Proceedings of the 8th International Symposium on Canine and Feline Reproduction

ISCFR

June 22-25, 2016
Paris, France

In a joint meeting with the XIX EVSSAR Congress

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Monitoring of late gestation in Labrador retriever bitches: can variation in serum progesterone and in body temperature be enough to predict dystocia?

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It is well-known that the pre-partum hypothermia parallels the decline in blood progesterone concentration with delay of about 12 h; therefore luteolysis can be monitored by the decrease in rectal temperature⁴. The transient hypothermia observed between 12 and 24 h before onset of parturition could represent a transient failure in temperature-compensatory mechanisms during withdrawal of the hyperthermic effects of progesterone. However, in recent researches, authors didn't find statistically significant correlations between body temperature and hormonal patterns.

In this study, the late stage of pregnancy was observed in ten Labrador Retriever bitches from day 56 after the first mating until whelping. Serum progesterone values were measured daily and rectal body temperature was taken 4 times a day. Duration of pregnancies was similar in all of the bitches (61,5 ± 2,3 d). A difference between gestation length in seven bitches with eutocia (60,8 ± 1,7 d) and in the three bitches with dystocia (63,6 ± 1,7 d) was noticed. The mean measured rectal temperature was 37,8 ± 0,2 °C during the whole observation period and the mean lowest temperature was 37,1 ± 0,1°C. In seven bitches with normal labour and healthy litter, the pre-partum decrease in rectal temperature was recorded 12,1 ± 6,8 h before the progesterone values declined below 2 ng/ml. Therefore, it was a non-expensive way to get valuable results during prediction of possible onset of labour, while waiting for the laboratory results of the progesterone.

However, three bitches didn't have uniform findings that were mentioned above. In their cases, serum progesterone values had increased by 1,38 ± 0,31 ng/ml after the progesterone values declined below 2 ng/ml and declined again 19 - 48h later. In all three cases dystocia was present and c-section was performed (in two bitches because of primary uterine inertia and third bitch had a small litter with oversized fetuses). Our results confirm that if the second stage of labour with expulsion of pups is not apparent within 48 hours after the drop of rectal temperature, dystocia has to be considered and is likely. These preliminary results show that we may expect physiological labour and healthy litter if there is no new increase in progesterone values that is measured after the final drop below 2 ng/ml. In contrary, the increase in progesterone values after the final drop indicates dystocia and presence of avital puppies in the litter. According to our results, combined measurement of rectal body temperature and progesterone values provides a valuable information in predicting dystocia.