

Variations in uterine blood flow and their effect on early pregnancy rates in brood mares

J. Ratjen, ¹H. Sieme, R. Stolla, ²D. Varner, and H. Bollwein

Department of Animal Reproduction, Veterinary College, University of Munich,

¹State Stud of Lower Saxony, Celle, Germany,

²Department of Large Animal Medicine, A&M University, Texas, USA

While there are a lot of studies about the effect of uterine blood flow on fertility in women, no such informations are available in mares up to now. Therefore, we aimed to examine the variations of uterine perfusion and their effect on early pregnancy rates in mares.

Thirty five mares with a mean age of 14.2 ± 3.5 yrs (range, 10 to 22 yrs) were investigated on Days -2 and -1 (0 = ovulation). All mares received 1500 IU hCG i.v. on Day -2 at a mean follicle diameter of about 40mm. Inseminations were carried out twice on Days -2 and -1 using 300×10^6 progressively motile fresh sperm suspended in 20 ml skim milk extender from stallions of proven fertility. Uterine blood flow was studied transrectally by examining the uterine artery ipsilateral to the preovulatory follicle using a colour Doppler ultrasonograph equipped with a 7.0-MHz microconvex-probe. Blood flow was expressed as the blood flow volume. A pregnancy diagnosis was carried out sonographically in B mode between Days 14 and 16.

Uterine blood flow volume ranged from 16 to 222 ml/min (mean $\pm$ SD: 91 ± 51 ml/min). It was not related to age and parity of the mares ($P > 0.20$), but lactating mares showed a higher uterine blood supply than barren mares ($P < 0.05$). In 24 (68.6%) mares a conceptus could be observed sonographically between Days 14 and 16 after ovulation, while 11 (31.4%) mares were not pregnant at this time. Uterine perfusion before insemination did not differ ($P > 0.94$) between pregnant and non pregnant mares.

The results suggest that uterine blood flow is not a limiting factor of fertility the first two weeks after ovulation.

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