Preovulatory progesterone secretion terminates the duration of reproductive behavior during heat in the bitch

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Abstract

To evaluate the role of preovulatory progesterone on canine sexual behavior and the course of proestrus and estrus, seven bitches in spontaneous cycles were treated with aglepristone for temporary elimination of progesterone action. Aglepristone was administered at the dose 10 mg/kg b.m., two times 24 hours apart, beginning in early proestrus when progesterone concentration was <0.5 ng/ml. Seven untreated bitches served as a control group. Reproductive sexual behavior (standing behavior, display vulva, tail deviation) was evaluated according to behavioral score. Cytologic, clinical and vaginoscopic examinations and progesterone measurements were used for the determination of proestrus and estrus and estimation of ovulation time.

Although, a similar pattern and magnitude of sexual behavior were observed in both groups, the duration of a total reproductive behavior was significantly extended (28.71 ± 2.06 vs 17.00 ± 2.45, \( p < 0.05 \)) in experimental group; similarly, the length of cytologic estrus (23.86 ± 3.02 vs 11.14 ± 2.41, \( p < 0.05 \)) was prolonged in treated bitches. In contrast, ovulation rate, duration of proestrus did not differ between the groups (\( p > 0.05 \)). We conclude, that during the canine estrus cycle the preovulatory progesterone terminates the duration of reproductive behavior and cytologic estrus.

Key words: bitch, preovulatory progesterone, aglepristone treatment, reproductive behavior, estrus

Introduction

Bitches are monoestrus, non-seasonal and spontaneous ovulators. The physiological canine cycle is divided into four phases – 5 to 20 days of proestrus, 5 to 15 days of estrus, 50 to 80 days of metestrus and an anestrus typically lasting 80 to 240 days (Concannon 2011). Endocrine regulation for dog cycles is in many aspects different from those of females in other domestic species. Among numerous endocrine particularities such as a prolonged LH secretion, luteotrophic roles for both LH and prolactin, a prolonged luteal phase and the lack of uterine luteolytic mechanism, a pronounced preovulatory luteinization of follicles associated with progesterone increase is considered an important factor influencing reproductive events during the perio-