



THYROID CANCER

Does analysis for the BRAF cancer-associated gene help diagnose follicular variant thyroid cancer?

BACKGROUND

The two most common types of thyroid cancer are papillary and follicular cancer. A third type of thyroid cancer is follicular variant of papillary cancer which has features of both papillary and follicular thyroid cancer. Papillary cancer is easily diagnosed with cells obtained after a thyroid biopsy. However, the diagnosis of both the follicular and follicular variant types of thyroid cancer cannot be diagnosed after a thyroid biopsy and requires analysis of the thyroid tissue after surgery. Mutations in certain cancer-associated genes can be seen in thyroid cancer and may be used to make the diagnosis of cancer easier. In particular, mutations in the BRAF gene are seen in a large percentage of papillary cancers. This study looked at this gene in follicular variant of papillary cancer in hopes of finding a marker to aid in diagnosis.

FULL ARTICLE TITLE

Proietti A et al BRAF status of follicular variant of papillary thyroid carcinoma and its relationship to its clinical and cytological features. *Thyroid* 2010;20:1263-70. Epub October 17, 2010.

SUMMARY OF THE STUDY

The BRAF gene was examined in cancer tissue from 187 patients with follicular variant of papillary thyroid

cancer in a center in Italy. Mutations in the BRAF gene were found in only 17% of these cancers and were not associated with any specific clinical feature in patients with this cancer. In fact, most of the cancers that had mutations in the BRAF gene were identified as suspicious or positive for cancer after the thyroid biopsy.

WHAT ARE THE IMPLICATIONS OF THE STUDY?

While mutations in the BRAF gene are common in papillary cancer, it does not appear that other types of thyroid cancer share this feature. Further, while mutations in the BRAF gene were seen in a small percentage of follicular variant of papillary thyroid cancers, those cancers with mutations were able to be diagnosed by other features in thyroid biopsies. The search will continue to find means to diagnose follicular variant of papillary cancer in thyroid biopsies since BRAF gene mutations do not appear to be common and do not serve as a reliable marker of this cancer type.

— Henry Fein, MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

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

Follicular thyroid cancer : the second most common type of thyroid cancer.

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 is a 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.

Cancer-associated genes: these are genes that are normally expressed in cells. Cancer cells frequently have mutations in these genes. It is unclear whether mutations in these genes cause the cancer or are just associated with the cancer cells. The cancer-associated genes important in thyroid cancer are BRAF, RET/PTC and RAS.

BRAF gene: this is gene that codes for a protein that is involved in a signaling pathway and is important for cell growth. Mutations in the BRAF gene in adults appear to cause cancer.