ABSTRACTS

6th International Symposium on Canine and Feline Reproduction

&

6th Biennial EVSSAR Congress

European Veterinary Society for Small Animal Reproduction

"Reproductive biology and medicine of domestic and exotic carnivores"

University of Veterinary Sciences
9th – 11th July 2008
Vienna, Austria

Editors: G. England, P. Concannon, S. Schäfer-Somi

Reprinted in IVIS with the permission of the Symposium Organizers
INDUCTION OF PARTURITION WITH AGLEPRISTONE IN VARIOUS Sized BITCHES BELONGING TO DIFFERENT BREEDS

Fontbonne A. 1, Levy X 1., Fontaine E. 1, Bachellerie R. 2, Bernex F. 1, Atam-Kassigadou S. 1, Guffroy M. 1, Leblond E 1 and E.Briant 2.
1Ecole Nationale Vétérinaire, 7 avenue du Général de Gaulle, 94700 Maisons-Alfort, France
2 Virbac Inc., Carros, France. Email : afontbonne@vet-alfort.fr

Objectives - The aim of this study was to apply the protocol of induction of parturition using aglepristone and oxytocin, published by Fieni et al. (1) in Beagle bitches, to various sized bitches belonging to different breeds, in order to confirm if this medical induction of parturition remained effective in other canine breeds, to record the delay between medical induction and expulsion of the first foetus and to study the conditions of this medically induced parturition.

Material and methods - 13 pluriparous bitches, aged 18 months – 5 years, belonging to the same breeding kennel were included in this study. These bitches had no history of previous reproductive or obstetrical problems. According to their size, they were dispatched into three categories:
- Group 1: small breeds (Yorkshire Terrier: n=2, Lhassa Apso: n=2)
- Group 2: large breeds (Golden Retriever: n=3, Labrador Retriever: n=2)
- Group 3: giant breeds (Bernese: n=2, Newfoundland: n=2).

Medium sized bitches (around the same size as Beagle bitches) were voluntarily not included in this study, as this protocol aimed to study bitches different in size from Beagles.

During theirs heats (proestrus and oestrus), daily blood samples were performed around 9 am. Blood was collected in Heparin test-tubes, centrifuged within 30 minutes and plasma was kept frozen at – 20°C until assaying. Oestrus bitches were housed with a male and matings occurred ad libitum. All bitches were vaccinated against Canine Herpes Virus (Eurican Herpes®, Merial, France) during their pregnancy.

Around 25 days after the last mating, pregnancy diagnosis by ultrasound was performed. In pregnant bitches, ovulation was determined a posteriori by assaying quantitative progesterone (Chemiluminescence – Elecsys 2010, Roche Diagnostics, Germany) in the daily blood samples previously taken during the heats. According to Marseloo et al. (2), ovulation was supposed to have occurred the day at which progesterone plasma concentrations reached 6 ng/mL and increased significantly one day later.

Around 50 days of pregnancy, bitches were housed in a nursing kennel at the Alfort Veterinary College, in large cages with special nesting boxes. A radiographic examination was performed around 55 days of pregnancy to determine the number of pups to be born. In the week preceding parturition, daily progesterone assays were performed and rectal temperature was recorded 4 times daily.

Within each breed, one bitch was randomly assigned to have its parturition medically induced, while the other remained untreated (control group) and underwent natural whelping. 2/3 Golden Retrievers were included in the induced group.

In the treated group, parturition was induced 59 days after the estimated day of ovulation (except two bitches – a Labrador retriever bitch – which was induced 60 days after ovulation and a Golden Retriever bitch which was induced 61 days after ovulation). The protocol was identical to what had been described by Fieni et al. (1): aglepristone 15 mg/kg SC (Alizine®, Virbac, France), followed 24 hours later by oxytocin injections every two hours 0.15 UI/kg SC (Ocytocine S®, Intervet, The Netherlands). The number of pups born alive, alive 48 hours later and stillborn was recorded. Their weight was recorded daily during the first 48 hours.
Results - In the control group, natural parturition occurred 61 (1/6 bitch), 62 (2/6 bitches) and 63 (3/6 days after ovulation. In the induced group, the first pup was born 25.9 ±3.29 hours after aglepristone administration (21 to 30 hours). 2/7 bitches (one Yorkshire Terrier, one Lhassa Apso) with respectively 5/8 and 1/4 pups, were born before the first administration of oxytocin. In the induced group, 6/7 bitches required no human assistance during parturition. The Labrador Retriever bitch delivered 5/7 pups naturally but the last two pups had to be delivered by operative C-section due to a secondary obstructive dystocia. In the six remaining bitches of the induced group, the duration of parturition lasted from 3.7 hours (220 minutes - Yorkshire Terrier) to 17.5 hours (1050 mn - Bernese). Its mean duration was 9.6 hours (578.2 mn) ± 5.4 hours (321.8 mn) vs 8.0 hours (478.4 mn) in the control group (2.1 hours (126 mn) to 12.4 (744 mn)). The mean duration of induced parturition was shorter in small bitches (3.8 hours) than in large (11.2 hours) or giant (14.0 hours) bitches. Excluding the last two Labrador pups born after C-section, in the induced group, the mean interval between two successive foetal expulsions was 115.6 ± 82.8 minutes (34 to 265) vs 68.8 ± 24.5 minutes in the control group (p<0.01). 7.3 ± 2.3 pups were born in the induced group (vs 7.7 ± 2.2 in the control group). One pup was stillborn in the induced group vs two pups in the control group. After 48 hours, 6.1 ± 3.4 pups were alive in the induced group (vs 7 ± 2.4 in the control group). The mean weight at parturition did not differ significantly between the two groups (355.0 ± 174.0 g in the induced group vs 363.3 ± 176.0 g in the control group).

All pups gained weight during the first 48 hours except the four Yorkshire Terrier pups from the induced group which looked premature at the time of birth (thin hairless skin) and died between 19 to 29 hours post-delivery. Their mean weight at birth (101 g) was smaller than the Yorkshire Terrier pups in the control group (136 g). Necropsy concluded that they were premature.

Discussion - This study shows that a protocol combining aglepristone + oxytocin successfully induces parturition in bitches, whatever the size and the breed. The mean duration of induced parturition (9.6 hours ± 5.4) was longer that what had been found by Fieni et al. (1) using the same protocol in Beagle bitches (4.5 ± 1.8 hours). This was especially true in large and giant breeds. For example, it took 17.5 hours for one Bernese bitch to fully deliver. The mean interval between two successive births of pups was longer in the induced group. We may therefore think that this protocol cannot fully predict that the duration of the entire parturition process, as it seemed to be the case in Beagles. The Yorkshire Terrier bitch from the induced group who lost her 4 pups may have been induced to whelp prematurely, may be due to a wrong determination of the ovulation date.

References