

STUDY ON INCIDENCE OF THYROID ENDOCRINOPATHIES IN COMPANION ANIMALS

STUDIU PRIVIND INCIDENȚA ENDOCRINOPATIILOR TIROIDIENE LA ANIMALELE DE COMPANIE

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ABSTRACT | REZUMAT

The research focused on determining the incidence of thyroid endocrinopathies in order to inform practitioners about the evolution of these conditions insidious or non-specific signs and the importance of using laboratory tests in this context.

The study was conducted in the Clinic of the Faculty of Veterinary Medicine in Bucharest on 01.01.2017-25.08.2017 identifying 18 positive samples for hypothyroidism and 4 samples indicating hyperthyroidism.

Hypothyroidism was detected in a proportion of 72% in canines and 27% in felines.

Regarding hyperthyroidism, a positive result exclusively in felines (4 cases) is indicated.

The study reflects an increased prevalence of hypothyroidism and a reduced prevalence of hyperthyroidism.

Keywords: incidence, thyroid, companion animals

Cercetarea s-a orientat spre determinarea incidenței endocrinopatiilor tiroidiene în vederea informării medicilor veterinari practicieni în privința evoluției acestor afecțiuni sub formă insidioasă sau cu semne nespecifice și importanța utilizării testelor de laborator în acest context.

Studiul a fost efectuat în Clinica Facultății de Medicină Veterinară București în perioada 1.01.2017-25.08.2017 identificând 18 probe pozitive pentru hipotiroidism și 4 probe ce indică hipertiroidism. Hipotiroidismul a fost depistat într-o proporție de 72 % la canide și 27% la feline.

În ceea ce privește hipertiroidismul este indicat un rezultat pozitiv exclusiv la feline (4 cazuri). Studiul reflectă o prevalență crescută a hipotiroidismului și redusă în privința hipertiroidismului.

Cuvinte cheie: incidența, tiroidă, animale de companie

Thyroid endocrinopathies are hormonal dysfunctions manifested in the form of hypothyroidism and hyperthyroidism, leading to disorders with an increase incidence. according to literature data (9).The aim of the research is to specify the incidence of thyroid endocrinopathies in the Clinic of the Faculty of Veterinary Medicine in Bucharest, as well as to prevent veterinary practitioners about insidious evolution of these diseases or/with non-specific signs and the importance of using laboratory tests in this context.

MATERIALS AND METHODS

The study was conducted in the Clinic of the Faculty of Veterinary Medicine in Bucharest during 2017 on a number of 49 samples obtained from 26 dogs, 22 cats and one equine, 24 females and 25 males, aged 1 year to 20 years.

Sample collection was done on a lithium heparin container, centrifuged for 10 minutes at 6,000 rpm in the Grant Bio PCV-2400 Combined Centrifuge, selected as plasma or serum type, and SNAPshot was used to perform the Tt4 assay.

SNAPshot DX allows dilution of samples from felines and canines to perform Snap total T4 determinations, which originally had a value greater than 7.0 ug /dL. Equine samples are not diluted (11).

To ensure a correct result, is performed an dilution (serum) under the conditions of an undiluted sample result greater than 7.0 ug / dL, using the lowest dilution factor (11).

Using the appropriate pipette - assured in the kit - transfer the sample and the homogenized conjugate to the test tube keeping the volumes indicated in the leaflet (Table 1) (11).

References refer to test values using a particular protocol. If the results will be outside these references it will be reported as > (greater than the upper limit of the reference) or < (less than the lower limit of the reference) (11).

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Table 1

T4 dosing protocol through SNAPshot DX (11)

PROTOCOL	VOLUME PROBE	COLOR OF THE PIPETTE	CONJUGATED VOLUME	REFERENCES*
DOG SCREENING	65 UL	LI-HEPARIN	300UL	0,5-3,5 UG/DL
DOG MONITORIZATION	65 UL	VERDE	300UL	2,0-7,0 UG/DL
FELINE SCREENING	65 UL	VERDE	300UL	2,0-7,0 UG/DL
FELINE MONITORIZATION	65 UL	GRI	300UL	0,5-3,5 UG/DL
EQUINE SCREENING	65 UL	GRI	300UL	0,5-3,5 UG/DL
EQUINE MONITORIZATION	65 UL		300UL	2,0-7,0 UG/DL

When incubation is complete, the snap device is placed on a horizontal surface and transferred to the sample well. When the color of the activation circle appears, press the activator firmly until it reaches the entire SNAP device. The device is then inserted into the available analyzer port (11). Interpretation of results is performed according to the manufacturer's recommendations (Table 2) (11).

Table 2

Parameters Snap total T4 (11)

Values	Canine	Feline	Equine
LOW Low-Normal	<1.0 1.0- 2.0	< 0.8	<1.0
NORMAL	1.0-4.0	0.8-4.7	1.0-3.8
Gray area in geriatric or symptomatic felines		2.3-4.7	
HIGH LEVEL	>4.7	>4.7	> 3.8
Therapeutic limit	2.1-5.4		

RESULTS AND DISCUSSIONS

In the study of the incidence of thyroid endocrinopathies in companion animals, we considered the following parameters that influence the outcome and

conclusion, such as the species, age, sex and degree of symptomatology manifested.

