



THYROID CANCER

Neck ultrasound and thyroglobulin levels are superior to diagnostic whole body scans during follow-up of patients thyroid cancer

WHAT IS THE STUDY ABOUT?

Patients with thyroid cancer usually are initially treated with surgery to remove the thyroid gland and any abnormal lymph nodes. Most patients then are treated with radioactive iodine to destroy any remaining cancer cells, as well as any remaining normal thyroid tissue. In order to determine if any cancer remains or returns, patients are followed with neck ultrasounds, blood thyroglobulin levels (a thyroid protein that is used as a thyroid cancer marker) and diagnostic whole body scans. The diagnostic whole body scans are usually performed 1 year after initial therapy and are performed after increasing the patient's TSH levels by withdrawing thyroid hormone or treating with recombinant human TSH (Thyrogen). Blood thyroglobulin levels are measured at the same time as the scan. In most cases, this diagnostic scan is negative. If the scan is positive and blood thyroglobulin levels increase, the patient is frequently given a second dose of radioactive iodine. The aim of this study was to examine the clinical outcomes of thyroid cancer patients that had positive diagnostic whole body scans as compared to those who had negative scans.

THE FULL ARTICLE TITLE:

Kim EY et al. Clinical outcomes of persistent radioiodine uptake in the neck shown by diagnostic whole body scan in patients with differentiated thyroid carcinoma after initial surgery and remnant ablation. *Clin Endocrinol (Oxf)* 2010;73:257-63.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine the clinical outcomes of thyroid cancer patients that had positive diagnostic whole body scans as compared to those who had negative scans.

WHO WAS STUDIED?

The study group included 572 patients with thyroid cancer who were treated from January 2000 through January 2004 at the Asan Medical Center in Seoul, Korea.

HOW WAS THE STUDY DONE?

All patients were treated with radioactive iodine (150 mCi of ¹³¹I) after the initial surgery. A diagnostic whole

body scan was performed usually 12 months later. Patients were followed with blood tests of thyroglobulin, neck ultrasound and annual diagnostic whole body scans.

WHAT WERE THE RESULTS OF THE STUDY?

There were 70 men (12%) and 502 women (88%) in the study group. Of this group, 550 (96%) patients had papillary thyroid cancer. Over 50% of these patients had spread of the cancer into the lymph nodes in the neck or outside of the neck. Only a total of 25 of the 572 patients (4.4%) had persistent uptake on the diagnostic whole body scan. Despite the positive scan, only 5 patients were found to have recurrence of their cancer on neck ultrasound and showed an elevated blood thyroglobulin level. Interestingly, 50% of these patients with persistent uptake on the first diagnostic whole body scan had subsequent negative scans without any intervening therapy. There was no difference in the clinical outcomes in those patients that had persistent uptake on the diagnostic whole body scan as compared to those who had negative scans. A diagnosis of recurrent or persistent thyroid cancer was most closely correlated with increasing thyroglobulin levels or the presence of masses on ultrasound.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

There is a general consensus that diagnostic whole body scans are not routinely recommended for follow-up and that serum thyroglobulin levels and neck ultrasonography are more likely to identify persistent or recurrent cancer.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study adds to the general recommendation that diagnostic whole body scans are of limited usefulness in following patients with thyroid cancer. Neck ultrasounds and blood thyroglobulin levels are superior to diagnostic whole body scans in identifying persistent thyroid cancer.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

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

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THYROID CANCER, 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).

Post- Radioactive iodine Whole Body Scan (post-RAI WBS) — the scan done after radioactive iodine treatment that identifies what was treated and if there is any evidence of metastatic thyroid cancer.

Diagnostic Whole Body Scans — these radioactive iodine scans are performed under TSH stimulation, either after thyroid hormone withdrawal or after injections of recombinant human TSH (Thyrogen), and usually include measuring serum thyroglobulin levels.

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.

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.

Thyroid Ultrasound — a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.