

## Preparation for Radioactive Iodine Ablation Treatment, including Low-Iodine Diet



- **Special concerns for men.** Men who receive large cumulative doses of RAI may have lower sperm counts or, rarely, become infertile. Discuss banking sperm with your doctor if it is likely that your treatment plan may include more than one dose of RAI.
- **Special concerns for women.** Some women may have irregular periods for up to a year after treatment. Many doctors recommend that women avoid becoming pregnant for at least 6 months to a year after treatment.
- **If you are pregnant when diagnosed.** If you are pregnant when diagnosed with thyroid cancer, your doctor will have specific instructions related to your pregnancy. A woman who is pregnant or breastfeeding should never receive RAI in any form (I-123 or I-131). Most pregnant women can postpone surgery until after pregnancy. If surgery is necessary sooner, it is usually performed in the second trimester (22 weeks of pregnancy). Also, pregnant women should not be treated with external beam radiation or chemotherapy until after the baby is born.



## Raising Your TSH Level

TSH level (thyroid-stimulating hormone, or thyrotropin) must be well above the normal range for RAI treatment to be the most effective. This is because TSH stimulates the thyroid tissue, both normal and cancerous, to take up iodine, including the RAI.

Another reason to increase the TSH level is that thyroid cancer cells do not take up iodine as well as normal thyroid cells do. Increasing your TSH level before your RAI treatment helps the cancer cells better absorb the RAI.

There are three ways to increase the TSH level. The three ways are equally effective.

**1. Withdrawal from Thyroid Hormone Replacement:** Stop taking thyroid hormone replacement for a period of 3 to 6 weeks before your RAI. Stopping the thyroid hormone replacement will cause your TSH to rise to a level of 30 or higher, far above the upper end of the normal range. You will be significantly hypothyroid.

**2. LT3 Administration:** Alternatively, LT3 can be administered for two weeks, followed by LT3 withdrawal for two weeks.

**3. Thyrogen® Injections:** Thyrogen® is the brand name of thyrotropin alfa (rhTSH), recombinant human TSH. Receiving injections of this drug a few days prior to ablation raises your TSH level rapidly. Therefore, you do not experience weeks of hypothyroidism.

### **Hypothyroidism due to Withdrawal from thyroid Hormone Replacement:**

Hypothyroidism state resulting from option 1 (withdrawal) is temporary, lasting a few weeks. It can cause symptoms that can include tiredness, weight gain, sleepiness, constipation, muscle aches, reduced concentration, emotional changes resembling depression, and others. Some people experience mild symptoms. Other people experience severe symptoms.

During withdrawal from thyroid hormone, to reduce symptoms of hypothyroidism, your doctor may prescribe a short-acting thyroid hormone called Cytomel® (T3) for a few weeks. You will be required to stop taking it for about 2 weeks before receiving RAI to make sure your TSH level is high enough for the RAI treatment.

## Pretreatment Scan

### **The Low-Iodine Diet:**

This is a Low-Iodine Diet, NOT a “No-Iodine Diet” or an “Iodine-Free Diet.” The goal is less than 50 micrograms (mcg) of iodine per day. The diet is for a short time period, usually for the 2 weeks (14 days) before a radioactive iodine scan or treatment. Avoid foods and beverages that are high in iodine (over 20 mcg per serving). Eat any food and beverages low in iodine (up to 5 mcg per serving). Limit the quantity of foods moderate in iodine (5 to 20 mcg per

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serving). •Read the ingredients on labels of packaged foods. Check with your physician about medications that you may already be taking.

The short-term low-iodine diet is another part of preparing to receive radioactive iodine for papillary or follicular thyroid cancer. A short-term low-iodine diet increases the effectiveness of the radioactive iodine treatment.

#### Low iodine diet foods allowed:

- Fruit, (except, in some diet guidelines, maraschino cherries (with Red Dye #3 — or E127 in the United Kingdom) and rhubarb.)
- Vegetables: preferably raw or frozen without salt, except soybeans and (according to the original NIH diet) a few other beans.
- Unsalted nuts and unsalted nut butters.
- Egg whites
- Fresh meat-up to 6 ounces a day.
- Grain and cereal products up to 4 servings per day, provided they have no high-iodine ingredients.
- Pasta provided it has no high-iodine ingredients.
- Sugar, jelly, jam, honey, maple syrup.
- Black pepper, fresh or dried herbs and spices.
- Oils. All vegetable oils, including soy oil.
- Sodas (except with Red Dye #3 or E127 in the UK), cola, diet cola, non-instant coffee, non-instant tea, beer, wine, other alcoholic beverages, lemonade, fruit juices.
- Read the ingredient list on all packaged food

