Breed-specific reference range for assessing thyroid function – TT₄ and TSH – in Portuguese Water Dog (PWD)

Mara Nunes, Luísa Mateus, Teresa Villa de Brito, Rodolfo Oliveira Leal, Telmo Nunes, Telmo Casimiro, Hugo Pereira, José Henrique Duarte Correia, Ana Mafalda Lourenço

CIISA, Faculdade de Medicina Veterinária, Lisboa, Portugal

OBJECTIVES

PWD is a worldwide popular breed which is predisposed for hypothyroidism. More than assessing thyroid function, this study aims to evaluate whether there is a breed-specific reference range (RR) for TT₄ and TSH in PWD.

METHODS

Serum TT₄ and TSH concentrations from 99 healthy PWD were evaluated by immunoassay using commercial

test kits (IMMULITE® 1000). Animals were considered if between 6 months and 10 years old; healthy status was assessed using a tailored health questionnaire and complete physical examination; rigorous exclusion criteria were followed to rule out potential interferences. Eligible animals were further screened, including CBC and serum cholesterol concentration. Means between groups were compared with Mann-Whitney U test and ANOVA.

RESULTS

Results showed that 18,95% had lower TT₄ than usual laboratory RR (1.3–2.9 µg/dL). TT₄ and TSH concentrations were found to range from 0.8–2.4 µg/dL and 0.0–0.5 ng/mL (usual laboratory RR 0.0–0.65 ng/mL) with $\pm$ SD of 1.64 ± 0.47 µg/dL and 0.17 ± 0.24 ng/mL, respectively. Significantly higher TSH levels ($p < 0.015$) were found in neutered females. No significant differences were detected for gender. Increasing age was associated with decreasing TT₄ and increasing TSH concentrations.

STATEMENT (CONCLUSIONS)

PWD have a lower RR for TT₄ and TSH. TT₄ findings resemble already published results for other breeds (e.g. Greyhound, Basenjis). However, to our knowledge, low TSH breed-specific RR has not been reported. Consequently, PWD maybe over diagnosed for hypothyroidism. These findings reinforce the need of breed-specific assessment of RR for thyroid parameters, particularly in predisposed breeds.

Serum serotonin as a marker for behaviour problems in dogs

Corinna N Weber, Brigitte Koenig, Elisabeth Mueller

Laboklin GmbH & Co. KG, Bad Kissingen, Germany

OBJECTIVES

Behaviour problems like hyperaggression or separation anxiety are often seen. Some of these problems may be due to lower serotonin levels. We wanted to show that serotonin is a useful parameter to help diagnose behaviour problems.

METHODS

Serotonin analysis was performed using a commercial available ELISA test developed for humans. The test was validated using serum samples from clinically healthy dogs. For the study, serum samples were taken from dogs with diagnosed behaviour problems ($n=40$), among

these separation anxiety ($n=22$) and hyperaggression ($n=9$), as well as from clinically healthy dogs with normal behaviour ($n=49$).

RESULTS

Test validation found an intra- and inter-assay variation coefficient of 7.5% and 9.1%, resp., for dog serum samples. The normal behaving dogs had a mean serotonin concentration of 184.79 ± 91.13 ng/mL (minimum: 65.84 ng/mL, maximum 421.93 ng/mL). In the samples from dogs with diagnosed behaviour problems, we found serum serotonin concentrations of 66.15 ± 32.41 ng/mL (minimum: 5.70 ng/mL, maximum 153.74 ng/mL), with almost no difference between anxiety (65.35 ± 29.68 ng/mL) and hyperaggression (56.08 ± 47.98 ng/mL). One sample was excluded because of extremely high serotonin concentration (2165 ng/mL).

STATEMENT (CONCLUSIONS)

The serotonin concentration was markedly lower in dogs with behaviour problems like anxiety or hyperaggression, than in clinically healthy dogs with normal behaviour. Serum serotonin can be a useful parameter for the diagnosis of behaviour problems as it can lead to therapy options using serotonin agonists or selective serotonin reuptake inhibitors without the danger of serotonin syndrome.