



THYROID CANCER

BRAF V600 mutations are common but may not predict survival in thyroid cancer

BACKGROUND

Papillary thyroid cancer is the most common type of thyroid cancer. Mutations in certain cancer-associated genes are frequently found in thyroid cancer. In particular, BRAF V600E mutations are found in up to 80% of cases of papillary thyroid cancer. Several studies have examined the association between the presence of BRAF V600E mutations and the aggressiveness of papillary thyroid cancer with mixed results. This study aimed to determine the relationship between the BRAF V600E mutation status and clinical outcome of papillary thyroid cancer, including overall and disease-specific survival.

THE FULL ARTICLE TITLE

Niederer-Wüst S et al. Impact of clinical risk scores and BRAF V600E mutation status on outcome in papillary thyroid cancer. *Surgery* 2015;157:119-25.

SUMMARY OF THE STUDY

A total of 147 patients with papillary thyroid cancer >1 cm in size treated between 1990 and 2011 at the Kantonsspital St. Gallen in Switzerland were included in the study. The average observation time was 6.5 years. All patients were treated with a total thyroidectomy, 99% were treated with radioactive iodine therapy and 81% underwent central neck dissection to remove lymph nodes at the time of initial surgery. Upon review of the charts, patients were staged using 3 different staging systems. Overall survival, disease-specific survival and recurrence-free survival were determined. A total of 116 of 147 cancer specimens were

examined for BRAF mutations. The relationship between BRAF status and clinical outcome was determined for those 116 patients.

BRAF V600E mutations were identified in 65% of the specimens. Recurrent cancer was found in 8% of the patients. A total of 2.5% of the patients died of papillary thyroid cancer. Overall patients did very well. The 5- and 10-year rate of overall survival was 92% and 87%, disease-specific survival was 98% and 96% and recurrence-free survival was 96% and 94%. There was no correlation between the BRAF V600E mutation status and change in overall survival.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The majority of patients with papillary thyroid cancer have an excellent prognosis, with a high overall and disease-free survival. This study showed that BRAF mutation status was not prognostic of poor survival and did not correlate with any of the commonly used risk stratification scores for thyroid cancer. However controversy still exists and more studies are needed to determine whether BRAF mutation status can be used for papillary thyroid cancer risk assessment.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

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

DEFINITIONS AND ABBREVIATIONS

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

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 offspring.

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.

Mutation: A permanent change in one of the genes.

BRAF gene: this is gene that codes for a protein that is



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

Total thyroidectomy: surgery to remove the entire thyroid gland.

Thyroid Remnant Ablation: destruction of the small amount of thyroid tissue that remains after surgery (thyroidectomy) with the use of radioactive iodine.

Radioactive iodine therapy: Radioactive iodine is used to destroy thyroid tissue in the treatment of thyroid cancer.

Central neck dissection: Careful removal of all lymphoid tissue in the central compartment of the neck, even if no obvious cancer is apparent in these lymph nodes.

Cancer recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.

Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of March is [Medullary Thyroid Cancer Awareness Month](#) and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.