#### Low iodine diet foods to avoid:

- Iodized salt, sea salt, and any foods containing iodized salt and sea salt.
- Seafood and sea products (fish, shellfish, seaweed, seaweed tablets, carrageenan, agaragar, alginate, nori, and other sea-based foods or ingredients).
- Dairy products of any kind (milk, cheese, yogurt, butter, ice cream).
- Egg yolks or whole eggs or foods containing whole eggs.
- Bakery products containing iodine/iodate dough conditioners or high-iodine ingredients.

Low iodine homemade and commercial baked goods are fine.

- Red Dye #3. (E127 in the United Kingdom)
- Most Chocolate (due to milk content). Cocoa powder and some dark chocolates are allowed.
- Some molasses (blackstrap). The more common and sweeter molasses is okay (often

labeled as unsulfured molasses. Sulfur does not relate to iodine.)

- Soybeans and soybean products such as tofu, TVP, soy milk, soy sauce. One diet says to avoid some other beans: red kidney beans, lima beans, navy beans, pinto beans, and cowpeas.
- On some diets, rhubarb and potato skins (inside of the potato is fine).
- Iodine-containing vitamins and food supplements.

#### Shortly Before You Receive Your RAI

You may be prescribed anti-nausea medication before you receive the RAI. This is because some people experience nausea the first day after receiving treatment.

#### After Radio-Ablative Treatment:

After you receive your treatment dose, you will be sent home. In some centers patients stay for a few hours after receiving RAI and then go home later in the same day.

Your doctor will explain what you need to be aware of regarding your home circumstances. The RAI that is not taken up by the remaining thyroid tissue is eliminated from the body through your perspiration, saliva, feces, and urine. Most radiation from the RAI is gone in about one week.

#### The First Day

Ask your doctor about ways to protect your salivary glands, which also absorb the RAI. Ways include sucking on sugar-free lemon candy or eating certain foods. Your doctor will have instructions on what to do, and when to do it. Ask also about how much fluid to drink.

#### Tips and Precautions

Below are tips and precautions to take during and after the RAI ablation treatment to help protect yourself, your family members, your co-workers, and other people from being unnecessarily exposed to the radiation.

#### While You Are Isolated in the Hospital or at Home

- You will remain in your hospital room with the door closed until you are released from isolation by the radiation safety officer.
- If you are on medication, please let your doctor know. You will probably start taking your thyroid hormone pills one to two days after your RAI.
- You will likely remain on the low-iodine diet. If you're in the hospital, consider bringing some low-iodine foods such as fruit and unsalted nuts, in case the hospital meals include some high-iodine foods. The hospital may not have any choices. You may be able to order kosher, vegetarian, or diabetic diets. The dishes and eating utensils will stay in the room with you, to be placed in plastic bags provided.

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- Do not bring items such as a laptop computer, because it may become contaminated and have to stay in the hospital for pick up at a later date.
- **Being isolated after RAI may feel lonely and emotionally difficult, although it should not be physically painful.**
- It is helpful to prepare for the experience. We encourage you to use the telephone to communicate with your friends and family.
- You may be given instructions on fluid intake.
- You may be advised to take laxatives in order to reduce the amount of radiation exposure to your intestinal tract.
- You may be asked to shower and wash your hair frequently to help remove the radiation excreted through perspiration.

### Traveling Home, and When at Home

Use the following guidelines regarding distance, time, and hygiene:

- Stay at least 3 feet away (about 1 meter) from everyone except for short periods totaling less than 1 hour each day, for approximately the first 5 days. Stay at least 6 feet away most of the time. Stay this distance from small children or pregnant women for 8 days. Keep your distance from pets as well. Do not kiss anyone.
- Your doctor should give you more specific guidelines on how long to avoid close contact. The number of days will depend on whether you have small children at home, pregnant women at your workplace, and other factors.
- Do not sit next to someone in an automobile or public transportation for more than one hour. Sit in the back seat of an automobile, on the opposite side from the driver, if possible.
- Sleep in a separate room, or at least 6 feet away from any other person. Use separate bath linen and launder these and underclothing separately for one week.
- Use separate eating utensils or disposable eating utensils. Wash eating utensils separately for one week. Do not prepare food for others.
- Rinse the sink and tub thoroughly after using them. Shower every day.
- Wash your hands with soap and plenty of water every time you use the toilet. Flush the toilet each time you use it, and wash the toilet seat. Males should sit when urinating to avoid splashing urine for one week.
- Discuss with your doctor how long you should wait before starting a pregnancy after your treatment (usually at least two months for males and 6 to 12 months for females).
- If you are breastfeeding, it should be discontinued before receiving RAI, and should not be resumed. However, breastfeeding can be done after subsequent childbirths.

