



District Endocrine

Radioactive Iodine: For Graves' Disease or "Hot" Nodules

- Iodine is a naturally occurring element that is required for thyroid hormone production. In the US the majority of our iodine is from fortified table salt.
 - All elements have multiple atomic isotopes, and some of these isotopes are radioactive.
- Two kinds of radioactive iodine isotopes matter to endocrinologists
 - I-123 is used for diagnostic scanning of the thyroid.
 - Half life approximately 13 hours in a normal healthy patient. It takes 4-5 half-lives to fully decay the isotope.
 - I-131 is used for treating (ablation) of the thyroid gland for both Graves' disease and thyroid cancer.
 - Half life approximately 5 ½ days in a normal healthy patient. It takes 4-5 half-lives to fully decay the isotope.
- Why does radioactive iodine work?
 - Because the only place iodine is concentrated in the body is the thyroid tissue, so it's a pretty focused treatment.
 - In a hyperthyroid state, the thyroid cells are extremely "hungry" for iodine and so it is absorbed quickly and completely.
- When do we use radioactive iodine treatments?
 - Graves' Disease: when patients can't or won't take the medications methimazole and PTU, or if these medications FAIL.
 - The dose is usually small, 10-50 mCi and is very effective because a Graves' thyroid gland is SO metabolically active.
 - Up to 15% of ablations will fail, depending on severity of disease and the dose that was administered. A second treatment is a reasonable choice.
 - If it fails again we would explore surgery or continuing medical therapy.
 - Thyroid cancers - these details are covered on a different handout
- How long does I-131 take to work?
 - The destruction of thyroid tissue continues for weeks to months after the treatment dose has left your body.



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- How do I prepare for I-131 ablation?
 - Graves' disease: there is NO special diet. You stop your methimazole or PTU 5-10 days prior to your appointment with nuclear medicine.
- Do I have to be in the hospital for I-131 treatment?
 - NO. It's easier and safer to take the isotope at the radiology department, and then go home. We only hospitalize certain patients who require the radioactive iodine cancer treatments and have special needs, like hemodialysis, or who require assistance with basic tasks like toileting.
- How does a home I-131 treatment work?
 - You take the radioactive isotope pill at the hospital, and return home.
 - The procedure is similar to the process you may have undertaken if you had an iodine uptake scan to diagnose your Graves' Disease or thyroid nodules.
- What are the side effects of I-131?
 - Rarely people experience nausea, but this is easily controlled.
 - Occasionally people have discomfort in their salivary glands. You can suck on lemon drop candies after your treatment to encourage salivation and protect the glands.
 - Every fluid your body produces will be radioactive: sweat, skin oils, urine, etc.
 - Drink as much water as possible to flush out the isotope quickly.
- What happens after the treatment?
 - When Graves' Disease or "Hot" Nodules are very, the treatment can cause symptoms to get worse for that first week.
 - To address this, patients will resume the methimazole and beta blocker for about 10 days after the treatment.
 - After that initial recovery phase has passed, the patient stops the medications and we check thyroid levels in about 4-8 weeks.
 - Sometimes it can take up to 3 months for thyroid labs to fully recover.
- Long term effects
 - **Women of reproductive age should use reliable birth control for 1 year after treatment.**
- Resources
 - American Thyroid Association <https://www.thyroid.org/radioactive-iodine/>



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This article is not medical advice. It is intended for general informational purposes and is not meant to be a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. If you think you may have a medical emergency, immediately call your physician or dial 911.