/mL E₂, 50 ng/mL EGF and 0.1 mM cysteamine. Frozen semen from one stallion was used. For each replicate, one straw (200 × 10⁶ sperm) was thawed. For the density gradient, sperm were separated through a 90/45% Percoll gradient. For the swim up, thawed semen was overlaid with 1.5 mL of FCDM [1] containing 10 µg/mL heparin. Sperm were allowed to swim into the FCDM for 4 h. Zona pellucidae were removed by vortexing with 0.5 mg/mL hyaluronidase for 60 s and incubating with 1.5 mg/mL pronase for 5 min. Oocytes were washed in FCDM and transferred in groups of 15 into 25-µL drops of FCDM supplemented with 0.5% FAF-BSA, 2 mM caffeine and 2 or 10 µg/mL heparin under mineral oil. Groups of oocytes were co-incubated with 1 × 10⁶ sperm/mL for 18 h at 38.8 °C in 5% CO₂ in air. Presumptive zygotes were cultured in well-of-well plates [2] in CDM1 [1] for 2 days and in CDM2 [1] for 4.5 days at 38.5 °C in 5% O₂, 5% CO₂ and 90% N₂. Cleavage and cell numbers were evaluated 3 days after fertilization. Uncleaved oocytes/presumptive embryos were assessed to confirm fertilization using qRT-PCR for the bovine histone H2a.o variant and the equine CGB subunit. Data were analyzed by ANOVA and Tukey's hsd. No embryos developed using sperm separated by density gradient. Numbers of oocytes that cleaved and developed to eight cells were similar ($P > 0.05$) for ZP-intact and ZP-free oocytes (cleavage, 41.9% and 54.0%; eight cells, 23.6% and 30.3%, respectively) and for fertilization medium with 2 or 10 µg/mL heparin (cleavage, 55.2% and 40.7%; eight cells, 29.8% and 24.8%, respectively). Embryos did not develop past the 8-cell stage. Quantitative RT-PCR showed gene expression of bovine H2a.o in all uncleaved ova and presumptive embryos; equine CGB in 0 of 8 uncleaved ova; and 10 of 10 eight-cell stage embryos. Separation of equine sperm by swim up incubated with heparin (10 µg/mL) for 4 h increased the fertilization capacity compared to density separation; however, none of the heparin concentrations in the fertilization medium affected fertilization rates. We concluded that ZP-intact bovine oocytes may provide a practical system to study fertilizing capacity of equine sperm.

Keywords: Sperm; In vitro fertilization; Assisted reproduction; Capacitation; Equine

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TREATMENT EFFICACY OF TRIMETHOPRIM SULFAMETHOXAZOLE, PENTOXIFYLLINE, AND ALTRENOGEST IN EQUINE PLACENTITIS

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Introduction: Successful treatment for equine placentitis remains elusive. In recent work in our laboratory, mares with experimentally induced placentitis, using an intracervical inoculation with *Streptococcus equi subspecies. zooepidemicus*, tended to carry pregnancies longer when treated with trimethoprim sulfamethoxazole (TMS; antimicrobial) and pentoxifylline (PTX; anti-inflammatory/anti-cytokine). The objective of the present study was to determine if long-term treatment with TMS, PTX, and altrenogest (ALT), a synthetic progestin, would improve pregnancy outcome in mares with experimentally induced placentitis. Altrenogest therapy was included for inhibition of uterine contractile activity. We hypothesized that combined treatment with TMS, PTX, and ALT would delay premature parturition in mares with experimentally induced placentitis and improve neonatal viability.

Materials and methods: Seventeen normal pregnant pony mares were enrolled in the study at 280–295 days of gestation. Placentitis was induced in all mares by intracervical inoculation of *S. equi subs. zooepidemicus* (10⁷ CFU). Five mares served as infected, untreated controls (Group CON). Twelve mares (Group TXT) were infected and given trimethoprim sulfamethoxazole (30 mg/kg, PO, q 12 h), pentoxifylline (8.5 mg/kg, PO, q 12 h), and altrenogest (0.088 mg/kg, PO, q 24 h) from the onset of clinical signs to delivery of a live foal or abortion. Fetal stomach and thoracic contents were obtained for culture from dead fetuses and blood samples were cultured from live foals after parturition. Uterine swabs were obtained for culture from mares within 2 h