CLINICAL **THYROIDOLOGY** FOR THE **PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

HYPOTHYROIDISM

Thyroid hormone levels in individuals who have had thyroid surgery for papillary thyroid cancer

BACKGROUND

Thyroid hormone replacement therapy is required after the thyroid is completely removed surgically (ie total thyroidectomy). Studies have shown that thyroid hormone replacement is also needed ~40% of the time after a partial thyroidectomy (ie removal of one thyroid lobe). It is unclear what the contribution to the levothyroxine dose is by the remaining thyroid remnant after a partial thyroidectomy. The authors of this study compared thyroid hormone blood levels after thyroid surgery in patients with papillary thyroid cancer who had normal thyroid function before their surgery to that of controls matched by serum TSH concentration.

THE FULL ARTICLE TITLE

Ito M. et al Effect of the Presence of Remnant Thyroid Tissue on the Serum Thyroid Hormone Balance in Thyroidectomized Patients. Eur J Endocrinol. June 15, 2015 [Epub ahead of print].

SUMMARY OF THE STUDY

The authors reviewed the medical records of 253 patients with papillary thyroid cancer who either had a total thyroidectomy or a partial thyroidectomy. All patients had normal thyroid function before their thyroid surgery. The authors divided the patients according to the following treatment groups: total thyroidectomy and thyroid hormone treatment with levothyroxine, partial thyroidectomy and thyroid hormone treatment with L-T_4, and partial thyroidectomy with no thyroid hormone treatment. The authors reported that post-operative free T_4 levels were higher and free T_3 levels were lower in individuals who had a total thyroidectomy compared to controls matched by TSH level. In the patients who had a partial thyroidectomy and were on levothyroxine, thyroid hormone levels were not significantly different from controls. The patients who had partial thyroidectomy and were note on levothyroxine had significantly lower free T_4 measurements but not significantly different free T_3 measurements compared to controls.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that patients with a thyroid remnant after a partial thyroidectomy have higher T_3 levels than patients who have undergone a total thyroidectomy. The authors of this study conclude that remaining thyroid remnant after a partial thyroidectomy continues to contribute to the maintenance of serum free T_3 levels even if the patient is on levothyroxine. The clinical significance of these results is not known. More studies, including examining the quality of life of patients after undergoing thyroid surgery, needs to be done.

— Anna Sawka, MD

ATA THYROID BROCHURE LINKS

Thyroid Hormone Treatment: http://www.thyroid.org/thyroid-hormone-treatment/

Thyroid Surgery: http://www.thyroid.org/thyroid-surgery/

Thyroid cancer: http://www.thyroid.org/cancer-of-the-thyroid/

ABBREVIATIONS & DEFINITIONS

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 or hemithyroidectomy.

Thyroxine (T_4): the major hormone produced by the thyroid gland. T_4 gets converted to the active hormone T_3 in various tissues in the body.

Triiodothyronine (T_3): the active thyroid hormone, usually produced from thyroxine.

HYPOTHYROIDISM, continued

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.

Levothyroxine (T_4): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ 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.