



THYROID CANCER

A blood test predicts low risk of thyroid cancer return

BACKGROUND

In patients with thyroid cancer, the usual initial treatment is surgery to remove the thyroid followed by radioactive iodine therapy to destroy any remaining thyroid tissue, including any remaining thyroid cancer. Thyroglobulin is 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 to detect whether thyroid cancer remains in the body or has returned. It can be measured while the patient is on thyroid hormone (basal thyroglobulin) or after TSH is increased to stimulate any remaining thyroid tissue (stimulated thyroglobulin). Stimulated thyroglobulin is often measured after the TSH is increased by treating patients with recombinant TSH (Thyrogen). This study was done to see if a thyroglobulin test could predict the chance of thyroid cancer return after initial surgery.

THE FULL ARTICLE TITLE

Malandrino P et al Risk-adapted management of differentiated thyroid cancer assessed by a sensitive measurement of basal serum thyroglobulin. *J Clin Endocrinol Metab.* March 30, 2011.

SUMMARY OF THE STUDY

The group studied was 545 patients with either papillary or follicular thyroid cancer. The thyroglobulin was measured after initial thyroid cancer surgery. It was measured before thyroid cells were stimulated (basal thyroglobulin) and another time following administration of recombinant TSH (stimulated thyroglobulin). Patients with antibodies against thyroglobulin or with thyroglobulin levels > 1.0 ng/mL after initial surgery were excluded from further study. The remaining 425 patients were categorized as low risk, intermediate risk and high

risk of having cancer recurrence based on the appearance of the thyroid cancer at the time of initial surgery to remove the cancer.

When the initial thyroglobulin was <0.15 ng/ml, cancer recurrence was found in none of the patients in the low-risk group, 1% in the intermediate-risk groups and 2.7% in the high-risk groups. Only 5 (1.4%) of the 356 patients with basal thyroglobulin levels <0.15 ng/ml had stimulated thyroglobulin values >2.0 ng/ml and none of them had recurrence of their cancer. In contrast, 33 of 69 patients with an basal thyroglobulin >0.15 ng/ml had recurrences. The lower the initial thyroglobulin level, the less likely a patient had high stimulated thyroglobulin levels.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The basal thyroglobulin level after surgery may be adequate to assess the risk of thyroid cancer recurrence, especially in patients at low risk of recurrence. When the initial thyroglobulin level was <0.15 ng/ml, there was no thyroid cancer recurrence in 98.6% of patients. This is important because this single blood test may offer a simple approach for monitoring patients with low risk of recurrence after thyroid surgery.

— Ruth Belin, MD

ATA THYROID BROCHURE LINKS

Radioactive Iodine Therapy: http://thyroid.org/patients/patient_brochures/radioactive.html

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

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Cancer recurrence: return of thyroid cancer after an initial treatment that was successful in destroying all detectable cancer.

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

TSH: Thyroid stimulating hormone – produced by the pituitary gland that regulates thyroid function. This is also measured as a screening test of thyroid function.

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 scan to detect thyroid cells or a blood test to detect thyroglobulin. The brand name for rhTSH is Thyrogen™.

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).

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.