ABSTRACTS

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Induction of whelping in bitches using dinoprostone, cloprostenol and mifepristone

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OBJECTIVES AND METHODS: In full term pregnant bitches whelping dates are difficult to predict, leading to prolonged gestation. Prolonged gestation in single or two pup pregnancy leads to fetal over size resulting in dystocia. Once dystocia ensues, medical treatment and obstetrical assistance may not suffice necessitating caesarean section. Caesarean section invariably involves anaesthetic surgical risk, is expensive and leads to unsatisfactory pup survival rate, often due to the use of improper anaesthetic protocols. These complications can be preempted by medical induction of whelping. Therefore the efficacy of medical induction of whelping in full term bitches in ensuing safe delivery of pups was also assessed as a part of the present study.

Ideally, the drug should induce whelping within a predictable, short time frame after treatment. In addition, the treatment should be safe for the bitch and her puppies. Several drugs like aglepristone and mifepristone (1,2), PGE2 (3,4) and PGF2α (5) were used to induce parturition. However, the procedures for the induction of whelping in the bitch, in contrast to other domestic species, have not been well documented. Present study was undertaken to compare different protocols for induction of whelping in bitches.

A total of 29 clinical cases of bitches of different breeds and age groups, with history of full term gestation period but not showing any signs of whelping were utilized for medical induction of parturition. The viability of the fetuses was also confirmed by B- mode ultrasound scanner, with 5-7.5 MHz convex or linear transducer before medical induction of whelping was undertaken. Standard lateral abdominal radiographs were obtained not only to confirm pregnancy, but also to count the number of fetuses and to assess their growth. These selected bitches were randomly distributed into 4 groups i.e., 3 treatment groups and one control group. These were subjected to different therapeutic protocols for induction of whelping.

Cloprostenol Group I (n= 6) were treated with subcutaneous injection of cloprostenol at the rate of 2.5µg/kg body weight. Atropine sulphate at the rate of 0.04 mg/kg was subcutaneously administered 10-15 minutes prior to cloprostenol administration.

Dinoprostone plus Cloprostenol Group. II (n=10 ) were treated with intra cervical and anterior portion of vaginal administration of 0.5mg of Dinoprostone gel using the syringe and the plastic nozzle supplied with the packing. Following this, injection cloprostenol an atropine sulphate was also administered as described in group I.

Mifepristone GroupIII. (n= 7) were treated with mifepristone at the rate of 10mg/kg body weight orally as a single dose. If the bitch did not whelp within 24 hours they were administered cloprostenol an atropine sulphate as described in group I. Control Group. IV. (n=6) were kept as untreated controls which had natural whelping.

Blood plasma progesterone estimation was performed before the beginning of treatment and subsequently 2-12 hours before whelping and between 0-6 hours of whelping by using Enzyme Linked Immuno Sorbent Assay (ELISA). The mean duration of time interval from starting of treatment to beginning of whelping, duration of whelping and inter pup intervals and rectal temperatures from beginning of treatment to whelping were recorded for all experimental bitches.

RESULTS: The mean duration of time interval from starting of treatment to beginning of whelping (hours), duration of whelping (minutes) and inter pup intervals (minutes) were 34.46 ± 4.70, 490 ± 96.94 and 192.24 ± 62.58 respectively in cloprostenol group, 40.48 ± 6.47, 253.13 ± 47.87 and 67.67 ± 10.75 respectively in dinoprostone plus cloprostenol group and 26.98 ± 4.51, 354 ± 85.59, 61.0 ± 9.41 respectively in mifepristone plus cloprostenol group. Whelping occurred in cloprostenol, dinoprostone plus cloprostenol and control groups when the mean plasma progesterone concentrations reached around 1.0ng/ml. But in mifepristone plus cloprostenol group is having significantly higher progesterone level (< 0.05). Slight decrease in rectal temperature was observed 12 to 24 hours after the treatment and again it reached to the normal level around 12 hours or less before parturition. Whelping was induced successfully in three treatment groups, but dinoprostone plus cloprostenol group is a better protocol, because it requires less obstetrical assistance, short duration of whelping, less side effects these are followed by mifepristone plus cloprostenol group and cloprostenol group as the alternative choices in the induction of whelping in bitches.