- If you need to travel by plane or other transportation after receiving RAI, carry an information card or letter of explanation from your doctor. This is because radiation detection devices used at locations such as airports, bus and train stations, trash collection sites, and some international borders and in some buildings may detect low radiation levels. Carry the card or letter with you for at least 3 months after receiving RAI.

### Your Home Dental Care after RAI

- Follow-up care after RAI is important to neutralize the changed acidity of your saliva.
- Upon noticing any change in taste or saliva, stop using commercial toothpastes and mouthwashes and change to ultra-soft toothpastes and mouthwashes without alcohol, phenol, or whitening agents.
- A good alternative to commercial products is baking soda for use as a scrubbing agent and baking soda mixed with water as mouthwash—to be used 4–5 times daily. For mouthwash, mix one heaping teaspoon of baking soda with 10 ounces of water.
- It is important to floss daily.

### Post-Therapy Scan

Between 2 to 10 days after your RAI treatment, you will have a whole body scan (WBS), also known as an I-131 scan. You will have this scan in the Nuclear Medicine Department of Hamad General Hospital.

- This scan usually takes between 30 minutes and one hour.
- You will be fully clothed. You will lie still on a narrow bed that moves slowly through the scanner, or else the scanner will move over you while the bed remains still.
- You will receive an appointment to meet with your doctor after the scan.
- In nearly everyone (98% of people) the scan will show a small amount of thyroid tissue, because it is difficult for surgeons to remove every tiny bit of the thyroid. The nuclear medicine report may refer to this as “normal uptake in the neck.” The scan will also show uptake in your salivary glands and digestive tract.
- This scan will also provide information about whether and where there is any remaining thyroid cancer.

### The Months After RAI

Within 3 weeks, only traces of RAI remain in your body. However, it may take several months for the RAI to have its full effects on any remaining thyroid tissue, both cancerous and non-cancerous. This is because the radiation affects the cells gradually.

### Potential Side Effects of RAI Treatment

Side effects of the RAI treatment may include:

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- A burning sensation or tenderness in the neck area
- Nausea and upset stomach (and rarely, vomiting)
- Swelling and tenderness of the salivary glands
- Taste changes (usually temporary)
- Dry mouth
- Reduction in tear production

If pain, tenderness, or nausea occur, they will usually happen soon and be short-term. However, sometimes the other side effects last longer or will not occur until several months after the treatment.

- **RAI treatment often causes a slightly metallic taste** in the mouth, even when not eating, or changes the way certain foods taste. Taste changes usually disappear gradually. However, some people experience them for several months. Others report that the taste changes disappear and then recur several weeks later.

**Coping with Some Side Effects of RAI** (Speak with your doctor for more recommendations)

- **Tenderness in your neck area** can generally be treated with over-the-counter pain relief.
- **Dry mouth sometimes occurs.** If symptoms persist, ask your doctor about products that help ease the problem, such as gels and sprays. In some people, especially after higher RAI doses, the impact on salivary glands, and hence the dry mouth, can be permanent. This can increase the risk of tooth decay. Therefore, it is important that you visit your dentist regularly.
- If you experience **dry eyes or reduced tear formation**, discuss this with your doctor. If you wear contact lenses, ask your doctor how long you should stop wearing them.
- **Rarely, salivary glands and/or tear ducts may swell** and become blocked. If this occurs, you please inform your doctor.

### **Other Potential Side Effects of RAI**

- **Temporary or permanent decrease in blood cell counts** can also occur. You will probably not experience symptoms. Counts usually recover, at least to the normal range, if not to their full pre-treatment level. Blood tests can be done several weeks after RAI to make sure that your blood counts are in the normal range.
- Any person receiving RAI treatment may have a slightly higher risk of developing certain other cancers in the future. Doctors generally agree that the risk increases after several doses totaling 500–600 millicuries rather than after a single dose.