

Hyperthyroidism

Hyperthyroidism is an endocrine disorder that is common in cats and rarely seen in dogs.

Cause

Hyperthyroidism is most commonly caused by a benign overgrowth of thyroid tissue, often involving both of the thyroid glands in the neck. Rarely, it can be caused by a malignant (cancerous) growth in the thyroid gland.

The incidence of hyperthyroidism has increased in the last several decades; studies are ongoing evaluating diet and exposure to environmental toxins as possible contributing factors. There is some clinical evidence that feeding a diet that is more than 50% of canned food may contribute to the development of hyperthyroidism.

Clinical Signs

Thyroid hormone regulates the metabolic rate in the body, including how the body utilizes energy. Patients with excess thyroid hormone drink excessively and have enormous appetites but lose weight in spite of the increase in caloric intake. Families often notice restlessness and change in behavior; cats, in particular, tend to wander and vocalize at night. Rarely, patients will be markedly lethargic rather than hyperactive.

Early in the disease, hyperthyroid patients are thin and appear unthrifty with poor hair coats and dry skin and nails. Patients often have high heart rates and blood pressure. An enlarged thyroid gland might be palpable in the neck. In order to produce thyroid hormone, the body requires iodine from the diet. Patients eating a low iodine diet will develop an overgrowth of the thyroid gland, called a goiter, but will not be able to produce active thyroid hormone or be hyperthyroid.

Patients often have abnormalities in lab tests that are typical of excess thyroid hormone. Without therapy, patients become progressively thin, weak, and lethargic associated with the stress of the hormone on muscle tissue, particularly the heart. Abnormal heart rhythms and the development of congestive heart failure will develop without intervention.

Diagnosis

Hyperthyroidism is diagnosed by blood tests that measure circulating thyroid hormone (T4). Because this test has become a part of yearly screening tests of senior cats, early diagnosis, prior to the onset of life-threatening clinical signs, is common. These tests are indicated in any patient showing the typical signs of hyperthyroidism, but early diagnosis through routine screening is certainly preferable. Patients found to have excess circulating thyroid hormone should also have blood and urine tests to evaluate organ function and cell counts. Radiographs (X-rays) are recommended to assess the size and structure of the heart to determine if additional tests are necessary to assess heart function. Hyperthyroid cats with significant elevations of liver or kidney values should have an abdominal ultrasound to determine if a second health issue should impact therapeutic decisions.

In some patients, the circulating thyroid hormone (T4) level does not coincide with clinical signs of disease, and additional testing is recommended. This is more common when the patient has other health issues, which can suppress circulating T4. In these patients, a Free T4 (fT4), T3 suppression test, and/or thyroid score may be recommended. These tests are less affected by other health conditions.

Patients that are candidates for advanced radiation therapy will have specialized testing done called radioactive thyroid scintigraphy. This test is done by a veterinary radiologist and requires specialized equipment and training. It is generally done as a part of the treatment protocol.

Because the increased metabolic rate associated with hyperthyroidism increases blood flow to the kidneys, it is particularly important to evaluate kidney function with blood and urine tests prior to therapy as well as after therapy has been initiated.

Treatment

There are many therapeutic options for patients with hyperthyroidism. Methimazole is an oral anti-thyroid medication; it must be given one or two times daily for the life of the cat. This medication blocks the uptake of iodine, which is necessary for the production of active thyroid hormone. In recent years, limited iodine diets have been used as an alternative therapy for hyperthyroidism. Patients must eat this diet exclusively; there can be challenges with palatability especially in multi-cat households.

Surgical removal of the thyroid gland used to be a popular option for treatment of hyperthyroidism but is now mostly reserved for patients with cancerous thyroid tumors.

Radiation therapy is the most definitive way to treat hyperthyroidism. This is accomplished by giving an injection of radioactive iodine. Because iodine is taken up exclusively by the thyroid gland, the radiation will leach out into the gland and destroy the overactive tissue. Patients undergoing this therapy need to be isolated until whole-body radiation levels are at acceptable readings for release. This generally means separation from family for a week as well as some post-release precautions. The major benefit of radiation therapy is that it eliminates the need for long-term oral medication, it is safe, and not painful for your pet.

Prognosis

The overall prognosis for patients with hyperthyroidism due to a benign overgrowth of thyroid tissue is good. There are many therapeutic options available and most patients respond well to therapy. Patients that were diagnosed later and have heart or kidney damage have a variable prognosis, depending on the degree of organ dysfunction. Patients with malignant (cancerous) thyroid tumors sometimes respond well to a combination of surgery, radiation, and chemotherapy; long-term survival will depend upon how aggressive the tumor might be.

Long Term Follow-Up

Patients on oral therapy for hyperthyroidism require regular follow up for lab tests and thyroid assessment. Because methimazole has some potential toxicity, complete blood counts, as well as serum chemistries and urinalyses should be checked regularly. Primary care veterinarians, rather than the specialists at Veterinary Specialty Center generally do patient follow up. Patients treated with radioactive iodine therapy by the radiologists at Veterinary Specialty Center are released with very specific instructions for follow-up testing.

Patients that have shown signs of organ failure prior to diagnosis or after therapy for hyperthyroidism should follow up with one of the internal medicine specialists at Veterinary Specialty Center.