SHORT COMMUNICATION

Termination of Pregnancy in Mismated Bitches using Cloprostenol and Cabergoline

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ABSTRACT

Bitches (n=6) having unwanted pregnancy were subjected to termination using combination of cloprostenol and cabergoline after scanning using ultrasound on day 30-35 post-mating. The bitches were treated with a combination of Inj. Cloprostenol (@ 2 µg/kg b. wt., s/c) and Tab. Cabergoline (@ 5 µg/kg b. wt., orally) once a day, for 3 to 4 consecutive days, and were observed for onset and completion of abortion. All the bitches aborted safely with 3 to 4 treatments with a litter size of 2 to 7 puppies. The mean induction time for abortion was 81.38±3.88 hrs and the mean total duration of whelping was 13.17±2.95 hrs, with milder side effects, viz., crying, vomiting, anorexia and tachypnea without future complications. An ultrasonographic scan was made in each of the bitch after termination of pregnancy and again on day 70 to 100 post-treatment to rule out the retained fetal pups and complications like pyometra or maceration, if any, respectively. None of the bitches had retained pup and had no any complication during the follow up period. The mean values of haemoglobin, WBCs and RBCs counts between pre- and post-treatment (on day 0 and 7/8) periods were also similar in bitches. The combination of Inj. Cloprostenol) and Tab. Cabergoline terminated the unwanted canine pregnancies after 30 to 35 days post-mating within 3 to 4 days, with milder side effects amenable to medications.

Keywords: Bitch, Cloprostenol, Cabergoline, Misalliance, Termination of pregnancy, Side effects.


INRODUCTION

Reproductive cycle of bitch is different from farm animals and the estrus phase of bitch is quite long. Due to the promiscuous behavior of bitches during their heat period, sometime unintended mating takes place. Bitches with misalliance are required to be treated as early as possible to prevent the unwanted pregnancy, but sometimes mis-mating takes place out of the owner’s knowledge or they take the bitch too late to the veterinarian for prevention of conception. In such cases termination of established pregnancy is the only option to deal with the problem (Ramagnoli, 2017; Thangamani et al., 2018).

Different treatment protocols, viz., PGF₂α and its analogues, dopamine agonists, combination of prostaglandins and dopamine agonists, antiprogestin therapy etc. have been attempted by the pet clinicians for termination of unwanted pregnancies in bitches with varying success and side effects (Reddy et al., 2010; Davidson, 2013; Thangamani et al., 2018). However, only a few of these drugs are widely marketed or approved for use in dogs (Abhilash et al., 2012). In veterinary hospitals and private pet clinics, such cases are frequently presented for the treatment. Hence, this study was carried out to evaluate the efficacy of combination of cloprostenol and cabergoline in termination of canine pregnancy at 30-35 days post-mating.

MATERIALS AND METHODS

Six bitches having a history of unwanted breeding before 5 days or more were registered for termination of pregnancy at 30 to 35 days of gestation after confirmation of established pregnancy by ultrasound scanning (Plate 1). All the bitches

Plate 1: Ultrasound showing (a) empty uterus at day 30-35 post-mating and (b) fetal pups in gravid uterus at day 30-35 post-mating
were treated first with Inj. Atropine sulphate @ 0.02 mg/kg, s/c, 20 minutes before cloprostenol injection to minimize the likely side effects of later like excessive salivation and emesis. Thereafter, all the bitches were subjected to the treatment with a combination of Inj. Cloprostenol @ 2 µg/kg b. wt., s/c, and Tab. Cabergoline @ 5 µg/kg b. wt., orally, once a day, consecutively for 3 to 5 days, depending upon the response of bitches with onset of abortion. An ultrasound examination was also carried out after termination of pregnancy in each bitch to rule out retained fetal pups.

All the bitches were followed daily for at least 30 minutes post-treatment for side effects of PGF$_2$α, if any (vomiting, transient diarrhoea, abdominal straining etc.), throughout the treatment period. The blood samples were collected for haematology on day ‘0’ (day of 1$^{st}$ treatment) and 7/8$^{th}$ day post-treatment to assess their health status. The outcome of treatment protocol and side effects, if any, were recorded and analyzed. An ultrasound scan was carried out during the period from 70 to 100 days post-treatment to rule out complication like pyometra/maceration, if any.

