



RADIOACTIVE IODINE

Radioactive iodine practices in the United States

BACKGROUND

Iodine, in the form of iodide, is made into two radioactive isotopes that are commonly used in patients with thyroid diseases: **I-123** — harmless to thyroid cells — used to take pictures and determine the activity of the intact thyroid gland (Thyroid Scan and Radioactive Iodine Uptake, RAIU) and **I-131** — destroys thyroid cells — is given to destroy overactive thyroid tissue in the patient with hyperthyroidism, to treat patients with thyroid cancer and to shrink thyroid glands that are functioning normally but are causing problems because of their size. Although the treatments with I-131 are generally safe, it does produce radiation, so patients must do their best to avoid radiation exposure to others, particularly to pregnant women and young children. Up until 1997, thyroid cancer patients treated with radioactive iodine had to be admitted to a radiation safety room in the hospital for 1–3 days to decrease radiation exposure to others. Since 1997, the Nuclear Regulatory Commission has allowed patients that can follow specific radiation safety precautions to be treated on an out-patient basis. Recently, this practice has been questioned and some have urged its repeal because of risks that thyroid patients treated with radioactive iodine pose to others. This paper reported on the current practice of treating thyroid patients with radioactive iodine and offers a revised set of radiation safety precautions to be used in this situation.

THE FULL ARTICLE TITLE:

Greenlee C et al. Current safety practices relating to I-131 administration for diseases of the thyroid: a survey of physicians and allied practitioners. *Thyroid*. 21:151-160, 2011.

SUMMARY OF THE STUDY

This paper is the first report of safety practices surrounding the treatment of patients with radioactive iodine. After a review of a variety of studies, it is clear that

radioactive iodine is a very safe treatment and that there has been no report of any individual that has been harmed as a result of exposure to a patient that has been treated with radioactive iodine. However, it is important to do whatever can be done to limit exposure to the smallest possible amount. This paper presents some uniform recommendations for patient safety instructions during and after radioactive iodine treatment. In addition, the latest Nuclear Regulatory Commission guidance on release of patients following iodine treatment for thyroid conditions is found on the following site: <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2011/index.html>.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Based on available information, the American Thyroid Association believes that the current regulations allowing thyroid patients to be treated with radioactive iodine on an outpatient basis are appropriate and safe. There is minimal risk of radiation exposure to others as long as patients follow reasonable radiation safety precautions. However, staying in hotels after radioactive iodine treatment is not recommended at this time. A summary of current recommendations is provided in this issue ([Radioactive Iodine Therapy FAQ](#)) with links to a more complete brochure on the ATA website.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Radioactive Iodine: http://thyroid.org/patients/brochures/Radioactive_iodine_brochure.pdf

Hyperthyroidism: http://thyroid.org/patients/patient_brochures/hyperthyroidism.html

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

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RADIOACTIVE IODINE, continued

ABBREVIATIONS & DEFINITIONS

Radioactive iodine (RAI) — this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take

pictures of the thyroid (Thyroid Scan) or to take pictures of the whole body to look for thyroid cancer (Whole Body Scan).

Hyperthyroidism — a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.



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