Radioiodine is given by mouth, usually in capsule form, and is quickly absorbed from the bowel. It then enters the thyroid cells from the bloodstream and gradually destroys them. Although the radioactivity from this treatment remains in the thyroid for some time, it is largely eliminated from the rest of the body within a few days. Its effect on the thyroid gland usually takes between 1 and 3 months to develop, and maximal benefit is usually noted within 3 to 6 months.

It is not possible to eliminate “just the right amount” of the diseased thyroid gland, since radioiodine eventually damages all thyroid cells. Therefore, most endocrinologists strive to completely destroy the diseased thyroid gland with a single dose of radioiodine. This results in the intentional development of an underactive thyroid state (hypothyroidism), which is easily, predictably and inexpensively corrected by lifelong daily use of oral thyroid hormone replacement therapy. Although every effort is made to calculate the correct dose of radioidine for each patient, not every treatment will successfully correct the hyperthyroidism, particularly if the goiter is quite large and a second dose of radioactive iodine is occasionally needed.

The two most common types of thyroid cancer (papillary and follicular) can usually be treated with radioiodine because the cells are able to take up some iodine. Radioiodine is used in treating thyroid cancer in the following two general situations:

**AFTER REMOVAL OF THE THYROID**

An experienced thyroid surgeon can remove most of the thyroid with a very low risk of surgical complications. Radioiodine can be used to destroy the remainder of the gland, since it might harbor additional microscopic clusters of cancer cells. In that case, you may be advised not to use thyroid hormone replacement for several weeks after the operation, in order to allow the thyroid levels to drop below normal. This will lead to maximal stimulation of the remaining thyroid cells to concentrate iodine and be destroyed when you receive a dose of radioiodine. This treatment significantly reduces the possibility of recurrent cancer in whatever thyroid tissue is left and also improves the ability to detect and treat any future cancer recurrences that might develop.

**DURING FOLLOW-UP**

Patients with residual thyroid cancer or cancer that has spread to regions outside of the neck, can undergo a scan with a test amount of radioiodine. Scanning with radioiodine helps to determine the extent of “persistent” or “recurrent” thyroid cancer, whether it may respond to additional doses of radioactive iodine, and how much radioactive iodine to use for treatment. If any iodine is concentrated in the areas of the thyroid cancer, another dose of radioiodine can be given to try to destroy the tumor. This treatment is safe, well tolerated, and has successfully treated many cases of thyroid cancer even after the tumor has spread.
All patients with thyroid cancer should have regular follow-up examinations by an endocrinologist. Additional doses of radioactive iodine may be recommended if thyroid cancer remains (which is called “persistent”) or reappears later (which is called “recurrent”). Your thyroid hormone replacement therapy will need to be stopped long enough to allow you to become hypothyroid, so that maximum response to the treatment will occur.

What happens to the radioiodine after a treatment?

Since surgery removes the vast majority of thyroid tissue, much of the radioiodine will not be absorbed and will leave the body primarily through the urine. Small amounts will also be excreted in saliva, sweat, tears, vaginal secretions, and feces. Nearly all the radioactive iodine will leave the body during the first 2 days after the dose has been given.

What about breast-feeding during treatment?

Radioactive iodine treatment should never be given to a pregnant woman! Small amounts of radioactive iodine will also be excreted in breast milk. Since radioiodine could permanently damage the infant’s thyroid, breast-feeding is not allowed. If radioiodine is inadvertently administered to a woman who is subsequently discovered to be pregnant, the advisability of terminating the pregnancy should be discussed with the patient’s obstetrician and endocrinologist. Therefore, prior to administering diagnostic or therapeutic radioiodine treatment, pregnancy testing is mandatory whenever pregnancy is possible.

Are future pregnancies possible?

For safety’s sake, males are advised to avoid fathering a child for several months. Females are advised to postpone pregnancy for six or so months after radioiodine treatment. Women are advised to wait longer to help stabilize their thyroid status before conception. Even though the amount of radioactivity retained may be small and there is no medical proof of an actual risk from radioiodine treatment, there is a theoretical risk to a developing fetus. Such precautions essentially eliminate direct fetal exposure to radioactivity, and markedly reduce the possibility of conception with sperm that might theoretically have been damaged by exposure to radioiodine. You may need to contact your physician for guidance about methods of contraception.

Regulations regarding the use of radioiodine therapy are made by the US Nuclear Regulatory Commission (NRC). Physicians and hospitals that administer this therapy must have a license to administer radioiodine, and must adhere to stringent regulations regarding its use. If you have any questions before or after receiving your treatment, please do not hesitate to contact your physician or your hospital radiation safety officer for clarification.

Is hospitalization necessary for treatment with radioiodine?

Treatment for hyperthyroidism is almost always done on an outpatient basis, because the dose required is relatively small in comparison with the doses typically used for treatment of thyroid cancer. If you have to take a larger dose of radioiodine for treatment of thyroid cancer, you may need to be admitted to the hospital for several days depending on the amount of radioiodine administered, your living environment, state of residence, or local practice patterns.

If you require hospitalization, your hospital room will have frequently handled items (such as the television control, table, phone, faucet handles, etc.), covered with protective material, and the floor will be partially covered. These precautions are designed to prevent the radioactive iodine from contaminating those items that will be reused by other patients after your dismissal from the hospital. To limit the contamination of your personal items, you should bring a minimal amount of belongings for your stay. All items will be monitored at your dismissal. Clothing should be limited to what you wear when you are admitted. You should use hospital gowns during your stay. You may want to bring disposable items like magazines and newspapers, but important or durable items like hardback books, work papers, and craft items should be left at home. Check with your endocrinologist about any other issues.

Recommendations for reduction of exposure to others for several days after treatment:

• Use private toilet facilities, if possible; flush twice after each use.
• Bathe daily and wash hands frequently.
• Drink normal amount of fluids.
• Use disposable eating utensils or wash your utensils separately from others.
• Sleep alone and avoid prolonged intimate contact.
• Launder your linens, towels, and clothes daily at home, separately from others. No special cleaning of the washing machine is required between loads. This is because the radioiodine administered is water soluble.
• Do not prepare food for others that requires prolonged handling with bare hands (such as mixing a meat loaf or kneading bread)

Brief periods of close contact, such as handshaking and hugging, are permitted.

Your endocrinologist or radiation safety officer may recommend continued precautions for up to several weeks after treatment, depending on the amount of radioactivity administered. Patients receiving radioactive iodine should also carry information about their treatment with them in order to fully inform authorities who are in charge of screening for radioactive materials in public areas such as airports and subways.

After treatment, should contact with other people be limited?

The amount of radioactive exposure to other persons during your daily activities will depend on the duration of contact and the distance you are from them. As an example, a person two feet away receives only one fourth the exposure of someone one foot away. Therefore, the general principle is to avoid prolonged, close contact with other people for several days.

If your work or daily activities involve prolonged contact with small children or pregnant women, you have to wait for several days after your treatment to resume these activities. Those patients with infants at home should arrange for care to be provided by another person for the first several days after treatment. It will not be necessary for you to personally to stay elsewhere after your treatment, although you will need to sleep alone for several days.

For more information please visit www.thyroidawareness.com

Prepared by the American Association of Clinical Endocrinologists (AACE), a not-for-profit national organization of highly qualified specialists in hormonal and metabolic disorders whose primary professional activities focus on providing high-quality specialty care to patients with endocrine problems such as thyroid disease. Supported by an unrestricted educational grant from Abbott Laboratories.

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