



THYROID CANCER

Stimulated thyroglobulin tests 5 years after initial treatment detect thyroid cancer recurrence in otherwise low risk patients

BACKGROUND

Thyroid cancer is initially treated with surgery and frequently followed by radioactive iodine therapy to destroy any remaining thyroid cancer cells. Patients are then placed on thyroid hormone doses to suppress the growth any remaining thyroid cells. Patients are monitored for thyroid cancer recurrence with blood tests measuring thyroglobulin, a protein made only by thyroid cells and that serves as a thyroid cancer marker. Undetectable thyroglobulin levels while the patient is on thyroid hormone usually indicate that there is no evidence of residual or recurrent thyroid cancer. Similarly, a detectable but low (<1) thyroglobulin level that is stable over time usually indicates that there is no evidence of residual or recurrent thyroid cancer. Periodically, stimulated thyroglobulin testing may be performed by increasing TSH levels by stopping thyroid hormone or by treating with recombinant TSH (rhTSH, Thyrogen™). A negative stimulated thyroglobulin test means that there is no evidence of thyroid cancer remaining in the body. It is not known if or when a stimulated thyroglobulin test should be repeated in patients who previously had a negative test. The goal of this study is to evaluate the value of repeating a stimulated thyroglobulin test in patients with a detectable but low (<1) thyroglobulin level on thyroid hormone treatment.

THE FULL ARTICLE TITLE

Rosario PW et al. Value of repeat stimulated thyroglobulin testing in patients with differentiated thyroid carcinoma considered to be free of disease in the first year after ablation. *Thyroid*. December 16, 2011 [Epub ahead of print]. doi: 10.1089/thy.2011.0214.

SUMMARY OF THE STUDY

The study included 203 patients with papillary thyroid cancer followed for a mean period of ~11.5 years with follow up thyroglobulin levels <1 on thyroid hormone treatment and no clinical evidence of cancer recurrence

5 years after the initial therapy. A total of 192 patients (94.6%) had stimulated thyroglobulin levels of <2 and 188 of these patients had stimulated thyroglobulin levels of <1. None of the patients with a low stimulated thyroglobulin level 5 years after the initial therapy had cancer recurrence over the course of the study. A total of 11 (5.4%) patients had a stimulated thyroglobulin level >2 and cancer recurrence was identified in 8 of these 11 patients.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that only 4% of thyroid cancer patients with a thyroglobulin level <1 on thyroid hormone have a recurrence of their cancer 5 years after their initial treatment. A stimulated thyroglobulin test identified these patients with cancer recurrence. Thus, this study shows that performing a repeat stimulated thyroglobulin test is reasonable 5 years after initial treatment for thyroid cancer in patients with low but detectable thyroglobulin levels on thyroid hormone treatment. Further, this study suggests that no further stimulated thyroglobulin tests are necessary if the test is negative at 5 years.

— Alina Gavrila, MD

ATA THYROID BROCHURE LINKS

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

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

Thyroid Surgery: <http://www.thyroid.org/why-thyroid-surgery>

Thyroid Function Tests: <http://www.thyroid.org/blood-test-for-thyroid>

Thyroid Hormone Treatment: <http://www.thyroid.org/thyroid-hormone-treatment>

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Thyroglobulin: a protein made only by thyroid cells, both normal and cancerous. When all normal thyroid tissue is destroyed after radioactive iodine therapy in patients with thyroid cancer, thyroglobulin can be used as a thyroid cancer marker in patients that do not have thyroglobulin antibodies.

Stimulated thyroglobulin testing: this test is used to measure whether there is any cancer present in a patient that has previously been treated with surgery and radioactive iodine. TSH levels are increased, either by withdrawing the patient from thyroid hormone or treating the patient with recombinant human TSH, then levels of thyroglobulin are measured. Sometimes this test is combined with a whole body iodine scan.

TSH: Thyroid Stimulating Hormone — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

Thyroid hormone therapy: patients with hypothyroidism are most often treated with Levothyroxine (T_4) in order to return their thyroid hormone levels to normal. Replacement therapy means the goal is a TSH in the normal range and is the usual therapy. Suppressive therapy means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.

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).

Cancer recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.