Despite effective therapy, US rate of breast conservation lower than other countries

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Neoadjuvant systemic therapy (NST) can shrink tumors in breast cancer patients and in some cases allow for breast conserving therapy (lumpectomy) who would otherwise require a mastectomy. Yet, in the

United States, about 55 percent of patients who become eligible for breast conserving therapy after NST underwent breast conserving therapy compared to 80 percent in Europe and Asia, a new study led by investigators at Brigham and Women's Hospital shows. In *JAMA Surgery*, the team reports their findings, including that patients treated in Europe or Asia were 2.6 times as likely to undergo breast conserving therapy rather than a mastectomy compared to those treated in North America when adjusted for clinically significant factors.

"We also found that U.S. patients are nearly three times more likely than patients in Europe or Asia to undergo contralateral mastectomy, or removal of the unaffected breast, even if they tested negative for a genetic mutation that predisposes women to breast and ovarian cancer. To me, this is a profound difference," said corresponding author Mehra Golshan, MD, MBA, the Dr. Abdul Mohsen & Sultana Al-Tuwaijri Distinguished Chair in Surgical Oncology at the Brigham and director of the Breast Surgical Oncology Fellowship. "Our goal here is not to say whether women should have had a lumpectomy instead. The decision isn't wrong—I've been through cancer treatment myself, and it's a very personal process in decision making. However, it's important to recognize that based on the same medical information, patients in different countries are making very different decisions. The next question to ask is: why?"

Previous studies have found that lumpectomy with clear margins (no cancer cells in the surrounding tissue) followed by radiation is as effective as mastectomy with no difference in survival. Mastectomies require more extensive surgery and post-surgical recovery. However, women who have undergone a lumpectomy have a slightly higher risk of developing local recurrence of breast cancer.

Golshan and colleagues conducted their analysis as part of BrighTNess, a multi-centered, phase III, double blind, randomized controlled trial

sponsored by AbbVie Pharmaceuticals. The trial enrolled 600 women with operable, clinical stage II and III triple-negative breast cancer from 145 centers in 15 countries. Study participants were randomized to receive 12 weeks of one of three different chemotherapy treatment regimens prior to surgery. Before treatment, 458 patients (76 percent) were considered eligible for breast conserving therapy and 141 (24 percent) were deemed ineligible. After treatment, 75 (53 percent) of the patients deemed ineligible were converted to eligible for breast conserving therapy.

Many women who were eligible for a lumpectomy—including 26 percent of those who tested negative for a genetic mutation for breast cancer—still underwent a mastectomy. Overall, 342 women (68 percent) who were eligible for breast conserving therapy underwent a lumpectomy. But this rate varied significantly based on where the patient received treatment.

The authors suggest that it may be that higher out-of-pocket costs of mastectomies for patients in Europe or Asia contribute to their findings. In Europe and Asia, removal of the unaffected breast and breast reconstruction are often not covered by insurance unless the patient has a genetic mutation that puts them at risk. In the U.S., such procedures are more frequently covered. The authors note that one of the limitations of their study is that they were unable to ask patients why they made the surgical decision they did and whether insurance coverage influenced their decision.

"Today, the vast majority of breast cancer patients have options," said Golshan. "New drugs and therapies are becoming available that allow us to shrink tumors prior to surgery, but we need to better understand how patients and surgeons perceive risk of disease and how this may factor into the surgical decision-making process."

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