

## Radioactive iodine treatment for Feline Hyperthyroidism: Information for vets

The Feline Centre has over 30 years of experience treating hyperthyroid cats with radioactive iodine (RAI). It is one of a few centres able to provide this treatment and we also have the facility to treat cats with chronic severe hyperthyroidism ('*SHIM-RAD*'-see *footnote*) and thyroid carcinoma using high-dose protocols. All cases referred receive a thorough and detailed assessment so that an individually tailor-made treatment plan can be formulated.

Our centre is an **International Cat Care gold standard Cat Friendly Cat Clinic**. Our RAI wards have cattery style accommodation with environmental enrichment and webcams. Our service is run by three **RCVS Feline Specialists** who are passionate about treating our hyperthyroid patients.

### I want to refer a cat for radioactive iodine treatment, what do I do?

In the first instance please send the cat's history and client contact details via our website (<https://www.langfordvets.co.uk/small-animal-referral-hospital/make-a-hospital-referral/>). We will review the cat's history, offer your client an appointment for a teleconsultation and reserve a provisional treatment slot. We routinely start with a telemedicine consult (by Microsoft TEAMS or telephone call) and will arrange the suitability assessment appointment during this call. If there is a long waiting time before this visit, we may advise you of additional recommendations for on-going treatment or monitoring. Cats that are unstable and cannot be medicated will be prioritised for earlier treatment dates, please just highlight this to us.

### Can I discuss my patient with a clinician before arranging referral?

Of course, just send the case details across and request for one of the feline medicine clinicians to contact you. Please also see our 'owner information regarding the radioiodine service', which may answer your query.

### Why does the cat need to be assessed for suitability for RAI?

As most of the cats are senior or geriatric, co-morbid disease is common and we want to ensure that the decision to treat and hospitalise the cat for a minimum of 10-14 days is appropriate, particularly when handling must be limited initially. We not uncommonly identify conditions in apparently healthy hyperthyroid cats incidentally which may change the treatment path, such as neoplasia, hypertension, urinary tract infections and ureteroliths. Cardiac assessment by our cardiology specialists is an important part of our assessment and may impact how the cat is managed pre-treatment.

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## What does the suitability assessment involve?

The assessment is carried out over two days and includes:

- Consultation and clinical examination at the Feline Centre.
- Complete haematology, serum biochemistry (including serum thyroxine (T4) levels) and urinalysis to evaluate renal function, if not already performed at an external laboratory within 1-2 weeks prior to assessment.
- Echocardiography to evaluate for the presence and severity of secondary cardiac disease.
- Thoracic radiographs to assess for evidence of congestive cardiac failure or other co-morbid disease
- Abdominal +/- thyroid ultrasonography
- Systolic blood pressure measurement + ophthalmic examination to assess for hypertension.
- *Additional diagnostics may be performed in individual cases if any abnormalities are identified following the above investigations.*

## Can I do the assessment in primary care?

We prefer to do the assessment at the Feline Centre, to be able to work with the cat, assess them in our hospital environment, meet the caregivers and collate all the test results ourselves. We believe this is necessary to be able to best guide your client through the RAI journey. We commonly find the cats referred are not 'just' hyperthyroid and assessment of the cat holistically allows us to develop a treatment plan and to prepare the cats as well as possible for RAI. This may involve addressing other co-morbidities such as enteropathies, systemic hypertension and formulating multimodal therapy for anxiolysis.

The full RAI package includes the telemedicine consultation, suitability assessment, RAI treatment (including baseline blood tests, urinalysis, blood pressure measurement and up to 2 weeks hospitalisation) and post-treatment evaluation.

## Does the cat's hyperthyroidism need to be stabilised before I refer for RAI?

No, you can start the referral at any point, however there will typically be a 3-6month wait before RAI can be given due to our waiting list. For this reason, we do recommend that the cat receives medical or dietary therapy (Hill's y/d) to avoid excessive weight loss and thyrotoxic effects on the heart and kidneys. We strongly recommend referral within the first year of hyperthyroidism if possible; whilst we frequently treat chronic hyperthyroidism, higher doses of RAI will often be required for chronic patients due to larger tumour volumes, this may result in longer hospitalisation times. Occasionally chronic severely hyperthyroid patients require a second treatment as the response to radioiodine can be less predictable

## What tests shall I do before the cat is referred?

It is not essential for you to have performed any specific investigations prior to referral, beyond thyroid palpation, routine monitoring of haematology, serum biochemistry (for adverse reactions, unmasking of CKD), T4 and blood pressure. If the cat is a very early hyperthyroid, we may recommend withdrawing medication or dietary therapy (Hill's y/d) for two weeks to be able to obtain a thyroid panel

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(T4, free T4 and TSH) at a reference laboratory, to help us assess if the cat is ready for RAI (we are looking for suppression of TSH).

Identification of chronic kidney disease (IRIS Stage I or II) post stabilisation does not preclude the cat from having treatment and equally, if renal function cannot be assessed in advance of RAI (e.g. if stabilisation is proving difficult), it also does not mean we cannot treat the cat.

