EFFICACY OF ANTIPROGESTIN (Aglepristone) AND PROSTAGLANDIN F\textsubscript{2\alpha} (Cloprostenol) IN TREATMENT OF OPEN CERVIX PYOMETRA IN BITCHES

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INTRODUCTION

Pyometra is one of the few life threatening conditions affecting the female reproductive tract. It is a medical emergency in both dogs and cats with age related risks (Wiebe and Howard, 2009). Although ovariohysterectomy is a permanent treatment option for pyometra, pharmacological treatment plays an important role in case of valuable breedable bitches in an attempt to protect their breeding potential. New, alternative drug treatments with fewer side effects and improved efficacy are available (Nelson et al., 1982). The use of prostaglandin F\textsubscript{2\alpha} alpha (PGF\textsubscript{2\alpha}) for the treatment of open pyometra has been extremely encouraging and consistent (Nelson et al., 1982). and luteolysis thus removing progesterone influence on the uterus (Lein, 1986; Prostaglandin used in the medical treatment of pyometra resulted in cervical dilatation, myometrial contraction Grooters, 1994; Cain, 1998). The combined therapy of aglepristone and PGF\textsubscript{2\alpha} proved to be effective and safe in reversing the clinical signs and abnormal uterine ultrasonographic findings in bitches suffering from open cervix pyometra, independently of initial progesterone (P\textsubscript{4}) concentrations (Gobello et al., 2003). Pharmacological treatment with aglepristone or aglepristone and PGF\textsubscript{2\alpha}, preceded by general, gynaecological, haematological and ultrasonographical examinations constitute a safe alternative for bitches in dioestrus, with P\textsubscript{4} concentrations higher than 2 ng/mL and without ovarian cysts (Ucmak and Tek, 2008).

ABSTRACT

Eighteen bitches of different breeds that were presented to the Small Animal Obstetrics and Gynaecology Unit, Madras Veterinary College Teaching Hospital, with known breeding history of open cervix pyometra, were formed as experimental animal for the study. These bitches were randomly divided into three groups (n=6) viz. group I, II and III. Diagnosis of open cervix pyometra was made based on history, clinical signs, abdominal palpation, ultrasonography and radiography. Group I bitches were treated with Inj. Prostaglandin F\textsubscript{2\alpha} (Cloprostenol) at the dose rate of 5\mu g/kg body weight subcutaneously once daily, Group II bitches were treated with Inj. Aglepristone at the dose rate of 10mg/kg body weight subcutaneously on day 1, day 2, day 7 and day 14 (if not cured), Group III bitches were treated with Inj. Aglepristone plus Prostaglandin F\textsubscript{2\alpha}. Inj. Aglepristone @ 10mg/kg and Inj. PGF\textsubscript{2\alpha} @ 1 \mu g/kg body weight subcutaneously on day 1, day , day 7 and day 14 (if not cured), respectively and Inj. PGF\textsubscript{2\alpha} alone was administered @ 2 \mu g/kg body weight subcutaneously on day 3 to day 6. All the three groups were treated along with antibiotics and fluids, until the uterine size was reduced or no visible intrauterine fluid or anechoic to hypoechoic area seen. All the three treatment protocols (PGF\textsubscript{2\alpha}, aglepristone and aglepristone plus PGF\textsubscript{2\alpha} combination) were 100 per cent effective in open cervix pyometra of bitches and can be adopted as a remedial measure under field condition to augment fertility in bitches. Further, the drug aglepristone treatment was found to be better, since it requires minimum number of administration of the drug without any side effect.
MATERIALS AND METHODS

Eighteen bitches of different breeds that were presented to the Small Animal Obstetrics and Gynaecology Unit, Madras Veterinary College Teaching Hospital, with known breeding history of open cervix pyometra, were formed as experimental animal for the study. These bitches were randomly divided into three groups (n=6) viz. group I, II and III. Diagnosis of open cervix pyometra was made based on history, clinical signs, abdominal palpation, ultrasonography and radiography.

