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## Feline Hyperthyroidism

Hyperthyroidism is a common disease of middle-aged to older cats. It is caused by overactivity of one or both of the thyroid glands in the neck, resulting in excessive amounts of thyroid hormone being released into the bloodstream.

### Signs of hyperthyroidism

Thyroid hormones have actions throughout the body so a variety of symptoms are seen in cats with hyperthyroidism. Most hyperthyroid cats will show some (but not all) of the following symptoms:

- Weight loss
- Increased appetite
- Nervousness/restlessness/hyperactivity
- Vomiting and/or diarrhoea
- Excessive drinking and urination
- Poor hair coat
- High heart rate and subsequent heart disease
- High blood pressure (this can happen before or after treatment)

### Diagnosis

Your vet may suspect hyperthyroidism if your pet is suffering from any of the symptoms listed above. In some cats an enlarged thyroid gland can be palpated in the neck during examination. However, a blood test to check the levels of thyroid hormone in the bloodstream is essential to reach a definitive diagnosis of hyperthyroidism.

Because other diseases can show similar signs to hyperthyroidism, (for example diabetes, liver disease, and kidney problems), it is important to test blood samples for evidence of these diseases at the same time as checking for hyperthyroidism.

### Treatment

Treatment of hyperthyroid cats can be divided into permanent treatment (where a single procedure removes the abnormal thyroid tissue and then the cat is cured) or non-permanent treatment (the abnormal thyroid tissue remains inside the cat and treatment is aimed at mopping up the excess levels of thyroid hormone in the blood - this will need to be continued for life).

The costs of permanent and non-permanent treatment are very similar over the course of 2-3 years, but the costs are obviously up-front with the permanent treatments, and spread out for the non-permanent.

Permanent treatment is usually preferred as it is generally better to cure the problem and have a 'normal' cat again. It also seems that if overactive thyroid glands are left in place for several years, they have an increasing chance of becoming cancerous (<2% after 1 year, around 20% after 5 years). However, in very elderly cats or those that have additional health conditions, non-permanent treatments are often more appropriate. There are advantages and disadvantages to all treatment options.

## PERMANENT TREATMENTS

### 1. Radioactive iodine treatment

Radioactive treatment is the 'gold standard' treatment for hyperthyroidism and the way that the condition is treated in humans. A single injection of a radioactive iodine compound is given to the cat. The thyroid gland takes up this compound and the thyroid cells die. The cat does not need an operation and the hyperthyroidism should be permanently cured (cure rates are 95%).

The disadvantages of radioactive iodine treatment are that there is a high up-front cost (average £2,653). Only specially licensed facilities can hold the radioactive iodine compound so cats will need to travel to one of these clinics (our nearest facilities are The Animal Health Trust in Newmarket and The Royal Veterinary College at Potters Bar). The cats need to stay in special isolation quarters at this clinic for 2-4 weeks after the injection, until their levels of radioactivity reduce. During this time, only minimal human contact by the nursing team is allowed, so generally patients that need regular medication or have illnesses that may need attention are not suitable for radioactive iodine treatment. Once the cats go home there are continued restrictions on close handling/ cuddling and disposal of waste for a further few weeks.

Most clinics dictate that cats have a very thorough medical check up before going into the radioactive iodine facility. This often includes additional blood and urine tests, blood pressure measurement, ultrasound scans and Xrays. These tests can be carried out at Acorn House or at the radioactive iodine clinic and can cost up to an additional £1,360.

The other disadvantage is that radioactive iodine treatment is so effective, it can cause cats to have an underactive thyroid afterwards! This can cause weight gain, scurfy coat condition and lethargy. If this is the case, thyroid supplementation should be given (a liquid by mouth) once or twice daily. This may be temporary or may be for life. It is particularly important to correct an underactive thyroid in cats with concurrent kidney disease.

In middle-aged cats with no underlying disease, if the costs and practicalities of radioactive iodine can be met, this is nearly always the recommended way of managing hyperthyroidism in cats.

### 2. Surgery

The more traditional way of permanently treating hyperthyroidism is to remove the overactive thyroid gland or glands surgically. Cats have two thyroid glands and it is not possible to know whether one or both are affected until surgery is underway. Around 65% of cats have both glands affected.

If one gland is removed, there is a risk that the second gland could develop hyperthyroidism in the future and require more surgery at a later date. If both thyroid glands are removed there is a risk of (usually temporary) disturbance in calcium levels because the thyroid glands are wrapped around the parathyroid glands which are responsible for controlling blood calcium levels.

