ABSTRACTS

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CLINICAL PROTOCOL FOR THE INDUCTION OF PARTURITION IN THE BITCH

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Introduction - Aglepristone, a specific antiprogesterone for use in the dog, has recently been shown to induce parturition in bitches either alone (Baan et al., 2005) or in association with uterotonic agents (Fieni et al., 2001, Hoffmann et al., 1999), however these studies were undertaken in only a limited number of bitches (n=6, n=5, and n=1 respectively). The aim of the present study was to assess, in a larger number of bitches, the efficacy and safety of aglepristone when used in association with oxytocin to induce parturition in bitches.

Materials and Methods - Twenty-two mature beagle bitches aged 2 to 8 years were used for this study. All of the dogs were examined twice weekly to detect the onset of pro-oestrus. The bitches were mated on the first day of acceptance of the male, then every other day until metoestrus. Plasma vaginal cytology and progesterone assays were used to determine the time of ovulation. The day of ovulation was considered to be day 0 of gestation. Pregnancy diagnosis was performed by ultrasonography (Aloka echo camera SSD-500, 5 Mhz transducer) between days 20 and days 25 of pregnancy. At day 58 of pregnancy, all of the bitches were injected subcutaneously with 15 mg kg⁻¹ aglepristone (Alizine, Virbac-Carros, France), and 24 h later and subsequently at every hour intervals until delivery of the last pup with 0.15 IU kg⁻¹ oxytocin, (Ocytocine S, Intervet-Angers, France). Parturition was monitored clinically every hour until the first visible signs of the onset of parturition, then continuously until the expulsion of the last pup.

Blood samples were taken by jugular venipuncture at the time of aglepristone administration, into 10 ml heparin sulphate tubes, which had been maintained at 4°C. These tubes were centrifuged at 3000 g for 15 min. at 4°C, immediately after collection. Plasma samples were stored at -20°C prior to the assay. Peripheral progesterone concentrations were measured using a commercial RIA kit (Diria-progk kit from Diasorin, Antony, France). The sensitivity of the assay was 0.3 nmol l⁻¹, with a specificity of 97.5%. Results were reported as means ± SD.

Results - At the time of parturition bitches had been pregnant for 58.3 ± 1.0 day. Parturition was obtained in all bitches at an average of 29.7 ± 5.6 hours after aglepristone administration; the shortest interval being 15 hours and the longest 40.5 hours. The 95% confidence interval was [27.4-32.0]. Average expulsion time at parturition was 5.9 ± 1.9 hours, which was equivalent to an average of 1.1 ± 0.4 hours per pup; 121 pups were born. Two were malformed and did not survive. The frequency of live pups was 89.1% 48 hours after birth and 86.5% 7 weeks after birth. On average, 0.72 live pups at birth subsequently died per litter. At the time of aglepristone administration, the average peripheral plasma progesterone concentration was 8.5 ± 2.2 nmol l⁻¹, and all of bitches had a progesterone concentration of more than 6.2 nmol l⁻¹.

Discussion - Complete parturition occurred in all treated bitches. At the beginning of the protocol (at the time of aglepristone administration) all bitches had a peripheral plasma concentration of more than 6.0 nmol l⁻¹, which confirms the fact that none of them had begun spontaneous whelping. Onset of parturition had occurred in 95% of bitches between 27.4 and 32.0 hours after aglepristone administration. Therefore, if aglepristone had been administered...
at 09:00 h, treated bitches began parturition the next day between 12:00 h and 18:00 h. This time period is consistent with that obtained by Hoffmann et al., (1999) who used the association of aglepristone and Dinolytic™ in one bitch, but shorter than that obtained by Bann et al, 2005, who used aglepristone administration alone in 6 bitches (15 mg/kg twice at an interval of 9 hours) and who obtained an average expulsion time for the first pup of 41.0 ± 3.7 hours after aglepristone administration. The use of oxytocin as an uterotonic agent therefore proved to be very effective. Duration of parturition was 1.1 ± 0.4 hours per pup on average. This time period is also shorter that the one obtained by Bann et al., (2005), using aglepristone alone, of 1.7 ± 0.3 hours. In a previous study, we demonstrated that the mortality rates for pups were inversely proportional to the expulsion time of pups (Fieni et al., 2001). In the present study the mortality rate was comparable to those observed in natural conditions (Badinand and Griol, 1997, Baan et al., 2005). This confirms the safety of aglepristone and the possibility of a practical use for such a protocol.

**Conclusions** - this study clearly demonstrates that the association of aglepristone and oxytocin can be effectively used to induce parturition in bitches and provides safe conditions for the bitch and the litter. Nevertheless currently available information limits their use to therapeutic indications: maternal morbidity (pregnancy toxaemia or pre-partum eclampsia), risk of dystocia due to materno-fetal disproportion or primary uterine inertia, and abnormally long gestation. To limit neonatal mortality due to foetal immaturity, parturition should not be induced before 60 days of gestation.

**References**

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