ABSTRACTS

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Evaluation of a commercially available luteinizing hormone test to determine the breeding time in the bitch

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Progesterone assays have been widely used by veterinarians in Europe to determine the insemination time in the bitch. However, LH assays, as a diagnostic tool for timing canine breeding as proposed in the nineties, especially in the American literature (1,3), are currently not commonly used in Europe.

OBJECTIVES: The objectives of this study were to evaluate the efficacy and accuracy of the Witness LH® test alone, without the need of subsequent progesterone assays, for the determination of the breeding date in the bitch.

MATERIALS AND METHODS: Ten bitches aged 37 ± 4.3 months were included in this study. Their breeds were Briard, Bull terrier, Doberman (n = 2), French bulldog, German shepherd, Icelandic shepherd, Miniature Bull terrier, Parson Russell terrier and Yorkshire terrier. The bitches were selected based only on feasibility of the owner to come to the clinics every day. Daily blood samples were collected when vaginal cytology revealed more than 50% of superficial cells, transferred to a serum-separating tube and centrifuged for 5 minutes at 220 g. Progesterone levels were determined the same day using the quantitative progesterone assays (Elecsys®2010, Roche Diagnostics, Germany). According to what was previously described in our laboratory, ovulation was estimated to occur at a level of 6ng/ml (2). The serum samples were stored at -20°C for the LH assay. The LH assays were performed blindly a posteriori using the Witness LH® Luteinizing Hormone Test (Pfizer, France), as described by the manufacturer. Three drops of serum were placed in the special container of the kit and the results were read after 20 min. The presence of greater or similar intensity line in the test area when compared with the control line was considered positive for LH. Once the LH peak was determined, the results were compared with the levels of progesterone. All bitches were mated (n=5) or artificially inseminated with fresh (n=2), chilled (n=2) or frozen (n=1) semen. Pregnancy, prolificity and parturition date were recorded in the 7 bitches that had whelped by February 2012.

RESULTS: In 7 bitches, the test results were easy to interpretate with a test line intensity superior or equal to the control on one precise day. In 3 bitches, the maximum colour intensity of the test was slightly inferior to the control. However, in these 3 bitches, we observed an increase followed by a subsequent decrease of the intensity of the test line. Therefore, in these 3 bitches, the day of LH peak was considered to be on the day of the highest colour intensity of the test line. The day of maximum intensity occurred at a mean level of progesterone of 2.42 ± 0.2ng/ml (SEM). In 8 bitches, the estimation of the day of the LH peak occurred 2 days before the estimated of ovulation date, and in 2 bitches, it occurred 3 days before the estimation of ovulation by progesterone assays, as described in our laboratory (2). The tests were kept at room temperature and maintained the results readable days later without any change in the colour signal. A posteriori, we could determine that the bitches had been mated or artificially inseminated 4.3 ± 0.3 days after the LH maximum intensity. All bitches were mated (n=5) or artificially inseminated with fresh (n=2), chilled (n=2) or frozen (n=1) semen. Pregnancy, prolificity and parturition date were recorded in the 7 bitches that had whelped by February 2012.

CONCLUSION: Although the study should be performed on a higher number of animals, the use of the Witness LH® test seems a valuable and accurate alternative to successfully determine the breeding time in bitches. This test should be positively received by European veterinarians.
