Second primary breast cancer occurrence according to hormone receptor status.

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Abstract

BACKGROUND: Contralateral second primary breast cancers occur in 4% of female breast cancer survivors. Little is known about differences in risk for second primary breast cancers related to the estrogen and progesterone receptor (hormone receptor [HR]) status of the first tumor.

METHODS: We calculated standardized incidence ratios (SIRs) and 95% confidence intervals (CIs) for contralateral primary breast cancers among 4927 women diagnosed with a first breast cancer between January 1, 1992, and December 31, 2004, using the National Cancer Institute's Surveillance, Epidemiology, and End Results database.

RESULTS: For women whose first breast tumors were HR positive, risk of contralateral primary breast cancer was elevated, compared with the general population, adjusted for age, race, and calendar year (SIR = 2.22, 95% CI = 2.15 to 2.29, absolute risk [AR] = 13 cases per 10 000 person-years [PY]), and was not related to the HR status of the second tumor. For women whose first breast tumors were HR negative, the risk of a contralateral primary tumor was statistically significantly higher than that for women whose first tumors were HR positive (SIR = 3.57, 95% CI = 3.38 to 3.78, AR = 18 per 10 000 PY), and it was associated with a much greater likelihood of an HR-negative second tumor (SIR for HR-positive second tumors = 1.94, 95% CI = 1.77 to 2.13, AR...
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= 20 per 10 000 PY; SIR for HR-negative second tumors = 9.81, 95% CI = 9.00 to 10.7, AR = 24 per 10 000 PY). Women who were initially diagnosed with HR-negative tumors when younger than 30 years had greatly elevated risk of HR-negative contralateral tumors, compared with the general population (SIR = 169, 95% CI = 106 to 256, AR = 77 per 10 000 PY). Incidence rates for any contralateral primary cancer following an HR-negative or HR-positive tumor were higher in non-Hispanic blacks, Hispanics, and Asians or Pacific Islanders than in non-Hispanic whites.

CONCLUSIONS: Risk for contralateral second primary breast cancers varies substantially by HR status of the first tumor, age, and race and/or ethnicity. Women with HR-negative first tumors have nearly a 10-fold elevated risk of developing HR-negative second tumors, compared with the general population. These findings warrant intensive surveillance for second breast cancers in women with HR-negative tumors.

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