PREVALENCE OF AND RISK FACTORS FOR FELINE HYPERTHYROIDISM IN SOUTH AFRICA

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Introduction

Feline hyperthyroidism is an emerging metabolic disease of middle-aged to older cats that seems to have shown a marked increase in its world-wide prevalence within the last three decades. Epidemiological studies performed to date have also shown a marked geographic variation in the prevalence of the disease (Figure 1). Although clinical features of feline hyperthyroidism as well as its pathological lesions are well described, the exact pathogenesis of the disease still remains obscure and despite a plethora of epidemiological studies, clear risk factors for the disease have not been identified. As far as the authors are aware, no prevalence studies have been performed in South Africa, a geographic area in which hyperthyroidism in cats has only relatively recently been observed and reported and the prevalence of which subjectively appears to be on the increase. The purpose of this study was to determine the prevalence of feline hyperthyroidism in South Africa and to identify potential risk factors associated with the disease in this geographic location.

Materials and Methods

This analytical, cross-sectional study was conducted on cats that were presented at five general veterinary practices throughout South Africa. Cats were included in the study if they were 9 years of age or older and had resided solely in South Africa. Cats were excluded from the study if they presented in shock or were moribund, if their demeanour precluded the collection of a blood sample, if they were undergoing chemotherapy or if they had been treated with drugs that could potentially affect T4, and TSH concentrations. At the time of blood sampling a questionnaire was completed regarding health status of the cat, vaccination history, internal and external parasite control, diet and environment.

Serum total T (Tt) and canine TSH (cTSH) concentrations was determined in all cats by use of a chemiluminescent competitive immunoassay (Immulite® 1000 Canine total T4, Siemens Medical Solutions Diagnostics) and a chemiluminescent immunometric assay (Immulite® 1000 Canine TSH, Siemens Medical Solutions Diagnostics) respectively . Free T4 (Tf) concentrations was also measured in cats with a serum total T concentration between 30-50 nmol/l and a serum cTSH concentration less than 0.03ng/ml using equilibrium dialysis. Cats with a serum T4 concentration greater than 50 nmol/l or cats with a serum Tt concentration between 30-50 nmol/l, a serum cTSH concentration less than 0.03ng/ml and a serum Tf concentration greater than 50pm/l were classified as hyperthyroid.

Prevalence of hyperthyroidism, with exact binomial 95% confidence intervals (CIs), was calculated for all cats combined, for cats classified as healthy and for those classified as sick. Prevalence was compared between healthy and sick cats using a two-tailed Fisher’s exact test. Univariable associations between potential risk factors and hyperthyroidism were assessed using univariate analysis for these clinical signs as predictors of hyperthyroidism demonstrated that hyperthyroid cats were more likely to have weight loss than cats without the disease. The prevalence of hyperthyroidism within the study population was 7% with a serum Tt concentration greater than 50 nmol/l, a serum cTSH concentration less than 0.03ng/ml and a serum Tf concentration greater than 50pm/l were classified as hyperthyroid.

The prevalence of hyperthyroidism, with exact binomial 95% confidence intervals (CIs), was calculated for all cats combined, for cats classified as healthy and for those classified as sick. Prevalence was compared between healthy and sick cats using a two-tailed Fisher’s exact test. Univariable associations between potential risk factors and hyperthyroidism were assessed using a univariable analysis for these clinical signs as predictors of hyperthyroidism demonstrated that hyperthyroid cats were more likely to have weight loss than cats without the disease.

Conclusions

Feline hyperthyroidism appears to be a more common disease in older cats presenting to private veterinary clinics in South Africa than previously thought. Typical clinical signs associated with hyperthyroidism such as weight loss, verocious appetite and palpable goitre do not appear to be clinical features of the early disease in South African cats. Hyperthyroidism needs to be considered in any cat presenting with weight loss or tachycardia (HR > 200) in this cat population. Risk factors for feline hyperthyroidism, previously found in other epidemiological studies, specifically older age and the presence of canned food in the diet also appear to be present in this study population.