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THYROID CANCER

The merits of ultrasound screening for familial non-medullary thyroid cancer are strongly dependent on the number of affected family members

BACKGROUND

Thyroid cancer is the fastest growing cancer in the United States. There are 3 different types of thyroid cancer: papillary thyroid cancer, follicular thyroid cancer and medullary thyroid cancer. Medullary thyroid cancer has a clear genetic, familial form that runs in families. When a patient is diagnosed with medullary cancer, quite often other members of their family are screened for the same cancer. Most patients with non-medullary thyroid cancer (ie papillary and follicular thyroid cancer) do not have any family members with the same cancer but some do have a familial form. For non-medullary thyroid cancer, an individual is considered to have a familial form of the cancer if he or she and two first-degree relatives have this diagnosis.

While having a family history of thyroid cancer is a risk factor for developing non-medullary thyroid cancer, the benefit of screening family members after an individual gets diagnosed with thyroid cancer is not known. The objective of this study was to identify criteria that would predict benefit of screening family members of patients with non-medullary thyroid cancer.

THE FULL ARTICLE TITLE

Klubo-Gwiezdzinska J Results of screening in familial non-medullary thyroid cancer. Thyroid 2017 Aug;27(8):1017-1024.

SUMMARY OF THE STUDY

Study patients were selected from patients who enrolled at the National Institutes of Health Clinical Center between 2010 and 2015. Patients with non-medullary thyroid cancer with at least two first-degree relatives affected with non-medullary thyroid cancer, and who were older than 7 years-old, were included. This was the index group which consisted of 56 patients with familial non-medullary thyroid cancer. Information was collected from patient records, family history questionnaires and patient interviews. All at-risk family members who agreed to participate in the study were screened yearly by physical examination and thyroid ultrasound. The screened group consisted of 183 "at risk" family members of these patients in the index group. When thyroid nodules were found on ultrasound in the "at risk" family members that were larger than 5 mm, they underwent fine-needle aspiration biopsy. If non-medullary thyroid cancer was diagnosed, these patients were treated.

Overall, the study identified 25 families with familial non-medullary thyroid cancer. Thyroid cancer was detected by screening in 4.6% (2/43) of at-risk individuals from families with 2 members affected, and in 22.7% (15/66) of at-risk members from families with 3 or more patients affected. The cancers detected in the family members were smaller, had a lower rate of spreading to the neck lymph nodes, required less extensive surgery and had a lower rate of radioactive iodine therapy.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The study showed that screening of first-degree family members that include 2 patients with familial non-medullary thyroid cancer identifies a percentage of patients that may be similar to that in the general population. However, screening of first-degree family members that include 3 or more patients with familial non-medullary thyroid cancer is far more likely to uncover a greater number of other family members with the cancer. Additionally, screening of at-risk family members resulted in finding low-risk familial non-medullary thyroid cancer earlier and was associated with a less aggressive initial treatment. Therefore, screening with thyroid ultrasound should be considered in families with three or more family members affected by familial non-medullary thyroid cancer. However, physicians should be careful especially in older adults, as active screening may increase risk of overtreatment.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

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

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Familial non-medullary thyroid cancer: type of thyroid cancer that runs in families that is not medullary thyroid cancer. This is usually papillary thyroid cancer and occurs in about 10% of thyroid cancers.

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

Medullary thyroid cancer: a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the C-cells in the thyroid.

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.

Thyroid nodule: an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (Benign), ~5% are cancerous.

Thyroid fine needle aspiration biopsy (FNAB): a simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

Lymph node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.