

7. Summary

About dynamics of the structure of the endometrial edema in uterus of mare's estrus. Sonographic investigations

During the estrus cycle in mares the phenomenon of the so called "wheel spoke structure" (RSS) can be identified in sonographic images of the endometrial edema of uterine cross sections. A decrease in these RSS- phenomenon has been described in connection with ongoing ovulation.

Therefore the aim of the presented clinical examination of this observation was to investigate possible interacting factors like season of the year, breed, and breeding situation of the mare.

The investigations were performed in 39 clinically healthy mares of the races heavy cold-blooded Schleswig breed, thoroughbred trotter horses and warm-blooded Holstein breed, under practical conditions in Schleswig- Holstein.

Two different methods of evaluation have been used. On the one hand the RSS was clinically subjected and estimated in their development using a skim of notification from 0 to III. The other evaluation method consisted in the qualification of produced contrast values on freezed sonographic features from uterine cross sections.

The results show a decrease in RSS- structures before the ovulation in most of the mares. Confirmed by transrectal performed palpation and sonography. In the same way the contrast values of the RSS structures dropped down 1-2 days before ovulation occurs.

Regarding factors interfering to this phenomenon it can be noted that during springtime the RSS vanished 2 days and during summertime 1 day before ovulation. Mares with a foal examined during the estrus after the foal heat showed less clear RSS than idle mares or maidens. In these 2 latter groups the drop down in contrast values was to be recognized on day 2 before ovulation.

The heavy cold-blooded Schleswig breed showed only on the day of ovulation a fading away of the RSS. In thoroughbred trotter horses a tendency of disappearance of the RSS on day -1 before ovulation and in the warm-blooded Holstein breed on day -2 before ovulation can be observed.

The presented investigations show that the RSS dynamics during estrus cycle in mares is influenced by season, status of breeding and breed. These observations can serve for better

determination of the ovulation period and therefore be used to optimise the moment of insemination and natural service.

The cases of non-reacting mares with persistence in RSS- structures during the estrus period are discussed in combination with intrauterine inflammatory reactions.

Finally, for determination of the optimal insemination time point it can be assumed that the observation of the RSS is of likewise importance as other clinical parameters like size, form and consistency of the dominant follicle. None of the investigation criteria mentioned before is expressive enough for itself to give absolutely and reliable information about the exact ovulation time point. However, taken all criteria into account as well as changes in the RSS as presented in this clinical study these clinical parameters are helpful to predict the ovulation more precisely in order to minimize the number of inseminations per estrus and to enhance the conception rate substantially.