Radioiodine treatment FAQS for owners

95% **A single capsule of I-131 cures approximately 95% of cats with hyperthyroidism**

What is hyperthyroidism?

Hyperthyroidism describes and increased hormone production by the thyroid gland. This is a very common disease in middle-aged to old cats. In over 95% of cats, hyperthyroidism is caused by the development of benign tumour (adenoma) or hyperplastic nodules of the thyroid gland. In rare cases, hyperthyroidism is caused by a malignant tumour.

Thyroid hormones have a wide range of functions in the body and an excess of these lead to various clinical signs. The most common clinical signs include weight loss, increased appetite, vomiting, diarrhoea, drinking and urinating more, and nervousness or hyperactivity. Thyroid hormone affects the heart, causing fast heart rate, heart murmurs, abnormal heart beats, and high blood pressure.

What is radioiodine treatment?

The goal of radioiodine treatment is to destroy the abnormal thyroid tissue that is producing the excess of thyroid hormones. Radioiodine is a radioactive form of the element iodine and for medical purposes a specific type of radioiodine, I-131, is used. The thyroid gland naturally takes up iodine from the blood to produce thyroid hormones. Treatment with radioiodine 'utilizes' this natural iodine uptake mechanism. I-131 is given as a capsule by mouth and once the radioiodine is absorbed and available in the blood stream, it is actively taken up into the thyroid gland, preferentially by the abnormal thyroid tissue. The accumulated I-131 then causes destruction of the abnormal thyroid cells resulting in a decrease in thyroid hormone production. Cats treated with I-131 need

to be hospitalized for 5 days. This is when they are the most radioactive and they are kept in hospital so we can manage their radioactive excrement.
The dose is calculated for each cat individually based on severity of clinical signs and elevation of thyroid hormones to achieve normal thyroid hormone production (euthyroidism) following treatment. Unlike medication or a low-iodine diet, administration of radioiodine can provide a permanent cure for feline hyperthyroidism. It's also almost always a one-off treatment; less than 5% of the cats needing a second dose. Most cats will have normal hormone levels within 1 or 2 weeks of I-131 treatment although it can take up to 6 months to take full effect.

Is there any increased risk in treating my cat for hyperthyroidism if they have other health problems, like chronic kidney disease?

Hyperthyroidism is a systemic disease seen in middle-age to older cats impacting many organ systems, it is not unusual for hyperthyroid cats to have concurrent health problems. Chronic kidney disease (CKD) and heart disease are important concerns in these patients. Therefore, we carefully assess all hyperthyroid cat prior to recommending I-131 treatment. This includes full clinical examination, assessment of blood pressure and diagnostics evaluating kidney and liver function, urinalysis. Sometimes findings on examination are concerning, chest x-rays/ abdominal ultrasound to evaluate the heart and check for cancer may be recommended. These tests help give a better understanding of each cat's specific needs and suitability for I131 treatment.

What cats are not suitable for I-131?

Not all cats are suitable for radioiodine treatment. Cats with certain other diseases may either become worse with correction of hyperthyroidism or are unable to undergo the treatment process. An example for diseases that are likely to worsen with correction of hyperthyroidism is chronic renal disease (see above). If severe, I-131 treatment is not recommended in these cats. Patients with diseases such as diabetes mellitus or advanced heart disease requiring daily medications are not suitable candidates for I-131 treatment as no direct contact between cat and attending staff (ie administration of drugs) is allowed during hospitalization. Therefore, we do not accept cats that are known to have other serious concurrent problems.

What are the risks of my cat becoming hypothyroid?

Hypothyroidism is the opposite of hyperthyroidism and is characterized by too low thyroid hormone concentrations. Clinical signs include lethargy, dullness, obesity, oily skin and matted fur. I-131 destroys abnormal thyroid tissue responsible for the excess in thyroid hormone production. In some patients, the drug can also destroy normal functioning thyroid gland resulting in the development of hypothyroidism. Hypothyroidism caused by i-131 treatment is uncommon and occurs in approximately 2% of cats treated. In some cats, the hypothyroidism is only transient but in others, it can be permanent and require thyroid hormone supplementation. Some cats develop subclinical hypothyroidism (low thyroid hormone however no clinical signs) and these need to be monitored to ensure clinical signs do not develop. Hypothyroidism is easily managed with oral medication.

Can treatment of hyperthyroidism cause kidney disease?

Chronic kidney disease is also a very common condition in older cats. Hyperthyroidism can increase blood flow to the kidneys which can make the kidney failure seem less severe than is actually is. This makes. determination of kidney failure prior to I131 difficult. With the administration of I131, the blood flow to the kidneys will normalise and this can result in the unmasking or apparent worsening of kidney disease. As there is no blood test available to accurately determine kidney function in a patient with hyperthyroidism, it is sometimes recommended that cats undergo a short treatment with oral medication to control the hyperthyroidism first. If the kidney function remains normal with tight medical control of the hyperthyroidism, the risk of I131 unmasking significant kidney disease is very low. If medical treatment for hyperthyroidism unmasks kidney disease, we will have a discussion with you about the pros and cons of I131 treatment. In many cases, mild renal insufficiency poses minimal adverse effects to quality of life whereas hyperthyroidism can significantly affect your animals' quality life.

What if the I131 doesn't work?

There is a less than 5% risk that I131 will not completely treat the hyperthyroidism. Thyroid carcinoma is common cause for treatment failure as these cats will require a very high dose of radioiodine. In some cats, the reason for treatment failure remains unknown. If your cat does not become euthyroid following treatment with I-131 we will recommend further testing for thyroid carcinoma with scintigraphy. If there is no suspicion for this malignant cancer than a second dose of I-131 can be administered.

