Studies on the Use of Extra-Pituitary Gonadotropins in Genital Disorders in Bitch

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Abstract. Infertility in bitch is characterized by a variety of clinical manifestations depending on the disorders of reproductive system. Adjusting of ovarian hormonal activity is achieved by direct or indirect interconnection with other neuro-endocrine structures of hypothalamic-pituitary system. In the present study we aimed, based on the administration of pregnant mare's serum gonadotropin (PMSG) and human chorionic gonadotropin (hCG) combination, the induction of ovulatory oestrus in 10 bitches diagnosed with anoestrus. There were applied 2 therapeutic protocols. Therapeutic protocol no. 1 consisted of the administration for 9 consecutive days of 20 IU/Kg/day of PMSG, followed by the injection of an ovulatory dose of hCG – 500 IU/animal in the 10th day. Therapeutic protocol no. 2 consisted of the administration for 5 consecutive days of 20 IU/Kg/day of PMSG, followed by the injection of an ovulatory dose of hCG – 500 IU/animal in the 6th day. The results obtained in the two protocols were different. Rates of ovulation in bitches in the first protocol was higher compared to the ones of the second protocol.

Keywords: extra-pituitary gonadotropins, genital disorders, anoestrus, bitch

Introduction. Perpetuation of the species and breed, involves, beyond genetic selection, healthy females, especially from the reproductive point of view (Cernescu, 1995; Birtoiu and Seiciu, 2004). With the increase in both number and importance of pet carnivores, multiple reproductive problems began to appear. The occurrence of infertility states in bitches can be determined by many complex etiological factors (Feldman and Nelson, 1996; Davol, 2002).

Aims and objectives. In the present study we aimed, based on the administration of pregnant mare's serum gonadotropin (PMSG) and human chorionic gonadotropin (hCG) combination, the induction of ovulatory oestrus in 10 bitches diagnosed with anoestrus.

Materials and methods. Research methods used in genital disorders are varied and were represented by history, clinical examination, vaginal smears, hormonal determinations, ultrasound examination. Hormonal determinations consisted of dosage of progesterone and estrogens. Through the ultrasound examination correlated with data obtained from anamnesis, clinical examination, vaginal smears and hormonal assays, were diagnosed different reproductive disorders. The study was conducted on 10 bitches diagnosed with anoestrus; following investigations, pathological anoestrus had as incriminated causes the following situations: luteal cysts - 7 cases, administration of synthetic progestins - 1 case, corticosteroids administration – 1 case, and androgens administration - 1 case.

In this regard, there were applied 2 therapeutic protocols. Therapeutic protocol no. 1 consisted of the administration for 9 consecutive days of 20 IU/Kg/day of PMSG, followed by the injection of an ovulatory dose of hCG – 500 IU/animal in the 10th day. Therapeutic protocol no. 2 consisted of the administration for 5 consecutive days of 20 IU/Kg/day of PMSG, followed by the injection of an ovulatory dose of hCG – 500 IU/animal in the 6th day.

Results and Discussion. During treatment, in order to keep track of follicular development, vaginal smears were daily performed and examined, in proestrus and metoestrus phases. Estrogens concentration was determined in order to monitor the evolution
of follicular development, while progesterone level was determined to confirm ovulation. Hormonal determinations had different values depending on the treatment protocol. Under protocol I, progesterone gradual increase was observed from the 10th day of treatment and estrogens values peaked (155.3 pg / ml) on the last day of treatment (day 10). On days 2, 4 and 6 after treatment stopped, it was performed natural mating or artificial insemination of the female. Clinical signs of proestrus occurred 3-5 days after the first administration of PMSG.

Under protocol II, estrus installed between the 9th and 15th day of treatment. Progesterone levels began to rise from the 10th day of treatment. The maximum concentration of estradiol (144.5 pg / ml) was detected between days 8-10 of treatment. It seems that hCG stimulates follicular development and spontaneous ovulation approximately 7 days after starting of treatment. Proestrus clinical signs were observed, on average, 3-4 days after the first dose of PMSG. In both therapeutic protocols, the results of vaginal smears were correlated directly with clinical signs (proestrus and estrus).

The objectives pursued for evaluating the success of the two protocols used were represented by the specific behaviour of estrous period and the occurrence of ovulation. The specific manifestations of estrous period were clinically expressed in 4 cases (80.00%) in the first protocol, and in 3 cases (60.00%) in the second protocol.

Progesterone values obtained for the protocol I have revealed the occurrence of ovulation in 4 cases (80.00%), compared to protocol II, in which ovulation occurred in 2 cases (40.00%). It was considered that ovulation occurred when progesterone values had exceeded 8 ng / ml. In bitches in which ovulation did not occur, estrogens values were within the limits of characteristic estrous phase, which suggests that the development of ovarian follicles occurred, but it was not followed by follicular dehiscence.

Conclusion. The results obtained in the two used protocols were different; the rate of ovulation in bitches of the protocol I was 40.00% higher than that of the second protocol. Higher efficacy was obtained when PMSG was administered for 9 consecutive days, probably due to the more effective stimulation of follicular development, followed by ovulation.

REFERENCES