Surgery can be carried out at Acorn House. If one gland only is removed, cats can go home the same day. The cost is approximately £721-737. If both glands are removed, cats usually stay in for 3 days so that calcium levels can be monitored and treated if necessary. The cost of surgery to remove both sides, stay in hospital for 3 days and have blood calcium levels monitored is around £1,484 with additional fees for extra blood tests and calcium tablets incurred if problems arise.

The disadvantages of surgery are that it involves a general anaesthetic and sometimes the cat's miaow is altered after the surgery, because the thyroid glands lie close to the nerves controlling the larynx. In very rare cases, the nerves to the larynx can be damaged so severely that the cat develops very serious breathing difficulties (this is almost always when the enlarged thyroid gland has become cancerous and grown into the nerve).

Surgery to remove both glands has a 90% cure rate (the other 10% of cats have thyroid tissue hiding elsewhere in the body which continues to produce thyroid hormone and this can only be destroyed using the radioiodine treatment); whilst surgery of one gland only has a 30-60% cure rate. An abnormally low thyroid level can develop in cats with both thyroid glands removed - this happens much less often than with radioiodine treatment and is usually temporary, but it can require supplementation in the same way.

If surgery is successful and complications are avoided, cats with hyperthyroidism can be cured with a single procedure in a cost effective way (compared to long term medical management or radioiodine treatment). However, if surgery is selected and complications occur, clients can feel upset and wish that they had continued with medical management or spent the extra money on the preferred radioactive iodine treatment.

## NON-PERMANENT TREATMENTS

### 1. Medication

Medications can come in liquid or tablet forms and are given once or twice daily. The thyroid gland continues to produce an excess of thyroid hormone, but the tablets 'neutralise' this thyroid hormone in the bloodstream so that it does not cause the symptoms of hyperthyroidism.

The advantages of medication are that no anaesthetic or stay at a specialist facility are required and treatment can begin straight away. Up-front costs are much lower.

The disadvantages of medication are that the cat is never cured, so treatment is lifelong. The thyroid dose required is likely to alter over time. Cats on treatment should return to the surgery for reassessment every month until they are stable, and every 3 months thereafter. The manufacturers of the medication recommend blood testing at each 3 month check. The appointments and medication tend to cost around £385-£511 every 3 months once the cat is stable.

Some cats are difficult to give medication to, and others take the medication well but can suffer with side effects (some cats get tummy upsets, others can get skin itching or abnormalities with blood cell levels). Most cats take the medication easily with no obvious side effects.

Over many years the abnormal thyroid gland may become increasingly abnormal leading to very high thyroid levels so that the medication no longer works, or the development of thyroid cancer. At this point, radioactive iodine treatment may well be ineffective, and surgery carries higher risks.

## 2. Diet

Even abnormal thyroid glands need a supply of iodine to produce thyroid hormone. Therefore, if hyperthyroid cats are fed a diet that is very very low in iodine, they will not be able to produce high levels of thyroid hormone.

Hills make a pet food known as Y/D which is formulated to be iodine-deficient but completely balanced in all other respects. If this food alone is fed to cats (along with low-iodine water to drink - in some cases this will require providing bottled water rather than tap water), they will maintain a normal thyroid level.

The advantages to using the diet are that no operation, specialist stay or medication needs to be given. The main disadvantage is that the cat must eat this food only for the rest of its life - if it does not like the diet or is liable to go outside and eat other things, it will not work. 83% of cats that eat the diet have their hyperthyroidism controlled.

Of course, the hyperthyroidism will return if the diet is discontinued. Again, because the abnormal thyroid glands continue to grow over time, the condition may worsen or become cancerous over many years.

## Complications

If hyperthyroidism is left untreated there are significant complications that may develop. Blindness can occur due to retinal detachment from high blood pressure. Long term kidney damage and severe weight loss are also possible consequences, along with heart failure and premature death. Prompt diagnosis and treatment of feline hyperthyroidism should minimise the incidence of these complications and result in a successful outcome for your cat.

## Insurance

If your cat is covered by a 'lifetime cover' insurance policy, the hyperthyroidism treatment should be covered for the rest of your cat's life (as long as the policy is

renewed). If your cat is covered by a 'time limited' policy, treatment will be covered for 12 months after diagnosis. If your cat is on a time limited policy, and it would be difficult for you to meet the costs of ongoing thyroid treatment after the 12 month period, it might be particularly advantageous for you to consider one of the permanent methods of treatment whilst your cat is still insured.

### Summary

Hyperthyroidism in cats is notable for the range of different treatment options available. There are advantages and disadvantages to all of these. It is hoped that the above information, alongside support and advice from your cat's veterinary surgeon, will help you to select the best option for your circumstances and your cat.

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