### **My patient is having a drug reaction, what should I do?**

Please highlight this on your referral and we will aim to prioritise the patient. It is important to remember that if the cat has reacted adversely to methimazole (regardless of formulation) with a cutaneous reaction, cytopenia, IMHA, hepatopathy or lymph node hyperplasia, you will likely see the same thing happen with carbimazole (carbimazole is a pro-drug to methimazole) and further anti-thyroid drug therapy is contra-indicated. Gastro-intestinal adverse effects may sometimes be mitigated however by changing from an oral methimazole or carbimazole formula to transdermal methimazole.

### **Do hyperthyroid cats need to be off all anti-thyroid treatment when they are assessed at the Feline Centre?**

No, anti-thyroid medications and dietary therapy (Hill's y/d) do not interfere with the tests performed so it is fine for the cat to stay on treatment and is preferable, since sedation will be required for some of the imaging.

### **What treatment options might be discussed with the caregiver?**

Following our suitability assessment, a treatment plan is made for the cat in consultation with the caregiver. The four major treatment options may be discussed:

- RAI treatment
  - The patient's treatment date will be confirmed (usually for 4-6 weeks later) if the cat is considered suitable and interim management advised
- Medical management using thiamazole drugs or dietary therapy (Hill's y/d) if significant life-limiting co-morbid disease has been identified.
- Surgical thyroidectomy if the cat has significant cardiac disease (i.e. evidence of congestive heart failure) and medication or dietary treatment (Hill's y/d) cannot be tolerated.

### **When does medication or dietary therapy (Hill's y/d) need to be withdrawn before RAI?**

We will advise this after the suitability assessment visit. Typically, we will withdraw anti-thyroid medication 7 days before admission for treatment; in very exceptional cases we will advise regarding a shorter withdrawal period. We will advise regarding discontinuing dietary therapy and transdermal methimazole on an individual case basis (typically 2 weeks before admission).

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### How long will the cat stay in the hospital for RAI?

This depends on the dose of RAI administered, which is determined by the severity of the cat's hyperthyroidism and size of their goitre/tumour. For cats receiving up to 250MBq, the minimum stay is 10 days following the treatment. Cats receiving high doses (900-1100MBq) for thyroid carcinoma or very severe chronic hyperthyroidism ('SHIM-RAD' disease) need to be hospitalised in the RAI ward on average for four-six weeks dependent on their radioactivity levels.

### Are there restrictions for caregivers to follow RAI treatment?

For all cats there are certain handling restrictions for four weeks after the administration of RAI: the cat must be kept indoors, not be exposed to pregnant or breast-feeding women or young children (<12yrs), and caregivers are advised to minimise very close contact (e.g. no more than 10mins/day of the cat sitting on the caregiver's lap, restricting the cat from occupied bedrooms). Waste handling precautions are required for 5 weeks after the treatment has been given (emptying litter trays wearing gloves, double bagging litter and placing directly into outdoor waste bins). Restrictions are adjusted for high dose treatments individually.

If caregivers are unable to follow the restrictions, we can hospitalise the cat in our long-stay cattery ward. Despite caregivers feeling concerned regarding leaving their cat, in our experience many opt to leave the cat for the entire period of handling precautions, even though the cat can leave earlier. Our hospital accommodation has cattery style pens; caregivers are often reassured that once the cat has been treated, the remainder of the stay is similar to a holiday cattery stay.

### Can the assessment and RAI treatment be performed in the same visit?

We unfortunately cannot do this any longer, as we need to order the RAI two weeks in advance of the planned treatment date with the current supplier. Additionally, we frequently identify issues that need resolving before the cat has treatment (e.g. addressing hypertension, managing enteropathies).

### What follow-up is required after RAI?

We usually ask for the cat to be reassessed at your clinic four-eight weeks after discharge specifically to check

- General physical examination and weight
- T4 and TSH
- Renal biochemistry
- Urinalysis
- Blood pressure

The main purpose of this check is to determine the cat's T4 level (many will be transiently hypothyroid and some cats will have a delayed response to RAI), to detect unmasking of chronic kidney disease or development of hypertension. We ask, if possible, for the laboratory samples to be submitted to the Langford Veterinary Diagnostic laboratory to enable direct comparison to the result before discharge, and we can then advise of further treatment or monitoring. The maximal response in some cats occurs over 6 months.

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Once the cat is euthyroid, three-six monthly senior/geriatric checks including T4 and TSH measurement are advised as routine; this is important to detect iatrogenic hypothyroidism which can occasionally be a late onset complication (after 6-12months). Management of hypothyroidism is generally well tolerated, easily managed and is required to support renal function.

Please see our '[Owner FAQ](#)' information sheet for additional information.

*\*SHIM-RAD is an acronym for a form of hyperthyroidism that has been described in cats with severe hyperthyroidism, huge tumours, intra-thoracic tissue, multifocal disease and resistance to anti-thyroid drugs. We commonly see this in cats that have been chronically managed with thiamazoles for 3+years. Some of the tumours have undergone malignant transformation to thyroid carcinoma.*

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