



THYROID CANCER

The BRAF V600E gene mutation in papillary thyroid cancer is associated with more rapid cancer growth and a higher death rate

BACKGROUND

Papillary thyroid cancer is usually a slow growing cancer with a low death rate of about <5%. A higher risk of death is found in more aggressive cancers which at initial diagnosis and surgery are found to have spread from the thyroid gland to the tissues around the thyroid and to other parts of the body. These features are used to stage or classify the cancer in order to predict the chances of cure and/or death and to determine the appropriate treatment. A genetic mutation in cancer cells, BRAF V600E, is associated with a higher death rate than cancers without the mutation. This gene mutation is found in 45% of papillary thyroid cancers. This study was done to confirm the incidence of this mutation in a large number of patients with papillary thyroid cancer in different countries and to determine if this mutation increases the risk of death beyond that predicted by the stage identified at the initial surgery.

THE FULL ARTICLE TITLE

Xing M et.al. Association between BRAF v600e mutation and mortality in patients with papillary thyroid cancer. JAMA 2013; Vol. 309: pp.1493-1501.

SUMMARY OF THE STUDY

A total of 1849 patients with papillary thyroid cancer at 13 medical centers in 7 countries were studied by reviewing their medical records. The cancer tissue of each patient was analyzed for the BRAF V600E mutation.

A total of 45.7% of the cancers were positive for the mutation. A total of 5.3% of the patients with the mutation had died, compared to 1.1% of the patients without the mutation. A greater percentage of BRAF V600E patients had higher stages of cancer, suggesting a faster and more aggressive growth pattern compared to the mutation negative patients. This higher stage (stage 4) accounted for the higher death rate. When papillary thyroid cancer was discovered in stages 1-3, the death rate was the same as other patients in stages 1-3 without the mutation.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The conclusion of the study is that although papillary thyroid cancer overall has a low risk of death from the cancer and is usually slow growing, the presence of the BRAF V600E mutation in the cancer predicts a faster rate of growth, spread and a higher risk of death. This suggests that all papillary thyroid cancers should be tested for the BRAF V600E mutation. Those patients with cancers that are positive may benefit from more aggressive therapy, although that needs to be studied.

— Jerrold M. Stock, MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

Genes: a molecular unit of heredity of a living organism. Living beings depend on genes, as they code for all proteins and RNA chains that have functions in a cell. Genes hold the information to build and maintain an organism's cells and pass genetic traits to

Mutation: A permanent change in one of the genes.

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.

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