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THYROID CANCER

Higher TSH level is associated with papillary microcarcinoma growth during active surveillance

BACKGROUND

Thyroid nodules are present in up to half of all patients that have an imaging study of the neck. Thyroid cancer is present in ~5% of thyroid nodules and is diagnosed by a biopsy of the nodule. While surgery is usually recommended when thyroid cancer is diagnosed, if the nodule/cancer is <1 cm another option is observation, otherwise known as active surveillance. In some long-term prospective clinical trials involving active surveillance, the majority the small papillary thyroid microcarcinomas (PTMC) remain stable over time. In 2015 American Thyroid Association endorsed active surveillance for PTMC as an alternative to surgery. Thyroid-stimulating hormone (TSH) is a growth factor that stimulates thyroid tissue to produce thyroid hormone; also it affects the growth of thyroid cells and thyroid cancer cells. In some patients with thyroid cancer excessive doses of thyroid hormone are used to suppress TSH and consequently to slow down tumor progression. This study describes the association between serum TSH level and growth of PTMC.

THE FULL ARTICLE TITLE

Kim HI et al. High Serum TSH Level Is Associated With Progression of Papillary Thyroid Microcarcinoma During Active Surveillance. J Clin Endocrinol Metab. 2018 Feb 1;103(2):446-451. doi: 10.1210.

SUMMARY

In this Korean retrospective study 126 patients with 127 PTMC who did not have thyroid cancer surgery were followed over time with serial serum TSH measurements and ultrasonography. Patients were divided into three groups based on their TSH level. Lowest TSH group had average TSH of 1.05 mU/L (0.75-1.33), middle TSH group 2.08 mU/L (1.62-2.38) and highest TSH group 3.11 mU/L (2.4-3.95). Patients on thyroid hormone were not included in the study. During average of 26 months of follow-up about 20% of patients had tumor growth defined as greater than 50% increase of volume compared to baseline. There was significant difference in tumor growth between patients with the lowest TSH and the highest TSH. The cutoff point for the TSH level for PTMC growth was 2.5 mU/L. Continuous elevation of TSH during PTMC active surveillance was associated with tumor growth.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This is the first study describing association between serum TSH levels and tumor growth in patients with PTMC. Higher levels of TSH were associated with cancer growth. TSH levels should be monitored closely in patients who elect to proceed with active surveillance. Patients with PTMC and TSH above 2.5 mU/L may be considered for thyroid suppression therapy. Prospective studies are needed to evaluate the association between TSH levels and tumor growth rates.

—Valentina D. Tarasova, M.D.

ATA WEB BROCHURE LINKS:

Thyroid Cancer (Papillary and Follicular): https://www.thyroid.org/thyroid-cancer/

THYROID CANCER, continued

ABBREVIATIONS AND DEFINITIONS:

Papillary thyroid cancer: the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

Papillary microcarcinoma: a papillary thyroid cancer smaller than 1 cm in diameter.

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.