Recurrence of hyperthyroidism later in life following successful treatment is rare. Approximately 2% of cats treated with I-131 will develop recurrent disease within 3 years after treatment.

What is involved in booking my cat in for radioiodine treatment?

The first step is to confirm diagnosis of hyperthyroidism and to ensure there are no diseases in your cat that would complicate or prohibit radioiodine treatment (see below). Your cat will be booked in for a consultation with one of our internal medicine specialists or specialist-in-training overseen by a specialist. During this consultation, the clinician will review your cat's history and laboratory results. We will perform a physical examination. Unless recently performed by a reference laboratory, blood tests will be required. Further diagnostic testing may be required if concerns for concurrent disease arise during this consultation on examination, and this will be discussed with you. The medicine clinician will also discuss alternative treatment options for hyperthyroidism in your cat so that you can make an informed decision whether or not to pursue radioiodine treatment. Once we have established that your cat is suitable for treatment with radioiodine and you have agreed to this, we will book an admission time for the treatment.

What needs to be done before the initial appointment?

- Cats need to be confirmed as hyperthyroid based on a blood test measuring thyroid hormones (T4) concentration performed at an external laboratory.
- Cats should also have full bloods and simultaneously obtained urine sample run at an external laboratory. This is to

assess for possible concurrent disease and assess your cat's kidney function. This can be performed at WAVES at the initial consultation if it has not been performed previously at your regular vet.

- If you have concerns about suitability of a patient for radioiodine, please ask your regular vet to contact us to discuss your cat prior to referral.

What needs to happen prior to radioiodine treatment?

Once we have given you an admission date we will ask you to stop anti-thyroid medication or y/d diet if your cat is receiving these. Two weeks after stopping medication, a blood sample to measure your cat's thyroid hormone levels will be taken at WAVES. This sample must be run at a reference laboratory. This information is used in calculating a dose of I131 to give your cat, so it is important that the result is accurate.

On the day of admission, your cat should have been fasted in the morning.

In some cases, the hyperthyroid medication is not stopped prior to the treatment due to the severity of the hyperthyroidism, this will be discussed by the medicine vet at WAVES, if they feel this is indicated, to ensure the treatment as safe as possible for your cat.

What should I bring to the hospital?

We encourage you to bring your cat's favourite foods if this will make them more at home and it is essential if they need a special diet or are prone to stomach upsets with a change of diet. Cat beds, toys cannot be admitted with your cat as they will become contaminated with radiation and will then not be allowed home with your pet.

What happens with my cat whilst in WAVES?

Day 1 (Monday): On the day of treatment your cat will have been fasted from food overnight. After admission, your cat will be given an anti-nausea injection to minimise the chance of vomiting the capsule once administered. Your cat may also be given a mild sedative to minimise the risk of biting the capsule. The I-131 capsule will be administered at lunchtime.

Hospitalization day 1-5: Hospitalisation after administration of I-131 is required for 5 days under the licence permitting us to use I-131 by the radiation council of WA. After treatment, your cat will be housed in our radioiodine ward and monitored each day to ensure they continue to be well. They are given fresh food, water, and clean litter every day. In between these husbandry visits, your cat is monitored by webcam. The radioactive iodine ward is a cat only space, which is quiet and welcoming. They have a radio to listen to during the day.

Day 5 (Saturday). Your cat will be discharged the Saturday afternoon. At this discharge appointment instructions for handling your cat over the following 2 weeks will be discussed with you.

Can I visit my cat during the hospitalisation?

Unfortunately, it is not possible for owners to enter the unit under the radiation council of WA regulations, this is for your safety. All staff entering the unit are trained and are monitored for radiation exposure.

What precautions do I need to take with my cat after they are discharged?

Cats treated with I-131 have a low level of radioactivity following discharge.

Radiation is emitted from the cat itself and is alaso excreted in urine and saliva. For two weeks after discharge the following precautions should be followed:

- Your cat should be kept indoors.
- Limit close contact with your cat to no more than 10 minutes per day.
- Wash your hands carefully after handling your cat and his food / water bowl and litter tray.
- Your cat must not be in contact with children or pregnant women.
- All litter should be collected, put into a sealed garbage bag, and stored in a secure, out of the way area, for 3 months. After this time, it can be disposed of in your normal rubbish. Remember to use gloves and thoroughly wash your hands after handling!
- Urine-soaked bedding should be washed separately in a washing machine. Urine-soaked carpets should be cleaned thoroughly.

- If your cat needs veterinary care within the first 4 weeks of coming home, then advise the veterinary staff that your cat has recently undergone radioiodine therapy.

What follow up does my cat need after treatment?

A recheck is required at 6 weeks and 3 months after treatment for examination, blood pressure, blood and urine tests to check kidney function and thyroid hormone concentrations. A further check at 6 months may also be required. This follow up can be performed at WAVES or at your regular vet if you prefer. If these blood tests are emailed to WAVES, our specialists can discuss these results and collaborate with your local veterinarian to advise them on any necessary follow up if necessary.

What does it cost?

The initial consultation to assess cats' suitability for treatment is $275. This is for up to an hour consultation with a medicine clinician. It does not include cost of any additional diagnostic tests that may be indicated. Once the cat has been assessed as being suitable, if you wish to proceed with radioiodine, the booking for admission for treatment will be made. Bloods for T4 will be taken 1 week prior to admission to the unit this will cost between $132- 264.

The current cost of treatment is $2,860 including GST. This cost covers, I-131 treatment and hospitalisation. Three weeks prior to the appointment for admission to the unit, you will be contacted to confirm and finalise instructions and will be required to pay a 50% deposit. This is only refundable if cancellation is made more than one week prior to the admission date for treatment.

Call WAVES on 94125700 or email medicine@wavets.com.au if you have any questions!