

**THYROID CANCER****Women with thyroid cancer have a higher risk of breast cancer****BACKGROUND**

As more people are being diagnosed with thyroid cancer, and survival rates are generally excellent, there are more survivors of thyroid cancer. These survivors have been shown to have increased risk for secondary cancers with a risk of 16% at 25 years post-diagnosis. Previous studies done in patient populations from a small number of institutions showed an increased risk for breast cancer in women with a history of thyroid cancer. The cause for this is unclear, but genetic changes, radiation exposure, and hormonal factors have been considered. This study expands these observations by using the national SEER database, which represents about 10% of the US population, to see if the risk noted previously was applicable to the general population. It was also done to further explain the elevated risk for breast cancer in female survivors of thyroid cancer.

THE FULL ARTICLE TITLE

Kuo JH et al. Breast cancer in thyroid cancer survivors: An analysis of the Surveillance, Epidemiology, and End Results-9 database. *Surgery*, October 29, 2015 (Epub ahead of print)

SUMMARY OF THE STUDY

The study included women over the age of 18 enrolled in the SEER database between 1973 and 2011. A total of 707,678 women with breast cancer and 53,853 women with thyroid cancer were found in this database. Of the women with thyroid cancer, 1750 women had breast cancer after the diagnosis of thyroid cancer. The 10 year risk for breast cancer after thyroid cancer was calculated and compared to the 10 year risk in the general population. Also, information about the tumor histology, lymph node involvement, the use of radioactive iodine and traditional radiation treatment was available since 1990.

The 10 year risk for developing breast cancer was higher in the patients with a history of thyroid cancer. At age 40-49, the risk for breast cancer in patients with thyroid cancer was 5.6% compared with 1.5% in the general population. For 50-59 year old women, the risk was 12.8% vs. 2.4% in the general population. For 60-69 year-old women, the risk was 7.4% vs. 3.6% in the general population. Women in their 70's had a risk for 11.1% vs. 3.8% in the general population. Breast cancer developed on average 5 years after the thyroid cancer diagnosis. Patients who developed breast cancer after thyroid cancer were more likely to have follicular thyroid cancers than patients with thyroid cancer who did not develop breast cancer. More thyroid cancer survivors have estrogen receptor/progesterone receptor positive cancers and more mixed ductal and lobular invasive breast cancer types than the general population who develops breast cancer. Patients with thyroid cancer who develop breast cancer were younger than the average patient who develops breast cancer (age 58 vs. 61).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms that women who have thyroid cancer are at increased risk for breast cancer, and the cancer is histologically different than the general. The cause of this increased risk was not able to be determined by this study and may be related to a genetic predisposition to cancer itself or environmental factors. These data indicate that women who survive thyroid cancer should have more frequent mammographic screening and breast exams to evaluate for breast cancer than the general population of women.

— Julie Hallanger Johnson, MD

ABBREVIATIONS & DEFINITIONS

SEER: Surveillance, Epidemiology and End Results program, a nation-wide anonymous cancer registry generated by the National Cancer Institute that

contains information on 26% of the United States population. Website: <http://seer.cancer.gov/>