Inflammatory endometrial response to two different uterine lavage solutions in donor mares
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Embryo transfer has become a commonly applied technique in equine reproduction. Although it is expected that embryo lavage solutions elicit an acute, but transient inflammatory uterine response in the mare, we hypothesized that different solutions may have a different inflammatory effect. The objective was to compare the acute inflammatory response of healthy mares after embryo collection using two commonly used lavage solutions (A= lactated Ringer’s; B= EquiPRO®; Minitube of America, Ingersoll, ON, Canada). Mares (n=21) with normal reproductive tracts confirmed by transrectal, vaginal, ultrasonographic and cytological examinations were induced in estrus and inseminated with fresh, extended semen (500 million motile sperm) from the same stallion as soon as the ovulatory follicle had reached a diameter of 35 mm and the uterus demonstrated clear edema. Ovulation was induced (2500 IU human chorionic gonadotropin IV) and monitored by ultrasonography every 24 hours. At day 7.0 after ovulation, mares were randomly assigned for embryo collection with one of the two lavage solutions in a cross-over double blind study. A normal estrous cycle was allowed between the two collections. Uterine cytology, ultrasonography and transrectal palpation were performed at T0 (immediately before the embryo collection), 24h and 48h after the embryo collection. For the statistical analysis, the data were transformed (arcsinus of square root). The ratios of neutrophils (number of PMN/total number of cells at 400X) at T0 were significantly smaller compared to the two other sampling times for both solutions (A: T24 p=0.0001, T48 p=0.0001; B: T24 p=0.005, T48 p=<0.004) without significant differences between solutions (T0 p=0.99, T24 p=0.24, T48 p=0.11). Although repeated embryo collection and quality of the embryos were not affected by the use of both solutions (unpublished data) it is not known if the use of either solution has long term effects on fertility of donor mares.

Keywords: Endometritis, uterine lavage, neutrophils, mares.