

Prevention of Estrus in the Bitch with Chlormadinone Acetate Administered Orally

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Progestogens [2-6, 9] and androgens [7, 8] have been used to prevent estrus in the bitch. Chlormadinone acetate (CAP) is a synthetic progesterone with potent progestational activity [1]. This drug is very effective if the treatment starts during anestrus, i.e. subcutaneous administration of 3 mg/kg CAP twice a year can effectively prevent estrus without undesirable clinical side effects [6]. However, the effects of CAP administered orally on estrous activity in the bitch are still unknown. Here, the possibility of estrus prevention by oral administration of CAP twice a year or once a week was studied in the bitch. In the twice a year method, the CAP was divided into seven equal doses and administered daily for 7 days.

The animals used in this study included 24 mature bitches (1-4 years old, weighing 5.5-18.0 kg) and 3 immature bitches (6-7 months old, weighing 5.0-13.0 kg). Two kinds of drugs in tablet form were used (Lutoral 2 mg, Shionogi & Co., Ltd., Osaka; Prostal 25 mg, Teikoku Hormone Mfg. Co., Ltd., Tokyo). CAP was administered orally to mature bitches at 4-12.5 mg per head daily for 7 days or 2-6.25 mg per head once a week. Treatment was started approximately 4 months after a proestrous period. For immature bitches, the drug was administered orally at 2 mg per head once a week. All bitches were examined for reproductive status daily after treatment, by visual observation of the external genitalia. Furthermore, they were given a general physical examination including palpation of the mammary glands at regular intervals.

Sekeles *et al.* [6] reported that subcutaneous administration of CAP every 6 months could effectively prevent estrus in the bitch. In this experiment, however, CAP administered orally for 7 days in mature bitches had no long-term effects after cessation of the treatment. Two of 11 bitches came into estrus within 4-6 months after

Table 1. Prevention of estrus with chlormadinone acetate orally administered daily for 7 days in mature bitches

Dose per day (mg)	No. of bitches	Duration of observation (months)	No. of bitches showing estrus
4	3	4-5 (4.3) ^{a)}	0 (0) ^{b)}
6	2	5	1 (50)
8	3	4-6 (4.7)	0 (0)
12.5	3	4-6 (5.0)	1 (33)

a) Mean.

b) %.

cessation of the treatment (Table 1). The long-term effect of CAP by subcutaneous injection may be due to its low solubility in body fluid, but CAP administered orally may be rapidly expelled from the body after the end of the treatment. This result shows that oral administration of CAP every 6 months can not be used for prevention of estrus.

CAP administered orally once a week in immature and mature bitches prevented estrous activity during a treatment period of 1 year or longer (Table 2). In these groups, no abnormality was noticed in the general physical examinations, although there was an apparent increase in body weight after treatment. The results of these experiments show that weekly oral administration of CAP can be used safely and reliably for prevention of estrus in bitches. At present, we have been preventing estrus in bitches over 4 years period with 2 mg of CAP administered orally once a week.

Table 2. Prevention of estrus with chlormadinone acetate orally administered once a week in immature and mature bitches

Dose per week (mg)	No. of bitches	Duration of observation (months)	No. of bitches showing estrus	Body wt (kg)	
				Initiation of treatment	12 months after treatment
Immature bitches					
2	3	12-35 (24.7) ^{a)}	0	8.3±2.4 ^{b)}	11.7±1.9
Mature bitches					
2	8	12-15 (14.4)	0	10.1±1.1	10.7±1.3 ^{c)}
6.25	5	12-16 (13.6)	0	9.8±1.0	11.6±1.2 ^{c)}

^{a)}P<0.05, ^{b)}P<0.01 (Paired *t*-test).

a) Mean.

b) Mean±SEM.

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