



## THYROID CANCER

### Radioactive iodine treatment in patients with thyroid cancer can damage the nasal area

#### BACKGROUND

After surgery for thyroid cancer, radioactive iodine therapy is an option to destroy any remaining thyroid cancer cells. It is effective because thyroid cells actively take up and trap iodine within the cell. Radioactive iodine is also taken up in some of the cells in the tear ducts and the nasal area but is not trapped. Even so, some patients may suffer damage to these cells as a side effect of the radioactive iodine therapy. About 10% of thyroid cancer patients may develop eye problems after radioactive iodine therapy, although this is usually mild. This study looked at the nasal and tear duct function in patients with thyroid cancer treated with radioactive iodine at Georgetown Medical Center between 2008 and 2012.

#### THE FULL ARTICLE TITLE

Jonklaas J et al. Nasal symptoms after radioiodine therapy: a rarely described side effect with similar frequency to lacrimal dysfunction. *Thyroid*. September 8, 2014 [Epub ahead of print].

#### SUMMARY OF THE STUDY

A total of 411 patients were reviewed for symptoms such as dry eyes, excessive tearing, “generalized nasal discomfort,” dry nose, and nose bleeds that appeared after the first treatment with radioactive iodine. The time of appearance of symptoms after radioactive iodine was estimated and possible contributing factors such as thyroid hormone withdrawal or rhTSH stimulation, age, sex, weight, body-mass index, previous eye or nasal problems or head and neck irradiation, autoimmune disease and medication was analyzed. Out of 411 patients about 10% had a nasal side effect and 10% had eye symptoms.

The average dose of radioactive iodine was 109 mCi. The analyses showed that higher doses of radioactive iodine increased the risk of both nasal and eye symptoms. The nasal symptoms appeared about 11 days after the radioactive iodine was given, whereas eye symptoms appeared about 300 days after radioactive iodine therapy. No patient had nasal symptoms during the 3 to 12 months of follow-up. Patients with higher body-mass index were at higher risk to develop both side effects. In addition, patients prepared with rhTSH for radioactive iodine had a lower risk of side effects than patients after thyroid hormone withdrawal.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Nasal and eye symptoms each develop in about 10% of patients with thyroid cancer after radioactive iodine therapy and about half of patients had both symptoms. Nasal symptoms occurred early within 1 to 2 weeks, but eye symptoms appeared about one year after radioactive iodine therapy. The risk of these side effects was lower in patients who had been prepared with rhTSH. The results of this study indicate that both nasal and eye symptoms should be considered as potential risks of radioiodine therapy.

— Jamshid Farahiti, MD

#### ATA THYROID BROCHURE LINKS

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Radioactive Iodine Therapy: <http://www.thyroid.org/radioactive-iodine>

#### ABBREVIATIONS & DEFINITIONS

**Papillary thyroid cancer:** the most common type of thyroid cancer.

**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).

**mCi:** millicurie, the units used for I-131.



## **THYROID CANCER,** continued

**Recombinant human TSH (rhTSH):** human TSH that is produced in the laboratory and used to produce high levels of TSH in patients after an intramuscular injection. This is mainly used in thyroid cancer patients before treating with radioactive iodine or performing a whole body scan. The brand name for rhTSH is Thyrogen™.

**Thyroid Hormone Withdrawal (THW):** this is used to produce high levels of TSH in patients by stopping

thyroid hormone pills and causing short-term hypothyroidism. This is mainly used in thyroid cancer patients before treating with radioactive iodine or performing a whole body scan.

**Body-mass index (BMI):** a standardized measure of obesity calculated by dividing the weight in kilograms by the square of the height. A normal BMI is 18.5-24.9, overweight is 25-30 and obese is >30.