Radioactive iodine (I-131) Therapy for Thyroid Cancer

Surgery is the main treatment for many thyroid cancers. For papillary and follicular thyroid cancer, where there are only 1 or 2 enlarged lymph nodes, radioactive iodine (RAI) treatment is done after surgery. This is to treat any remaining cancer cells.

How RAI Therapy Works

Your thyroid gland “takes up” most of the iodine in your body. By making the iodine radioactive (in the form of I-131), it becomes toxic to cells that collect iodine from your body, in turn killing these cells. This treatment can be used:

- To destroy (ablate) any thyroid tissue that was not removed during surgery.
- To treat some thyroid cancers that have spread to lymph nodes and other parts of the body.

Preparing for RAI Therapy

To prepare for your RAI therapy and make it more effective there are two things you should do.

- Follow a low-iodine diet for 1-2 weeks before treatment. Iodine is found in many foods that we eat. If you have too much iodine in your diet, your thyroid cells may not take up the RAI. Foods rich in iodine that you should avoid include dairy products, eggs, seafood, soy, and foods that contain iodized salt and red dye #3.
- Make sure you have high levels of thyroid-stimulating hormone (TSH) in your blood. This hormone is what makes your thyroid tissue take up the radioactive iodine. This is different for each person and your care provider will let you know which is the best option for you. It can be done using one of the following methods:
  - You can get injections of a medication called Thyrogen, given daily for two days prior to your RAI therapy. Thyrogen is recombinant TSH and these injections will elevate the TSH level in your blood, which in turn stimulates the thyroid cells to take up the RAI.
  - Another way is to stop taking your thyroid hormone pills for about 2-3 weeks. Your body will sense that your thyroid hormone levels are low and will try to stimulate thyroid hormone production by producing large amounts of TSH (your body does not know that your thyroid gland has been removed).

Your provider will tell you exactly what you should do to prepare and will answer any questions you have.

What to Expect During Treatment

RAI is usually given in pill form. A liquid form is also available if you have trouble swallowing pills. Once you take the pill you will not be able to eat or drink for a few hours, so your body can take in the iodine. Then you will be asked to drink lots of fluids to get rid of the excess RAI and you can eat like normal.

This treatment will make you radioactive and you may need to stay in the hospital for a few days after treatment. You may have imaging tests done to see where the iodine has been absorbed in your body.

Safety After Treatment

RAI remains in your system for a few weeks. Any excess RAI not taken up by your thyroid is excreted in your urine, stool, saliva, and perspiration 1-2 days after treatment. You will need to follow radiation safety precautions after receiving RAI. The length of time you need to follow these precautions depends on the dose of RAI you were given. Your provider will give you specific guidelines. Some precautions may include:
• Staying 6 feet away from others for the first few days (10 feet away for the first 24 hours), especially pregnant women and young children.
• Avoid close contact, kissing, and sexual activity. Do not sleep in the same bed as someone else.
• Do not share bed or bath linens and wash these and undergarments separately.
• Do not share food, drinks, or eating utensils with others. Do not prepare food for others.
• Sit when urinating to avoid any splashing and wipe dry with toilet tissue after to avoid dripping. Flush the toilet 2-3 times after use.
• Wash hands often and shower daily.
• Any trash items that contain your body fluids (menstrual pads, bandages, plastic utensils) should be put in a specific trash bag. Ask your treatment team how to dispose of this trash.
• Pets should not sleep with you to limit their exposure.
• Women should not become pregnant for 6-12 months after treatment. Men should not father a child for at least 3 months after treatment. Women should not breastfeed after RAI treatment but may be able to breastfeed with future pregnancies.

Talk with your treatment team if you cannot follow these instructions. Ask them about when it is safe to return to work or school, go out in public, or when long-distance travel is safe. For up to 2 months, the radiation you were treated with can set off detectors at airports and other security checkpoints. Talk with your team if you need to travel within this time frame.

**Short-term Side Effects**

The short-term side effects of RAI treatment are different depending on your age, if you have other medical conditions, and what dose of RAI you got. Short-term side effects may include:

• Neck pain or swelling.
• **Dry mouth.**
• **Taste Changes.**
• **Nausea.**
• **Dry eyes.**
• **Swollen salivary glands.**

You will be monitored after treatment to see what your thyroid levels are. This is done using blood tests. You may need to take medication to replace thyroid hormones. Your provider will tell you what tests you need done and how much thyroid hormone you need to take. Your provider will talk to you in detail about your specific treatment. Make sure to talk to your provider about any concerns or questions you may have.

**Resources for More Information**

**ThyCa: Thyroid Cancer Survivors’ Association, Inc.:** Resource and helpful information concerning Thyroid Cancer.

**National Cancer Institute:** Thyroid Cancer Page.

**American Thyroid Association:** Radioactive Iodine FAQ’s.