



## THYROID CANCER

# Falling levels of thyroglobulin antibody after treatment for thyroid cancer predicts no recurrence

### BACKGROUND

Thyroglobulin is a protein made only by thyroid cells, both normal and cancerous. When all thyroid tissue is destroyed in patients with thyroid cancer after surgery and radioactive iodine therapy, thyroglobulin can be used as a thyroid cancer marker. Persistent levels of thyroglobulin indicate that there is still thyroid cells in the body and rising thyroglobulin levels indicate recurrence of the thyroid cancer, most commonly after spread of the cancer to the lymph nodes in the neck. Undetectable thyroglobulin levels usually indicate remission of the thyroid cancer. However, antibodies to thyroglobulin exist in up to 25% of these patients and can interfere with the measurement of thyroglobulin in the blood. Thyroglobulin antibodies attack the thyroid instead of bacteria and viruses and are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States. These antibodies usually disappear once all thyroid tissue is removed successfully. The goal of this study was to follow the change in thyroglobulin antibodies in patients with thyroid cancer and correlate the levels with recurrence of the thyroid cancer.

### THE FULL ARTICLE TITLE

Rosario PW. et al Comparison of antithyroglobulin antibodies concentrations before and after ablation with <sup>131</sup>I as predictor of structural disease in differentiated thyroid carcinoma patients with undetectable basal thyroglobulin and negative neck ultrasonography. *Thyroid*. February 2, 2016 [Epub ahead of print].

### SUMMARY OF THE STUDY

This was a study that included 116 patients with thyroid cancer who had surgery followed by radioactive iodine therapy in Brazil. The thyroglobulin and thyroglobulin antibodies were measured in the blood before radioactive iodine therapy and 8-12 months later. The patients were then divided into 3 groups according to the change in thyroglobulin antibodies before and after radioactive iodine

therapy: a decrease >50% (group A), a decrease <50% (group B) and an increase of >10% (group C). These patients were then followed with measurements of thyroglobulin, thyroglobulin antibodies and imaging studies for up to 140 months.

The study found that recurrence of the thyroid cancer was found in 1.8%, 14.3%, and 24% of patients in groups A, B, and C, respectively. Specifically, among patients with undetectable thyroglobulin, negative ultrasound, and positive thyroglobulin antibodies after radioactive iodine therapy, the frequency of recurrent thyroid cancer was <2% in patients with >50% reduction in thyroglobulin antibodies at 1 year of follow-up. Additionally, 25% of those patients with a significant increase in thyroglobulin antibodies (>10%) were found to have recurrence at 1 year of follow-up.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study has important implications in the treatment and follow-up of thyroid cancer patients. This study suggests that patients with thyroglobulin antibodies that fall >50% by 1 year after initial treatment are at low risk for thyroid cancer recurrence. On the other hand, those patients whose thyroglobulin antibodies do not change or increase have an increased risk for thyroid cancer recurrence. These results will help identify those patients that are at higher risk for thyroid cancer recurrence and, thus, should be followed more closely.

— Maria Papaleontiou, MD

### ATA THYROID BROCHURE LINKS

Thyroid Cancer: <http://www.thyroid.org/thyroid-cancer/>

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


**THYROID CANCER**, continued

**ABBREVIATIONS & DEFINITIONS**

**Thyroid Cancer:** papillary and follicular thyroid cancers are referred to as differentiated thyroid cancer, which means that the cancer cells look and act in some respects like normal thyroid cells. Papillary and follicular thyroid cancers account for more than 90% of all thyroid cancers. They tend to grow very slowly.

**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:** these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

**Prospective study:** a research study in which a group of individuals who have one or more common characteristics are followed over time.

**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.

**Imaging studies:** for example, thyroid ultrasound, which is used to evaluate the structure of the thyroid gland.

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

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