Re: Population-Based Study of Contralateral Prophylactic Mastectomy and Survival Outcomes of Breast Cancer Patients

In the article by Bedrosian et al. (1) entitled “Population-based study of contralateral prophylactic mastectomy and survival outcomes of breast cancer patients,” the authors used the Surveillance, Epidemiology, and
End Results (SEER) database to determine whether contralateral prophylactic mastectomy (CPM) is associated with improved breast cancer–specific survival rates. Patients who were diagnosed with unilateral breast cancer between 1998 and 2003 were included in this study. The authors concluded that “CPM is associated with a small improvement (4.8%) in 5-year breast cancer–specific survival mainly in young women with early-stage estrogen receptor-negative breast cancer.”

However, a closer look at the data raises some serious concerns about this analysis. The authors report that young patients (<50 years) with estrogen receptor–negative breast cancer undergoing CPM have a 5-year breast cancer–specific survival rate of 88.5% as compared with 83.7% for the non-CPM group. The only plausible way that CPM improves breast cancer survival is by reducing the risk of a potentially fatal contralateral breast cancer. However, the cumulative incidence of contralateral breast cancer was less than 1% among patients not receiving CPM. Even if every patient who developed contralateral breast cancer died immediately at the time of the diagnosis of the contralateral cancer, the survival benefit for CPM would still be less than 1%. Instead, most metachronous contralateral breast cancers are stage I cancers with a 5-year survival rate exceeding 90% (2). In this study, the median follow-up time was only 47 months from the diagnosis of the first cancer; this duration of time is obviously insufficient to determine a survival benefit from CPM, which would require a woman with unilateral breast cancer to develop contralateral breast cancer and subsequently die of that contralateral breast cancer, all within 47 months.

The authors suggest that SEER may underestimate the actual cumulative incidence of contralateral breast cancer. From the Early Breast Cancer Trials’ Collaborative Group analysis, the annual risk of contralateral breast cancer among women who did not receive endocrine therapy was 0.5% (3). Thus, the expected cumulative 5-year risk of contralateral breast cancer for patients with estrogen receptor–negative breast cancer would be about 2.5%. Because patients do not die immediately at the time of diagnosis of contralateral breast cancer and usually have early-stage contralateral cancers, the reported 4.8% absolute survival benefit at 5 years is clearly not possible even if SEER underestimated the rate of contralateral breast cancer.

The observations in this population-based study can be simply explained by selection bias. Patients who undergo more aggressive breast cancer surgery (CPM) are healthier, more likely to receive chemotherapy, and therefore, more likely to survive their first cancer. Importantly, SEER does not report the use of endocrine therapy or chemotherapy, performance status, family history, or BRCA status.

The use of CPM has dramatically increased in the United States during the past decade (4). The conclusion from the study by Bedrosian et al. that CPM improves breast cancer survival rates in some women is not justified and may lead more patients to undergo unnecessary breast cancer surgery.

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References

Notes
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