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DIAGNOSIS OF HYPERTHYROIDISM IN CATS IN CONDITION OF FARM AND PET CLINIC (ISRAEL)

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Introduction. The clinical condition of feline hyperthyroidism occurs due to excessive production and secretion of the thyroid hormones, thyroxine (T4) and triiodothyronine (T3). It was first described in cats in 1979 [1]. In cats, hyperthyroidism is almost always a primary autonomous condition of one or both thyroid glands, with most cats having benign adenomatous disease of both glands, and a minority having malignant thyroid carcinoma [2, 3].

The aim of the study was to find informative parameters for diagnosing of hyperthyroidism in cats (taking into account anamnestic data, a clinical examination findings, ultrasound investigation of thyroid gland, hematological in blood, biochemical and total thyroxine (T4) concentration in blood serum.

Materials and methods. The material for the study was 10 cats, aged from 9 to 11 years, from 3.3 to 3.9 kilograms of body weight. The animals were of both sex (male and female). All the cats were kept indoors. They had constant access to food and water, high-quality industrial feed was used to feed the animals. All animals consume clean and filtered water. Owners regularly give their pets anti-parasitic drugs of different brands against endoparasites and ectoparasites. We made diagnosis comprehensively and used the following clinical methods – examination, thermometry, palpation, auscultation, ultrasound examination of the thyroid gland, hematological and biochemical blood tests, blood serum tests on the content of total thyroxine concentrations. An ultrasound diagnosis was also performed on the heart, as well as the abdominal cavity for differential diagnosis from other diseases.

Results. The study was carried out among two groups of five cats in each one. At determining the anamnesis in the process of communicating with the owners of the animals the following complaints were established: loss of body weight in 10 cats, change in appetite (polyphagia) in the 8 th, hair coat loos shine in 9 th, hyperactivity was observed in 5 cats, polydipsia and polyuria were noticed in 4 animals, and gastrointestinal disturbances in 6 cats. Clinical examination revealed: in 5 cats a change in behavior - hyperactivity; all animals had a loss of body weight; at palpation of the abdominal cavity walls we did not found tenderness and tension; palpation of the abdominal cavity organs found that liver and kidneys were normal, not enlarged, not painful; upon palpation in the area of the larynx, it was found that the thyroid gland was enlarged in all cats gland (2.5-3.5 cm); dehydration was found in 5 cats, by pulling the skin fold and slowly straightening it; body temperature measurement found that in 2 cats body temperature was elevated (39o C); during auscultation of the heart in 10 cats it was found tachycardia (230-250 bpm). Periodic systolic murmurs were detected in 2 cats. Laboratory findings. Hematological examination: erythrocytosis in 2 cats, 12,78-13,5 G/l (norm 6-10 G/l); macrocytosis in 2 cats, lymphopenia in 6 cats, 1,02-1,12 × 10^3/µl (norm 1,5-7,0 × 10^3/µl); leukocytosis in 2 cats, 16,8-20,3 T/l (norm 4-15 T/l); Biochemical research found increased alanine aminotransferase activity in 8 cats, 152-175 U/l (normal 23-109 U/l); - increased level of alkaline phosphatase in 5 cats, 110,3-132,2 U/l (norm 4-81 U/l); - increased level of urea at 6 - 14,2-16,2 mmol/l (normal 5,4-12,0 mmol/l); - increase in creatinine concentration in 5 cats, 155,1-179,0 µmol/l (norm 61,8 – 140,0 µmol/l). Other blood parameters are within normal limits. A study of total T4 showed that all cats had it a significantly elevated level of 90,2±1,15 nmol/l in comparison with a norm (12,5-50,0 nmol/l) in first group and 97,90± 1,36 nmol/l in cats from experimental group. This parameter is pathognomonic to confirm the final diagnosis of hyperthyroidism in cats.

Conclusion

1. Hyperthyroidism in cats is a non-infectious disease that violate functions of many organs, therefore clinical and laboratory changes in organism are not specific and can be refer for many diseases (loss of body weight in 100 % cats, change in appetite (polyphagia) in the 80 %, hair coat loos shine in 90 %, hyperactivity was observed in 50 % of cats, polydipsia and polyuria were noticed in 40 % of animals, and gastrointestinal disorder in 60 %).

2 The main symptoms and indicators for diagnosis are: increasing the size and structure of the thyroid gland, which is possible detect during palpation and ultrasound investigation (the thyroid gland was increased in size bilaterally in 80 % of cats and unilateral in 20 % of animals, 241,1 mm3 to 493,7 mm3 (the norm is up to 140 mm3), the gland became lobular appearance with a wavy surface of the walls, thyroid gland were of heterogeneous structure: hypoechoic in 60 % cats; isoechoic in 40 % cats, cystic formations in the form of echo-negative areas were found in 20 % cats. A unilateral lesion was manifested in the increase of only one lobe gland in size from 557,1 mm3 to 671,4 mm3.

And pathognomonic parameter for diagnosis hyperthyreosis in cats was increase in the level of total T4 in of blood: 90,20±1,15 and 97,90±1,36 nmol/l.

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