ABSTRACTS

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Prediction of parturition in dogs and cats: Accuracy at different gestational ages

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INTRODUCTION: Canine and feline pregnancy lasts about 9 weeks from the ovulation day and a definitive diagnosis of pregnancy can be achieved only after 3 weeks in bitches and 2 weeks in queens (1, 2). It is well known that in bitches LH peak, or initial rise of progesterone, and ovulation occur respectively 65 and 63 (±1) days before parturition (1), but these data are not available when estrous cycle has not been monitored. The LH concentration in queens increases with number of copulations and no concurrent rise of serum progesterone occurs (2), making these prediction methods inapplicable. The ultrasonographic identification and measurement of extrafoetal and foetal structures are the only ways to predict the delivery day in the remaining 6-7 weeks of pregnancy.

Among parameters significantly related to gestational age in bitches and in queens, the inner diameter of chorionic cavity (ICC) is the most commonly used to predict the parturition day in early pregnancy (3, 4). Specific equations for queens, small and medium size bitches are needed (3, 4), whereas a correction factor for giant size bitches has been suggested (5). Ultrasonographic measurements of other extrafoetal structures, i.e. outer uterine diameter at the implantation sites (OUD), placental thickness (PT) or length (PL), are also significantly related to gestational age, but the high risk of inconsistent measurements due to the difficult visualization of the structural edges, makes these measurements less accurate than ICC (3). Biparietal diameter (BP) is widely applied for the prediction of parturition day in the second half of pregnancy and the technical approach is relatively simpler than other parameters as crown-rump length (CRL), foetal heart diameter (HDT), body diameter (BD), and deep portion of diencephalo-telencephalic vesicle (DPTV) (3, 6). The prediction is considered highly accurate when the difference between actual and predicted parturition dates is within ±1 day.

OBJECTIVES AND METHODS: The aim of this study was to investigate whether the accuracy of parturition date prediction is affected by the gestational age when the ultrasonographic examination is performed. The accuracy of the prediction (±1 day), using ICC and BP measurements (3), was analyzed retrospectively on the gestational period basis (from the 4th to the 9th week of pregnancy) in 495 ultrasonographic examinations of pregnant bitches (small and medium size) and 60 of pregnant queens. Significant differences (P<0.05) of mean values were determined by Chi-square test.

RESULTS: At the 4th week of pregnancy mean accuracy (±1 day) of the prediction of parturition date obtained with ICC in bitches and queens was 81% and a decrease, although not significant, to 67.7% was observed at the 5th week. Accuracy based on BP measurement was similar at the 5th and 6th week of pregnancy (78.6% vs. 78.9%, P>0.05), whereas a decrease was observed at the 7th (64.6%) and the 8th (63.2%) week. Close to term (9th week) the accuracy of the prediction based on BP parameter was lower (50.9%; P<0.05) than that obtained at the 5th week.

CONCLUSION: Present data indicate that a gradual decrease of the accuracy (±1 day) of the prediction occurs along the pregnancy. In the last week of pregnancy this decrease could be due to the growth of the foetuses and to the increased difficulty in obtaining the correct scan for an accurate BP measurement. Interestingly at the 5th week of pregnancy, when both ICC and BP are measurable, the prediction of parturition day based on BP might be preferable.

(5) Kutzler MA, Yeager AE, Mohammed HO, Meyers-Wallen VN. Accuracy of canine parturition date prediction using fetal measurements obtained by ultrasonography. Theriogenology 200315; 60: 1309-1317