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SHORT COMMUNICATION

Return to Normal Oestrous of Mongrel Bitches Treated with Medroxyprogesterone Acetate as a Contraceptive

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INTRODUCTION

The bitch is a seasonally monoestrous animal (exhibiting one oestrous cycle in a season) (Tomaskovic et al, 1997).The oestrous cycle is traditionally divided into 4 stages based on anatomical, behavioural, hormonal and cytological criteria. These stages and their corresponding functional phases are prooestrus (follicular phase),oestrus, metoestrus, or dioestrus (luteal phase) and anoestrus (quiscent phase of the ovaries) (Tomaskovic et al,1997). The duration of the oestrous cycle in the bitch is considerably longer with a prolonged anoestrus phase of about two to ten months irrespective of whether pregnant or not (Schaefers-Okkens and Kooistra, 2010). Unlike other domestic animals, it is not clear how folliculogenesis in the bitch is prevented and restarted at the luteal phase (Tomaskovic et al 1997). Although, Schaefers-Okkens and Kooistra (2010) reported that basal plasma FSH concentration increases during the progression of anoestrus strongly suggests that FSH increase is a key event in ovarian folliculogenesis in the dog.

Medroxyprogesterone Acetate (MPA) is one of the progestins developed for human use and has therefore been extensively tested in dogs and cats especially at high multiples of human dose (Romagnoli and Concannon, 2003). It could be used to either suppress or postpone the oestrous cycle based on the dosage and the time of administration (Romagnoli and Concannon, 2003; Romagnoli,2006).The recommended dosage for MPA in the bitch is 2.5-3.0mg/kg intramuscularly every 5 months ,while it is 2.0mg/kg intramuscularly every 5 months for the queen (Romagnoli, 2006). Great caution must be exercised due to potential serious side effects associated with progestin administration such as uterine pathology, mammary tumour, increased prolactin, growth hormone secretion, and blood sugar level, masculinization of female fetuses in the bitch, adrenocortical suppression in the bitch and queen, local skin alterations and behavioural modification (Romagnoli, 2006). The aim of this study is to observe the return to normal oestrous cycle in mongrel bitches treated with depot-injection of MPA as a contraceptive.

KEY WORDS: Oestrous, bitches, medroxyprogesterone acetate, contraceptive.

MATERIALS and METHODS

The study was carried out in Zaria (11° 10′ N 07° 38′ E). Zaria is located in the Northern Guinea Savannah zone of Nigeria with a tropical continental climate. The weather is characterized by a hot and dry season

between February to April, a rainy season between June to October and a cold harmattan season between November to January (Ali, 2009). A total of 13 mongrel bitches were acquired. The criteria for choosing them was that they must have at least whelped once. They were allocated to 3 groups. Groups A and B were treated with an injectable suspension of Medroxyprogesterone Acetate (Depo-Provera ® Contraceptive injection Pharmacia & Upjohn Company Kalamazoo MI 49001, USA).The dosage of the injectable suspension of MPA was 150mg/ml. Group A(n= 5) bitches were given MPA at 2.5mg/kg intramuscularly every 5months while group B (n=5) at 1.5mg/kg intramuscularly every 3months. Group C (n=3) bitches were not treated ,thus served as control. These animals were kept with their owners under no restriction of movement or feeding and were visited monthly. Before treatment with MPA, 2 of the bitches were in oestrus , 4 in prooestrus, 1 in late oestrus and 2 in dioestrus phases of the oestrous cycle. The study was for 24 months. In the first 12 months, the bitches were treated with MPA, groups A and B were treated with a total of 2 and 4 doses of MPA respectively within the period . In the second 12 months, they were physically observed for signs of return to normal oestrous cycle such as display of breeding behaviour where male dogs gather around any bitch in prooestrus. The data obtained was represented in a table.

RESULTS and DISCUSSION

The table shows the time of return to normal oestrous in mongrel bitches treated with MPA . Of the 10 bitches treated, only 4 return to oestrous within the 12 months period of observation. Out of the 4 that return, 1 was from group A while 3 were from group B. Bitch A2 was treated with MPA at 2.5 mg/kg every 5 months, received 2 injections and return to normal oestrous 8 months after the last injection. Bitches B2, B3, B4 were treated with MPA at 1.5mg/kg every 3 months, received a total of 4 injections and return to normal oestrous at 8, 6 and 10 months respectively after their last injection of MPA. For bitch B3, it was observed that the abdomen and mammary glands began to increase in size 6 months after the last injection of MPA, but 5 weeks later there was presumably resorption (no sign of either birth or abortion). The control group bitches cycled normally at their individual breeding periods (2 of the bitches cycle once a year while the other cycle twice a year).

Although these bitches return to oestrous at different times,a side effect associated with the use of MPA is pseudopregnancy as observed in bitch (B3) . The return was initially silent as there was no display of breeding behaviour. This finding agrees with Gobello et. al. (2001), that clinical pseudopregnancy can be associated with the following - prolonged progestin treatment, termination of progestin treatment, in response to antiprogestin treatments and after ovariectomy during the luteal phase. Romagnoli and Concannon, (2003) also added that when progestin are used to treat pseudopregnancy, the condition disappears but reoccurs again after withdrawal of treatment.The time taken by bitches that received 2 doses of MPA to return to normal oestrous seem shorter as compared to those that received 4 doses . According to Andersen et al (1965) and Foord (1972),when the contraceptive is no longer administered, bitches may be expected to return to normal oestrous within 1 week - several months or 6 months -2 years respectively.

Personal communication with some pet owners revealed that they are reluctant to accept the use of MPA as a contraceptive due to the associated side effects especially uterine pathology while some pet owners

TABLE 1: Return to Normal Oestrous in Mongrel Bitches Treated with MPA

Bitch No.	Reference compound	Dosage (mg/kg)	Interval of Dosing (months)	Number of injections per animal	First oestrous after MPA treatment (months)
A2	MPA	2.5	5	2	8
B2	MPA	1.5	3	4	8
B3	MPA	1.5	3	4	6
B4	MPA	1.5	3	4	10

have administered MPA (Depo-Provera® Contraceptive injection) to their pets at a dose rate of 150mg/ml (single dose) every 3 months as is being administered to women under the birth control programme. This dose (150mg/ml) is very high as the minimum effective dose for the bitch is 2.5mg/kg in every 5 months. According to these pet owners their bitches return to normal oestrous in less than 1 year to 2 years after treatment while others simply did not return. The failure of some of the bitches to return to normal oestrous might be dose related as they have been invariably overdosed by their owners.

CONCLUSION

It is concluded that not all bitches treated with MPA as a contraceptive will return to normal oestrous. Those bitches that did not return in this study could probably be due to the dose administered or some individual differences. It has also been observed that when bitches are returning to oestrous, some may present pseudopregnancy. Therefore pet owners should be aware of the implication of the use of MPA as a contraceptive in their bitches.

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