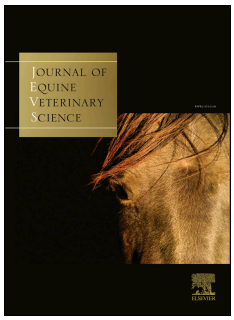
Accepted Manuscript



Lactoferrin Modulates Uterine Inflammation Post-Breeding in the Mare

Marco A. Coutinho da Silva, Brandon S. Forshey

PII: S0737-0806(16)30546-9

DOI: 10.1016/j.jevs.2017.05.007

Reference: YJEVS 2325

To appear in: *Journal of Equine Veterinary Science*

Received Date: 12 September 2016

Revised Date: 4 May 2017

Accepted Date: 5 May 2017

Please cite this article as: Coutinho da Silva MA, Forshey BS, Lactoferrin Modulates Uterine Inflammation Post-Breeding in the Mare, *Journal of Equine Veterinary Science* (2017), doi: 10.1016/j.jevs.2017.05.007.

Lactoferrin Modulates Uterine Inflammation Post-Breeding in the Mare

Marco A. Coutinho da Silva[a*], Brandon S. Forshey[b]
[a]Department of Veterinary Clinical Sciences, College of Veterinary Medicine
The Ohio State Unversity, Columbus, Ohio 43210
[b]Department of Animal Sciences, College of Sciences, University of Findlay, Findlay, Ohio 45840

Abstract:

Lactoferrin has been shown to play a key role in modulating the inflammatory process in other species. Our objective was to determine the effects of lactoferrin on the post-breeding inflammatory process of the endometrium. Six reproductively sound mares were randomly allotted to receive either the control treatment (semen only: 1.25 x 10^9 dead sperm diluted in skim milk based extender) or lactoferrin (semen + 1 g lactoferrin) in a cross-over design. Mares received 2500 IU of human chorionic gonadotropin (hCG) at the time of insemination and were then evaluated daily to determine the time of ovulation and the amount of intrauterine fluid accumulation (0 = none; 4 = large). Endometrial culture, cytology, and biopsy were collected approximately at 24 h post-insemination. The amount of bacterial growth was given a score (0 = no growth; 4 = heavy growth) and the percentage of white blood cells in the smear was determined. Endometrial biopsies were immediately frozen then evaluated by RT-PCR to determine expression of IL-1β, IL-6, IL-8, IL-10, and TNF-α. Ovulation was detected in all mares within 48 h of hCG administration. There were no significant differences between control and lactoferrin groups for: intrauterine fluid twenty-four hours after AI (2.2 vs. 1.7), bacterial growth (1.2 vs. 0.8), and percentage of WBCs (37.3 vs. 21%). However, endometrial expression of IL-1 and IL-8 were significantly decreased by lactoferrin treatment. Overall, the post-breeding inflammatory reaction in the uterus of mare's receiveing lactoferrin was milder than in control mares.

Keywords: Lactoferrin, Endometritis, Inflammation, Equine, Mare, Cytokine