### Results and Discussion

**Effect of Cloprostenol and Cabergoline on Pregnancy**

All the bitches responded to the treatment with a termination of pregnancy with 3 to 4 treatments and none required 5$^{th}$ dosing. Among the six registered bitches, two bitches aborted fetuses after 3$^{rd}$ dose and four bitches required 4$^{th}$ dose for expulsion of fetuses (Fig. 1). The total number of pups expelled out varied from 2 to 7. The mean total time required for onset of abortion from the very first dose was 81.38±3.88 hrs with a range of 70 to 94 hrs. The mean total duration required for completion of expulsion of fetal pups recorded was 13.17±2.95 hrs with a range of 8 to 24 hrs.

The present findings corroborated with the observations of Onclin and Verstegen (1999) and Reddy et al. (2010), who found the combination of Inj. Cloprostenol and Tab. Cabergoline as an effective method for inducing termination of pregnancy as early as day 25 after mismating in the bitches without any side effects. Davidson (2013) also gave supportive views to present study. Further, the present findings supported earlier views of Romagnoli (2017) and Thangamani et al. (2018), who found that a combination treatment of cabergoline and prostaglandins starting at day 30 of pregnancy to be effective in inducing abortion in bitches. Cabergoline produced no side effects at pharmacological dose. Use of prostaglandin alone has also been reported by Romagnoli et al. (1996) and Sanchez and Arias (2018) with variable results for successful termination of pregnancy with a considerable degree of side effects like panting, salivation, primarily emesis and loose stools.

**Effects of Cloprostenol and Cabergoline on Health Status**

The bitches treated for termination of pregnancy using a combination of cloprostenol and cabergoline were closely monitored for their side effects. The bitches covered under treatment protocol evinced side effects like vomiting (n=1), mild anorexia (n=4), crying (n=3) and tachypnea (n=1). These bitches were managed to provide relief from immediate side effects using symptomatic treatments. None of the bitches had any complaint post-abortion during their follow up till 70 to 100 days post-treatment and on ultrasound scanning between days 70 and 100 there was no any complication like pyometra or maceration detected, suggesting safety of therapeutic approach used. The pre- and post-treatment mean haemoglobin, WBCs, and RBCs values were also within the normal physiological limits and varied non-significantly, indicating that cloprostenol and cabergoline had no adverse effect on the health status of bitches (Table 1).

It was concluded that a combination of cloprostenol and cabergoline can effectively terminate the unwanted canine...
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The authors are grateful to the Dean, College of Veterinary Science and Animal Husbandry, Anand, and Deputy Director of Animal Husbandry, Veterinary Polyclinic, (GOG), Vadodara for providing necessary facilities to undertake the present study.

REFERENCES


Table 1: Mean (±SE) haemoglobin, WBCs, and RBCs counts in bitches pre- and post-treatment with combination of cloprostenol and cabergoline

<table>
<thead>
<tr>
<th>Days of Blood Collection</th>
<th>Blood Parameters (n=6)</th>
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<tbody>
<tr>
<td></td>
<td>Haemoglobin (g/dL)</td>
<td>WBCs (x10³/μL)</td>
<td>RBCs (x10⁶/μL)</td>
</tr>
<tr>
<td>Pre-treatment (day 0)</td>
<td>13.78±0.44</td>
<td>9.15±0.41</td>
<td>6.38±0.16</td>
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<tr>
<td>Post-treatment (day 7/8)</td>
<td>13.82±0.39</td>
<td>9.42±0.56</td>
<td>6.33±0.19</td>
</tr>
<tr>
<td>'P' value</td>
<td>0.95</td>
<td>0.70</td>
<td>0.84</td>
</tr>
</tbody>
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None of the parameter differed statistically between days (P > 0.05).

Day 0= Day of 1st Cloprostenol injection; Day 7/8= 7/8th Day after 1st Cloprostenol injection.