



THYROID CANCER

The decrease in serum calcitonin concentrations after surgery in patients with medullary thyroid cancer identifies patients with persistent cancer

WHAT IS THE STUDY ABOUT?

Medullary cancer is a rare form of thyroid cancer, accounting for <10% of all thyroid cancers. Unlike the more common papillary and follicular thyroid cancer, medullary thyroid cancer does not respond to radioactive iodine, so the main treatment option is surgery. Thus, the prognosis of medullary thyroid carcinoma depends greatly on the completeness of the first surgical treatment. However, whether removal of all the lymph nodes in the central neck should be performed at the time of surgery is a matter of debate unless there are abnormal looking lymph nodes present. Calcitonin is a hormone that is secreted by medullary cancer cells and serves as a cancer marker. The aim of this study was to determine if measurement of calcitonin during surgery is an effective predictor of residual cancer in patients with medullary thyroid cancer.

THE FULL ARTICLE TITLE:

Faggiano A et al. A decrease of calcitonin serum concentrations less than 50 percent 30 minutes after thyroid surgery suggests incomplete C-cell tumor tissue removal. *J Clin Endocrinol Metab* 2010. 0-0045 [pjc.2011ii];10.1210/jc.2010-0045[doi].

WHAT WAS THE AIM OF THE STUDY?

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WHO WAS STUDIED?

The study subjects included 20 patients, 9 men and 11 women referred for surgery on the basis of elevated calcitonin levels.

HOW WAS THE STUDY DONE?

Neck ultrasonography identified thyroid nodules on all of the patients and ultrasound-guided fine-needle aspiration biopsy was performed on thyroid nodules with features suspicious for cancer. All patients had total thyroidectomy

and removal of lymph nodes from the center of the neck. After surgery, calcitonin was measured every 3 – 6 months.

WHAT WERE THE RESULTS OF THE STUDY?

Medullary cancer was found in 10 patients, and 10 others had C-cell hyperplasia. A total of 4 of the 20 patients had persistent cancer after surgery. Calcitonin levels fell in all patients after surgery. The average calcitonin decrease was 44% at 10 minutes after surgery and 61% at 30 minutes after surgery. The calcitonin decreased greater than 50% at 30 minutes after surgery in all 16 patients who had no evidence of persistent cancer. In the 4 patients who had persistent cancer after surgery, the calcitonin decrease at 30 minutes after surgery was 16-44%.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

Several studies have reported that calcitonin levels before surgery were predictive of postoperative calcitonin levels of patients with medullary thyroid cancer. This is the first study to show that post-operative calcitonin levels can predict the postoperative outcome of patients this type of cancer.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that a decrease of calcitonin greater than 50% indicated that all of the cancer was removed, while persistent cancer was present if the decrease was less than 50%. This suggests that the surgeon should extend the operation to other lymph-node compartments in these latter patients.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

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

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

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Medullary thyroid cancer — a relatively rare type of thyroid cancer that also may be inherited. Medullary cancer arises from the C-cells in the thyroid.

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.

C-cell hyperplasia — an abnormal growth of parafollicular (C-cells) cells that usually occurs before the development of familial forms of medullary thyroid cancer and is considered a pre-cancerous condition

Calcitonin — a hormone that is secreted by cells in the thyroid (C-cells) that has a minor effect on blood calcium levels. Calcitonin levels are increased in patients with medullary thyroid cancer.