Group I bitches were treated with Inj. Prostaglandin F₂₀ (Cloprostenol) at the dose rate of 5μg/kg body weight subcutaneously once daily. Group II bitches were treated with Inj. aglepristone at the dose rate of 10mg/kg body weight subcutaneously on day 1, day 2, day 7 & day 14 (if not cured), Group III bitches were treated with Inj. aglepristone plus PGF₂₀. Inj. aglepristone @ 10 mg/kg and Inj. PGF₂₀ @ 1 μg/kg body weight subcutaneously on day 1, day 2, day 7 & day 14 (if not cured), respectively and Inj. PGF₂₀ alone was administered @ 2μg/kg body weight subcutaneously on day 3 to day 6. All the three groups were treated along with antibiotics (Antibiotic ampicillin and cloxacillin combination (BAXIVET® LYKA Animal Health Care)) was preferred for the course treatment. and fluids, until the uterine size was reduced or no visible intrauterine fluid or anechoic to hypoechoic area seen. Treatment response was assessed by clinical signs, biochemical result abdominal palpation, radiography and ultrasound and side effect of the each drug has been studied. The bitches were examined regularly and followed upto 2 months.

RESULTS AND DISCUSSION

The treatment response of bitches in all three groups is presented in table 1. In the present study treatment response with PGF₂₀ for the treatment of open cervix pyometra was 100 per cent, in that 66.66 per cent (4/6) and 33.33 per cent (2/6) of animals responded within 8 days and 10 days, respectively. The treatment response was mainly because of PGF₂₀, which causes contraction of myometrium, relaxation of cervix and lysis of corpus luteum, results in evacuation of uterine contents and reduction in P₄ concentration. This finding was in agreement with the findings Vergesten (2008); Gobello et al. (2003) and Ucmak and Tek (2007). Treatment response was mainly decided based on the clinical improvement and ultrasonography.

The treatment response with aglepristone for the treatment of open cervix pyometra was 100 per cent, in that 50 per cent (3/6) and 50 per cent (3/6) of animals responded within 8 days and 21 days, respectively. Perusal of literatures revealed only scanty information on the efficacy of aglepristone in the treatment of open cervix pyometra and there are no reports from India. In the present study observed results were mainly because of antiprogestin action of the aglepristone. Progesterone receptor antagonist aglepristone competitively prevent progesterone from binding to its receptor. Consequently, the absence of receptor stimulation and activation mimics the effects observed when luteolysis is induced and causes relaxation of the cervix. Uterine contraction is indirectly induced by the local uterine release of endogenous prostaglandins as a consequence of the endometrial inflammatory process associated with the pyometra (Vergesten, 2008).

The treatment response of combined therapy of aglepristone and PGF₂₀ was 100 per cent, in that 83.33 per cent (5/6) and 16.66 per cent (1/6) of animals responded within 8 days and 21 days, respectively. In the present study, observed results were mainly because of synergistic effect of antiprogestin action of aglepristone and luteolytic and uterotonic action of PGF₂₀. These findings were in concurrence with the findings of Gobello et al. (2003); Fieni (2006); Ucmak and Tek (2007).

All the bitches in the group I and III received PGF₂₀ injection showed the side effect of panting, salivation, vomiting, defecation and urination. The side effects tend to decrease gradually from day 4 to
9 after treatment. These findings were similar to that of earlier observation made by Feldman et al. (1993).

In the present study, 12 bitches were treated with aglepristone, out of which only one bitch had swelling at the site of injection which subsided within a week. This finding was in accordance with Fieni (2006), who reported localized inflammatory reaction at the site of injection that disappeared within two weeks. On the contrary Gobello et al. (2003) reported that there were no side effects with the aglepristone therapy in the open cervix pyometra affected bitches.

All the three drugs (PGF₂α, aglepristone and aglepristone plus PGF₂α combination) were 100 per cent effective in the treatment of open cervix pyometra in bitches. Further, the drug aglepristone treatment was found to be better, since it requires minimum number of administration of drug and without any side effect. Though long term studies have to be carried out to assess the recurrence of disease with each drug, these three treatment protocols can be adopted as a remedial measure.

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REFERENCES


