Progesterone level does not distinguish the different course of canine ovulation determined by ultrasonography

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Abstract

The aim of this study was to compare progesterone concentrations in bitches during ovulation with a different course of follicular collapse as determined by ultrasonography. The study was conducted on 36 animals of different breeds, from 2 to 7 years old, and from 2 to 44 kg of body weight. Ultrasound examinations of ovaries were conducted in the peri-ovulatory period until ovulation was detected. Based on USG scans the animals were divided into two groups: group A with fast follicular collapse within 1 day, and group B with gradual follicular collapse within 2-3 days. Progesterone measurements were performed in both groups on the day when the beginning of ovulation was diagnosed by USG. Follicular collapse in group A was observed in 27.8% of animals (n=10) and in group B in 72.2% (n=26). There were no statistical differences (p<0.05) in progesterone concentrations between groups A and B (6.68 ± 0.92 ng/ml and 6.81 ± 0.57 ng/ml respectively). From 31 bred bitches (natural mating or insemination) pregnancy was confirmed in 29 females (93.5%). These results provide information about the sufficient stability of progesterone concentration during ovulation regardless of the follicular collapse speed. Ultrasonography during the peri-ovulatory period combined with progesterone measurements allows progress in ovulation management.

Key words: follicular collapse, ovaries, canine, breeding management

Introduction

Dog breeding has gained increasing interest in recent decades. Successful dog reproduction is based predominantly on the determination of optimal insemination or mating time, which is related to ovulation. To overcome the main drawbacks of these currently applied methods there is a practical need for exact ovulation detection in the bitch. Over the past few years transabdominal ovarian ultrasonography has been developed as a non-invasive method for this purpose (Boyd et al. 1993, England et al. 1993, Bocci et al. 2006, Fontbonne et al. 2006, Levy et al. 2007). However, in contrast to other species, ovarian ultrasonography in the bitch is difficult, because of the relatively small size of the ovarian structures, as well as their atypical performance in the preovulatory period. It has been shown that about 70-80% of follicles ovulate approximately at 24-72 hours after the LH peak (Concannon 2000, Goodman 2002, Fontbonne et al. 2006, Reynaud et al. 2006, Concannon 2009).