FAMILY HISTORY OF DIFFERENTIATED THYROID CANCER IS ASSOCIATED WITH AN INCREASED RISK OF THYROID CANCER IN FIRST-DEGREE RELATIVES

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SUMMARY • • • • •

BACKGROUND

The purpose of this study was to investigate the association of sporadic differentiated thyroid carcinoma (DTC) with a first-degree family history of cancer. Patients with familial DTC, defined as ≥ 3 first-degree family members (parent, sibling, or child) with the disease, were excluded.

METHODS

The study included subjects at the M.D. Anderson Cancer Center recruited from November 1999 through November 2010 who presented for evaluation of a thyroid-gland mass. Based on final diagnosis, they were divided into a group of 288 subjects with DTC (91% papillary) and another group of 197 with benign thyroid disease. In addition, there was a control group of 591 visitors to the institution who were recruited into a molecular epidemiologic study of head and neck squamous-cell carcinoma during a similar period. The subjects completed a self-administered questionnaire concerning personal and family history relevant to the study.

RESULTS

A family history of cancer in first-degree relatives was reported by 49.0% of the DTC group, 55% of the benign thyroid disease group, and 58% of the controls. There was no significant association with family history of all cancers in first-degree relatives of those with DTC (odds ratio [OR], 1.0; 95% confidence interval [CI], 0.7 to 1.4) or benign thyroid disease (OR, 0.9; 95% CI, 0.7 to 1.3). The patients with DTC were significantly more likely than controls to have a family history of thyroid cancer in first-degree relatives (6.3% vs. 1.4%; OR, 4.1; 95% CI, 1.7 to 9.9). All of those with positive family histories had papillary thyroid cancer (PTC). In those with benign thyroid disease, there was also an increased association with a family history of thyroid cancer (OR, 3.2; 95% CI, 1.2 to 8.7). Multifocal PTC was twice as common in those with a positive family history of thyroid cancer (69%), as compared with those with no family history of thyroid cancer (35%).

CONCLUSIONS

The results indicate that a family history of thyroid cancer in first-degree relatives is associated with an increased risk of sporadic PTC.

COMMENTARY • • • • • • • • • •

This study confirms other case–control studies reporting a family history of thyroid cancer in those with "sporadic" DTC (1, 2). This becomes a semantic dilemma; if there are two first-degree relatives with DTC, many would call this familial DTC rather than sporadic PTC. Approximately 5% to 10% of cases of PTC may be familial.

In contrast with familial medullary thyroid cancer, the cause of the familial DTC is unclear. There is a recent review of the genetics of familial DTC (3). Aside from familial adenomatous polyposis and Cowden's syndrome, no genetic loci have yet been established as causes. Because of similar environmental exposure of family members, there is still the possibility that some of the familial cases are due to environmental exposures rather than genetics. Nevertheless, a positive family history of thyroid cancer increases the possibility that a thyroid nodule is malignant, a concept reinforced by the current study.

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