Association Between Thyroid Cancer And Thyroid Autoimmunity: A Systematic Review

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Thyroid cancer (TC) is the most frequent endocrine neoplasm with growing incidence worldwide. Autoimmune thyroid disorders, especially Hashimoto’s thyroiditis (HT), are also highly prevalent worldwide. The association between thyroid cancer and thyroid autoimmunity has long been suggested. However, several studies that have assessed the relationship between thyroid cancer and thyroid autoimmunity had inconsistent findings. While some studies did not show a significant relationship between these topics, others confirmed this association. Objective: The present study aims to summarize and update the data on literature about the association between thyroid cancer and thyroid autoimmunity. Materials and methods: A systematic literature search was conducted in the Medline database (PubMed) in November 2022, including all published scientific papers from 2016 to 2022. The association was analyzed in two ways: the prevalence of thyroid cancer in patients with thyroid autoimmunity versus those without and the progression of thyroid cancer according to autoimmunity status.

Results: A total of 137 papers were first identified. After the screening for eligibility, only 10 matched all inclusion criteria and were included in this study. Collectively, these studies included 7,873 patients. Half of the studies showed a higher prevalence of TC in patients with thyroid autoimmunity and an associated risk for TC development. An estimate OR for TC in these studies ranged from 1.45 to 3.14. There is also evidence showing that TC in cases of thyroid autoimmunity are smaller (≤10 mm in diameter) than those without thyroid autoimmunity, which may suggest thyroid cancers are diagnosed at an early stage. Regarding the progression of thyroid cancer according to autoimmunity status, the results are inconsistent. While some studies reported findings to support thyroid autoimmunity as a protective factor against TC based on less tumor size, capsule invasion, extra-thyroidal extension, lymph node metastasis, and distant metastasis, others showed that 50% of patients with detectable TgAb had more lymph node metastasis than those with undetectable TgAb. On the other hand, no significant association between TPOAb and lymph node metastasis was shown. Conclusion: the association between thyroid cancer and thyroid autoimmunity appears to be a relevant mechanism to elucidate. However, no definitive data justify a clear connection between thyroid autoimmunity and thyroid cancer. Furthermore, there is insufficient data to determine if thyroid autoimmunity leads to different progression and prognoses of thyroid cancer.

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