



THYROID CANCER

Risk of persistent thyroid cancer in patients with negative thyroglobulin and thyroglobulin antibodies performed on some commercial tests

BACKGROUND

The initial treatment for patients with thyroid cancer is surgery to remove the thyroid gland and any abnormal lymph nodes. This is often followed by treatment with radioactive iodine to destroy any remaining thyroid cells, both cancerous and normal. This allows patients to be followed for a recurrence of the thyroid cancer with a blood test measuring the thyroid cell protein thyroglobulin which becomes a thyroid cancer marker in these patients. Thyroglobulin antibodies (TgAb) are usually measured along with the thyroglobulin test, because an elevated antibody level may interfere with thyroglobulin measurements. An elevated TgAb test may cause the thyroglobulin level to be lower than it really is while a negative TgAb test means that the thyroglobulin level is accurate. There are several companies that make tests for TgAb, often using different methods. In this study, the accuracy of 4 different tests to detect the TgAb in patients with thyroid cancer were compared.

THE FULL ARTICLE TITLE:

Spencer C et al. Current thyroglobulin autoantibody (TgAb) assays often fail to detect interfering TgAb that can result in the reporting of falsely low/undetectable serum thyroglobulin IMA values for patients with differentiated thyroid cancer. *J Clin Endocrinol Metab.* 2011;18:2010-2762.

SUMMARY OF THE STUDY

The blood from 785 thyroid cancer patients was used

in this study. A total of 143 out of 785 thyroid cancer patients were TgAb positive by the most sensitive method. The other 3 tests failed to detect TgAb in 35%, 44.1% and 62.2% of these TgAb-positive patients.

Using the lowest level that can be measured by each test (instead of the recommended manufacturer's reference), TgAb still was missed in 21.9% and 34.3% of patients while the 3rd test could detect TgAb in all TgAb-positive thyroid cancer patients.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This is an important report that shows that commercial TgAb tests can miss the presence of TgAb in TgAb-positive thyroid cancer patients. Using the manufacturer's recommended reference ranges, commercial tests failed to detect TgAb in up to 2/3 of the TgAb-positive thyroid cancer patients. Even using lowest detection level of each test, TgAb was not detectable in 20-30% of TgAb-positive thyroid cancer patients.

This study shows that Tg alone may not be sufficient in all patients to detect persistent or recurrent thyroid cancer.

— Jamshid Farahiti, MD

ATA THYROID BROCHURE LINKS

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

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.

Thyroglobulin Antibodies: antibodies are directed

against foreign proteins that may interfere with hormone tests. Thyroglobulin-antibodies occur in approximately 25% of thyroid cancer patients and bind to thyroglobulin in serum and make the thyroglobulin measurement incorrect.

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