



THYROID CANCER

The thyroglobulin doubling time predicts survival in patients with papillary thyroid cancer

WHAT IS THE STUDY ABOUT?

Papillary cancer is the most common thyroid cancer. While most patients with papillary thyroid cancer do well and have an excellent prognosis, some have a more aggressive form of cancer. Thyroglobulin is a cell protein that is unique to thyroid cells, both normal and cancerous. Serum thyroglobulin levels are used as a sensitive cancer marker to follow-up in patients with thyroid cancer after initial surgery and radioactive iodine therapy. An undetectable thyroglobulin level usually indicates no evidence of thyroid cancer while a detectable thyroglobulin level indicates persistent cancer. If the thyroglobulin level increases, this indicates that the thyroid cancer is growing and/or spreading. The aim of this study was to test whether the change of serum thyroglobulin during follow-up can predict cancer outcome in patients with papillary thyroid cancer.

THE FULL ARTICLE:

Miyauchi A et al. Prognostic impact of serum thyroglobulin doubling-time under thyrotropin suppression in patients with papillary thyroid carcinoma who underwent total thyroidectomy. *Thyroid* 2011;21:707-16. Epub June 7, 2011.

SUMMARY OF THE STUDY:

This study included 426 patients with papillary thyroid cancer with an average follow-up of 88 months after surgery. Approximately 60% of these patients had advanced thyroid cancer. Radioactive iodine was given in 167 patients. Ultrasound of the neck was performed once a year. The doubling time of thyroglobulin (TgDT) was calculated based on the thyroglobulin measurements during the follow-up period.

Thyroglobulin levels were detectable in 137 of the 426 patients during the follow-up period. The TgDT was less than 1 year in 17 patients, 1-3 years in 21 patients and more than 3 years in 30 patients. A total of 69 patients had a fall in their thyroglobulin level during the follow-up period and 201 had thyroglobulin levels that were always undetectable. During the study only 6 patients died because of the thyroid cancer. The TgDT was less than 1 year in 5 of these patients and 1 patient had a TgDT of 1-3 years. Overall the 10 year survival was 50% in patients with a TgDT less than 1 year and 95% in patients with a TgDT of 1-3 years. Patients with a Tg-DT of >3 years and those with decreasing or negative Tg during follow-up had a 10 year survival of 100%.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Other studies have shown that serum thyroglobulin level testing after initial thyroidectomy in patients with papillary thyroid cancer is a sensitive indicator of cancer recurrence. This study demonstrates that, patients with faster rising serum Tg levels are at higher risk for death. This study suggests that TgDT should be used in all patients with papillary thyroid cancer to identify patients at higher risk for cancer recurrence or death.

— Jamshid Farahati, MD

ATA THYROID BROCHURE LINKS

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

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

Thyroid Surgery: http://thyroid.org/patients/patient_brochures/surgery.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

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.

Papillary thyroid cancer: the most common type of thyroid cancer.

Thyroidectomy: surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

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.

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.