



THYROID CANCER

Thyroid hormone therapy without TSH suppression may be considered for patients with low-risk papillary thyroid cancer after the initial surgery

WHAT IS THE STUDY ABOUT?

There are frequently three steps in the treatment of thyroid cancer: 1) surgery to remove the cancer and the thyroid, 2) radioactive iodine therapy to destroy any remaining thyroid cancer and 3) thyroid hormone therapy. Thyroid hormone therapy is usually aimed at suppressing TSH levels below the normal range to prevent any stimulation to any remaining thyroid cancer cells after Steps 1 and 2. The recent guidelines published by the American Thyroid Association suggests initial suppression of TSH to <0.1 mIU/L for high-risk and intermediate-risk patients with thyroid cancer. However, suppression therapy may have adverse effects of developing irregular heart rhythms and worsening osteoporosis. The risk of these adverse effects may be warranted in patients at risk for recurrence of their thyroid cancer. However, treatment of patients with low risk cancer (small cancers, no spread of the cancer outside the thyroid) has been debated as to how aggressive the treatment should be. Often, low risk patients are not treated with radioactive iodine and [there is a paper in this issue on page three](#) that examines this option. The current study examines the need for thyroid hormone suppression therapy in low risk thyroid cancer patients. The goal of this study was to examine outcomes in low risk thyroid cancer patients treated with thyroid hormone suppression as compared to those patients treated with thyroid hormone at a dose to keep the TSH in the normal range.

THE FULL ARTICLE TITLE:

Sugitani I, Fujimoto Y. Does postoperative thyrotropin suppression therapy truly decrease recurrence in papillary thyroid carcinoma? A randomized controlled trial. *J Clin Endocrinol Metab* 2010. jc.2010-0161 [pii];10.1210/jc.2010-0161 [doi]

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine outcomes in low risk thyroid cancer patients treated with thyroid hormone suppression therapy as compared to those patients treated with thyroid hormone replacement therapy.

WHO WAS STUDIED?

The study group included 441 patients with papillary thyroid cancer who had initial surgery at the Cancer Institute Hospital, a tertiary oncology referral center in Japan, from January 1996 through February 2005. All thyroid cancers were >1 cm in diameter.

HOW WAS THE STUDY DONE?

The patients were treated with several types of surgeries, from removal of one lobe of the thyroid to removal of the entire thyroid plus lymph nodes. None of the patients were treated with radioactive iodine. After surgery, all the patients were placed on Levothyroxine and randomly assigned to either Suppression or Replacement therapy.

Suppression Therapy group: patients were treated with varying doses of Levothyroxine to maintain TSH levels <0.1 μ U/ml.

Replacement Therapy group: patients were treated with Levothyroxine to maintain TSH levels within the normal range (0.5 to 5.0 μ U/ml).

Every 6 months, patients were evaluated for recurrence of the cancer or spread to the lymph nodes by neck ultrasonography and either chest x-ray or chest CT scanning.

WHAT WERE THE RESULTS OF THE STUDY?

A total 218 patients were assigned to the Suppression group and 215 patients to the Replacement group. TSH suppression was suspended in 12 patients with thyrotoxicosis, 5 with angina or atrial fibrillation and 6 with osteoporosis. Within the entire group, 49 patients (11%) had a recurrence of their cancer and 9 (2%) died of thyroid cancer. There was no difference in these outcomes between the two groups, either taken as a whole or when separated into low-risk and high-risk groups.

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THYROID CANCER, continued

HOW DOES THIS COMPARE WITH OTHER STUDIES?

The results of this study are different than other studies. The recent guidelines published by the American Thyroid Association recommend TSH suppression to <0.1 mIU/L for patients with high-risk and intermediate-risk thyroid cancer, while maintenance of the TSH at or slightly below the lower limit of normal (0.1 to 0.5 mIU/L) is appropriate for low-risk patients. A meta-analysis of several studies has suggested that patients who received thyroid hormone suppression had a decreased risk of major adverse clinical outcomes.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that not all patients with thyroid cancer need to be treated with suppressive doses of thyroid hormone after surgery. Patients with low risk papillary thyroid cancer may do just as well on replacement therapy and, thus, avoid potential adverse effects of TSH suppression.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid Hormone Treatment: http://thyroid.org/patients/patient_brochures/hormonetreatment.html

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

ABBREVIATIONS & DEFINITIONS

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

Levothyroxine — the major hormone produced by the thyroid gland and available in pill form as Levoxyl™, Synthroid™, Levothroid™ and generic preparations.

Thyroid hormone therapy — patients with hypothyroidism are most often treated with Levothyroxine in order to return their thyroid

hormone levels to normal. **Replacement therapy** means the goal is a TSH in the normal range and is the usual therapy. **Suppressive therapy** means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.

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.