

## **I-131 – RADIOACTIVE IODINE THERAPY**

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### **Update:**

As of May 12 2008, Dr. Barb Bryer will be resuming her role as the head of the Radioactive Iodine Unit. We welcome her back after her year long maternity leave and thank Dr. Vladimir Stojanovic for his excellent work during the year.

If you have any questions regarding I131 therapy for your patients, please do not hesitate to contact Dr. Bryer. Please also note that we have made a few changes as outlined below.

### **Information for referring veterinarians:**

The literature has shown that I-131 is the treatment of choice for feline hyperthyroidism, having a spectacular success rate, avoiding side-effects and refractory reactions to Tapazole, client difficulties in pilling their pets, complications of anesthesia, post-surgical persistence or recurrence and possible surgical damage to the parathyroid glands. The Veterinary Emergency Clinic's I-131 treatment program includes a consultation, physical examination, referral data interpretation, radioactive iodine treatment and hospitalization (minimum of 7 days hospitalization post-injection). Our referring veterinarians perform all pre and post-therapy workups.

I-131 therapy is ideal for patients who are stable prior to admission, without significant cardiovascular, gastrointestinal, renal, hepatic, endocrine (other than hyperthyroidism) or neurological disease. Medical problems should be discussed with Dr. Bryer to determine if I-131 is appropriate for your patient.

### **Information regarding radioactive iodine at the Veterinary Emergency Clinic:**

- Each patient will have a dosage of radioactive I131 administered subcutaneously on the first day of treatment (Wednesday). The dosage is calculated based on physical examination findings, clinical signs and thyroid hormone levels. The cats must remain hospitalized in isolation for at a minimum of 7 days or until their radiation level is below 10 uSv/h.
- The cats are housed in a lead lined room and each cat has a separate cage. During hospitalization, the cats are checked on twice daily for feeding, cleaning litter boxes and administering any other medications.
- The half-life of the radioactive iodine is approximately 8 days, therefore, there is still radioactive iodine remaining in the cat when he/she is discharged; as such there are precautions that owners must follow for 30 days following the release from isolation (see client discharge information sheet). These precautions are to prevent unnecessary exposure of humans to radiation (carcinogenic) but the dosages that are remaining in the cat at the time of discharge are acceptable to human exposure according to the Canadian Nuclear Safety Council. An analogy in regards to these precautions would be the usage of sunscreen when sitting in the sun so as to avoid radiation exposure from the sun, thus reducing the chance of skin cancer – it's a good idea to be safe.
- Other pets in the household are considered to be safe because of their shorter life spans, decreased exposure to other forms of radiation (sun, airplane travel, radiographs) and because of widespread neutering (removal of organs typically affected by radiation).
- Best results are found in cats that are mild to moderately effected by the hyperthyroidism. The overall response rate is between 98-99%. Some of the cats with large thyroid masses and marked or severe disease constitute a higher percentage of these failures (overall 1-2%). Most cats are euthyroid by the time they leave the clinic. All cats should have their thyroid levels checked 3 months following the procedure. If they are normal, then no further assessment is required. If they are above or below normal, then their thyroid levels should be rechecked again in 3 more months. If at the 6 month check they are still outside the normal range, then they may require retreatment with radioactive iodine or levothyroxine. Please contact Dr. Bryer regarding these cases since we will not charge your clients for repeat radioactive iodine treatment that are considered failures. Another very rare side effect would be a sore throat or dysphagia. This is usually transient but a permanent voice change is possible.
- 2-3 weeks prior to the I-131 appointment, all of the cats must be off of methimazole (Tapazole). At the end of the week prior to the appointment a total T4 must be performed to assist the calculation of dosage for the individual cat. If a cat has a normal thyroid level, no treatment will occur and the appointment will need to be rescheduled at a later date. Some cats remain euthyroid for a period of time after discontinuation of methimazole thus leaving us with the need to reschedule. Thus, only cats that are hyperthyroid will be treated.



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### **Laboratory data that must be available prior to treatment:**

- If the cat has never been treated with methimazole a total T4 must be available and must be performed within the last 4 weeks prior to the I-131 appointment.
- If the cat has been treated with methimazole a total T4 must be available and must be performed the week prior to the I-131 appointment. The cat must be off methimazole for 2-3 weeks for this blood work and I-131 treatment.
- Serum biochemical profile including urea and creatinine must be available within the last 4 weeks of the I-131 appointment. The radioactive iodine is excreted through the kidneys and thus these values are vital to determining if this treatment option is safe for the patient. Furthermore hyperthyroidism may mask underlying renal disease therefore returning the cat to a euthyroid status may cause occult renal disease to become overt. If the patient has been treated with methimazole, renal values while on the medication and euthyroid are also helpful and should be included if available (please indicate this on the lab reports).
- Complete blood count must be available within the last 4 weeks of the I-131 appointment date.
- Urinalysis is helpful but not mandatory
- Cats with heart murmurs or gallop rhythms will be advised that a cardiac consultation and echocardiogram should be performed prior to the treatment. This service can be provided by Dr. Williams here at the VEC prior to the I-131 treatment at a reduced fee for these patients. Many cats with hyperthyroidism have underlying heart disease. Although the treatment itself is not dangerous to a cat with cardiac disease, prognosis long term may be decreased and risks of the cat experiencing heart failure while in the I-131 unit should be assessed and discussed with the owner.
- The above required tests are necessary to rule out concurrent diseases that might effect the prognosis and may increase the risk to the patient while in our care. Cats having received I-131 cannot be removed from the unit prior to the 7 day post-injection period. Removal of blood, radiographs, IV fluids and or oxygen supplementation is not possible should a cat become ill.
- If a client has financial concerns there may be room to adjust the above requirements but please contact Dr. Bryer in such a case.

Clients will need to book appointments on a Monday morning (if they can come) or drop off their cats that morning. *We do provide dry and wet food but many clients prefer to bring in their cats regular diet and we welcome this for our patients. Bedding is provided to all of our cats but some owners wish to bring in a special item from home. This is allowed, however items kept with the pet during their stay here will not be returned to the owners due to the potential of a high level of radiation.* Every client who must drop-off their cat will get a phone call from Dr. Bryer to obtain a history and to discuss treatment. The cats will have a physical examination and thorough review of their history to determine the extent of their clinical signs. With this information and the laboratory data (referral lab work) a dosage of radioactive iodine will be calculated, which will then be ordered that day to be administered 2 days following this examination (Wednesday). *Patients stay in the radioactive iodine unit from Monday to Wednesday to become acclimatized to their surroundings. Previously we allowed owners to return the cat on Wednesday for the start of the treatment, however we found that many cats became unduly stressed by this second trip and were too fractious for their injection or did not eat for a few days after the injection.* Clients are not able to visit during the 7 days post-treatment but are called for an update on their pet each day.

At the time of discharge all clients will read and sign the home safety protocol, which the client will be required to follow for 30 days at home.

**It is our pleasure to help you offer this service to your clients. If you have any additional questions, please call the Veterinary Emergency Clinic and Referral Centre at 920 Yonge Street (416) 920-2002 and ask for Dr. Barb Bryer or Laura Perry, RVT, RSO. Thank you again for your support.**

