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ESVE – O – 14

THE USE OF A TRH STIMULATION TEST, WITH MEASUREMENT OF PLASMA CONCENTRATIONS OF GROWTH HORMONE AND THYROID STIMULATING HORMONE, TO DIFFERENTIATE BETWEEN PRIMARY HYPOTHYROIDISM AND NON-THYROIDAL ILLNESS IN DOGS. T. Pijnacker, C.F. Vermeulen, M. van der Vinne, H.S. Kooistra, J.A. Mol. Utrecht University, Utrecht, Netherlands

Hypothyroidism is one of the most common endocrinopathies in dogs. The diagnosis of hypothyroidism relies upon measurement of basal plasma concentrations of total thyroxine (T_4) and thyroid stimulating hormone (TSH). A low plasma T_4 combined with a high plasma TSH points to primary hypothyroidism. However, 30–38% of hypothyroid dogs have TSH values within the reference range. Consequently, a low plasma total T_4 concentration in combination with a plasma TSH concentration within the reference range does not distinguish between dogs with hypothyroidism and dogs with non-thyroidal illness (NTI). A potential interesting observation from previous studies (Lee et al; 2001, and Diaz-Espiñeira et al; 2008) is that hypothyroidism in dogs is associated with increased release of growth hormone (GH).

The aim of this study was to evaluate whether a TRH stimulation test can differentiate between dogs with NTI and dogs with hypothyroidism that have a plasma TSH concentration within the reference range, by measuring plasma concentrations of GH and TSH.

21 dogs with clinical signs consistent with hypothyroidism, a plasma TT4 concentration below the reference interval (19–46 nmol/L), and a plasma TSH concentration within the reference interval ($<0.60 \mu\text{g/L}$) were included in this study. Thyroid scintigraphy was performed to classify dogs as having hypothyroidism or NTI. All dogs underwent a TRH stimulation test in which plasma concentrations of TSH and GH were measured twice before intravenous administration of $10 \mu\text{g/kg}$ TRH ($t = -15$ and $t = 0$) and 30 and 45 min after TRH administration.

11 of the 21 dogs were classified as hypothyroid and 10 dogs as having NTI by thyroid scintigraphy. There were no differences in baseline characteristics between the groups except for gender. The plasma TSH concentration did not change significantly in the hypothyroid dogs after administration of TRH, whereas it significantly increased in the NTI dogs ($P < 0.001$). In contrast, the plasma GH concentration increased significantly in the hypothyroid dogs after TRH administration ($P = 0.009$), whereas it did not change in the NTI dogs.

The TRH stimulation test with measurement of circulating concentrations of TSH and GH could be used to differentiate between hypothyroid dogs and NTI dogs that have clinical signs of hypothyroidism, a low basal TT4 concentration and a basal TSH concentration within the reference interval. This is a promising test which might be of valuable use in primary veterinary practice.

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INTERRELATION BETWEEN THYROID FUNCTION AND SEX HORMONES IN FEMALE GERMAN SHEPHERD DOGS. P. Scarpa¹, F. Iavazzo¹, M. Beccaglia², A. Monino³, P. Dri³, G. Milite³. ¹University of the Study of Milan, Milan, Italy, ²Ambulatorio Veterinario Beccaglia, Lissone, MB, Italy, ³Animal Care srl, Martignacco, UD, Italy

In veterinary literature, data about the interaction between thyroid gland and female reproductive status are lacking. Furthermore, previous studies have often referred to male dogs and few data are available about thyroid influence on different phases of the bitch estrous cycle.

The aim of this study was to determine the influences of the different phases of estrous cycle on thyroid hormones in German Shepherd bitches.

Seventeen clinically healthy German Shepherd bitches (9 months to 6 years old) were monitored during a complete estrous cycle (proestrus, estrus, diestrus, anestrus); the different phases were determined by vaginal cytology. Two blood samples were collected by cephalic vein in each phase, between 11 am and 2 pm, after 12–24 h fasting. Thyroid hormones (TT4, fT4, TT3, fT3), TSH, progesterone, 17- β -estradiol, serum triglycerides and cholesterol were assessed in each blood samples. At the beginning and at the end of the study a complete hematological and biochemical evaluation was also performed. Seven bitches were bred during the study, and hormone concentrations were also evaluated during pregnancy.

Data were statistically analyzed: correlation test was performed between thyroid and pituitary hormones with age, between the different hormones assessed (thyroid, pituitary and sexual hormones) and between estradiol and cholesterol. One-way ANOVA was used to compare the averages of each parameter (thyroid/pituitary) in different phases of the cycle and in diestrus gravidarum and not gravidarum.

Effect Size (Cohen's d) or Root Mean Square Standardized Effect were calculated to measure the magnitude and strength of the statistically significant research findings.

A significant negative correlation between age and TT4 ($r = -0.367$; $P < 0.05$), fT4 ($r = -0.266$; $P < 0.05$), fT3 ($r = -0.335$; $P < 0.05$) was found.

One way ANOVA showed that TT4 concentration during estrous and diestrus phase, was significantly higher than in proestrus and anestrus phase ($P = 0.0332$).

TSH concentration during diestrus and pregnancy was not significantly different by two tails T -test ($P = 0.0507$), even though a higher TSH concentration during pregnancy was evident.

TT4 ($r = 0.40289$; $P < 0.001$) and fT4 ($r = 0.260$; $P = 0.0067$) were positively and significantly associated with progesterone.

TSH was positively and significantly correlated with 17- β -estradiol ($r = 0.2$; $P = 0.0388$), while TT4 was negatively and significantly correlated with 17- β -estradiol ($r = -0.3179$; $P = 0.0008$).

Cholesterol was negatively and significantly correlated with 17- β -estradiol ($r = -0.3355$; $P = 0.0001$) and was significantly higher during diestrus ($r = -0.3355$; $P = 0.0001$). There was no significant correlation between total triglycerides and 17- β -estradiol.

Results showed an influence of reproductive status on thyroid function, especially during progesterone-prevalent phase (diestrus) and especially relating to TT4 concentration.

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ESVIM – O – 1

CALIBRATED AUTOMATED THROMBOGRAPHY TO EVALUATE THROMBIN GENERATION IN DOGS WITH IMMUNE-MEDIATED HEMOLYTIC ANEMIA. B.Y. Cuq¹, S.L. Blois¹, R.D. Wood¹, A.C. Abrams-Ogg¹, C. Bédard², G.A. Wood¹. ¹Ontario Veterinary College, University of Guelph, Guelph, Canada, ²Faculty of Veterinary Medicine, University of Montreal, ST Hyacinthe, Canada

Up to 60% of the mortality in dogs with immune-mediated hemolytic anemia (IMHA) is associated with thrombosis or disseminated intravascular coagulation. No conventional hemostatic test is accurate to evaluate the risk for hypercoagulability. Viscoelastic testing has been proven to be influenced by anemia, and might not