From the total of 49 samples, the results of the laboratory analyzes correlated with the symptomatic evolution identified 26 samples that are part of the normal parameters, 22 samples showing the presence of a thyroid hormone dysfunction, hypothyroidism 18 and hyperthyroidism 4. (Fig. 1)

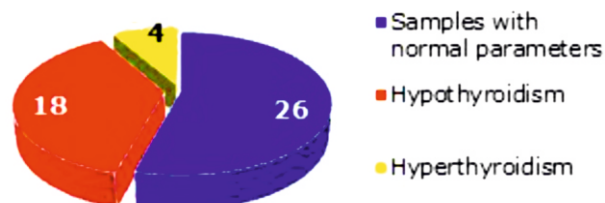


Fig. 1. Graphical representation of the Snap total T4 dosage

Regarding the study on the incidence of thyroid diseases with hypothyroidism, depending on the species, our result indicates a 72% proportion of canines and 27% of felines. (Fig. 2)

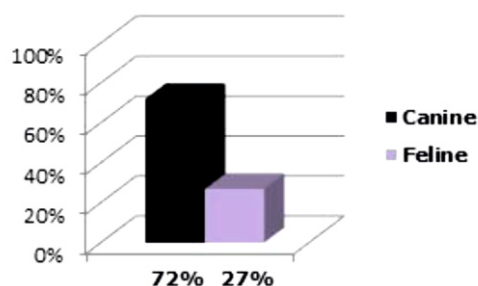


Fig. 2. Graphic representation of the incidence of hypothyroidism by species

The result obtained confirms studies in the literature that hypothyroidism is predominantly recorded in dogs affecting 1 dog in 200 (5), predisposed to Golden Retriever, Doberman and Cocker spaniel (5).

Feline develops hypothyroidism, in iatrogenic form, triggered by the treatment of hyperthyroidism or extirpation of thyroid and the primary form appears extremely rare (3).

In our study, 5 cats with suspected thyroid hormone pathology were evaluated, and T4 dosing confirmed the presence of hypothyroidism with geriatric onset, 12 years (1 case), 14 years (2 cases) and 17 years (2 cases).

In the case of hypothyroidism prevalence by sex, we recorded 55.6% in females and 44.4% in males with no significant difference.

Numerous researches highlight that sterilization is a major risk factor in triggering hypothyroidism (8), but in our study, this issue could not be investigated.

Hypothyroidism was manifested at different age ranges, but with a prevalence of 56% in animals aged 5 to 10 years and 39% in dogs and cats between 10-20 years and 5% in animals between 1 and 5 years of age (Fig. 3).

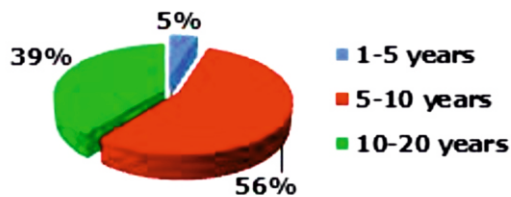


Fig. 3. Incidence of hypothyroidism by years

Based on age predisposition, the percentage of 56% of thyroid pathology is readily predictable and it is well known from preliminary studies that onset of pathology occurs in adults (3).

With regard to hyperthyroidism, a positive result is exclusively found in felines (4 cases) aged between 10 and 20 years, females and European breed.

Hyperthyroidism is considered to be the most common endocrine disorder seen in cats and rarely in dogs and, according to research by other authors, there is no predisposition to sex or breed, but is frequently recorded at an average age of 13 years; and only 5% of cats with hyperthyroidism are less than 10 years old (1,6,7,10).

Animals with hypothyroidism or hyperthyroidism may have a characteristic symptom, they may develop asymptomatic or insidious (4, 2).

In the present study, 13 animals showed clinical

symptoms specific to either hypothyroidism (9 subjects) or hyperthyroidism (3 cases) and 10 animals were asymptomatic (9 animals with hypothyroidism and one cat with hyperthyroidism) (Fig.4).

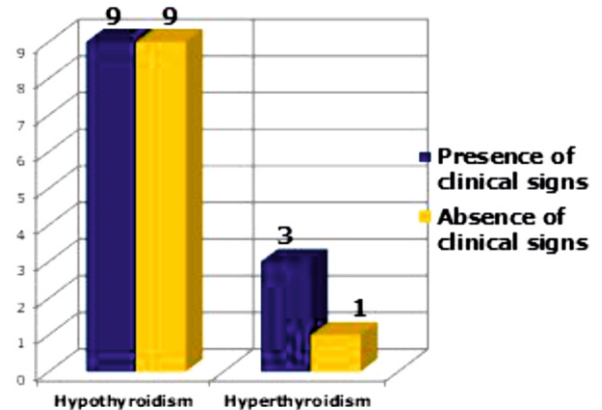


Fig. 4. Visual representation of the observed degree of symptoms

Our observations indicate a manifestation of hypothyroidism as well as asymptomatic evolution, proving the non-specific character of the disease and the importance of testing the animal with the least suspicion of inactive thyroid.

CONCLUSIONS

The incidence of hypothyroidism includes an average of 2.25 cases per month diagnosed over a period of 8 months, with a significant proportion, suggesting the importance of performing a thorough clinical examination and additional testing, and in case of hyperthyroidism the study reflects a small number of diagnosed animals.

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