

Chemo before breast cancer operation increases likelihood of breast-preserving procedure

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Patients with larger malignant tumors of the breast who undergo chemotherapy before a breast cancer operation are more likely to opt for a breast-preserving procedure and forgo a mastectomy (surgical removal of the breast), according to a new study published online as an ["article in press"](#) in the *journal of the american college of surgeons*. the study will appear in a print edition of the *Journal* this spring.

Study investigators from Yale University School of Medicine and Yale University Comprehensive Cancer Center, New Haven, Conn. also determined that rates of chemotherapy before breast operations, known as neoadjuvant therapy, had increased significantly through the five-year study period, possibly because the FDA had approved better chemotherapy drugs.

Lead investigator general surgeon, Brigid K. Killelea, MD, MPH, FACS, called the study results "very exciting." It is one of the largest studies to date on the use of chemotherapy before surgical treatment for [breast cancer](#).

"We've seen data published from clinical trials showing that [neoadjuvant chemotherapy](#) results in increased lumpectomy rates but this is really one of the first studies using a large national database that reflects what is also going on in the community hospital setting," she said. (During a lumpectomy procedure only the tumor and surrounding tissue is

removed, leaving the rest of the breast tissue intact.)

The researchers analyzed data from the National Cancer Data Base (NCDB), a joint program of the Commission on Cancer of the American College of Surgeons and the American Cancer Society. NCDB captures an estimated 70 percent of newly diagnosed cancer cases in the United States from approximately 1,500 cancer programs accredited by the CoC.

In all, the study involved 354,204 women with [invasive breast cancer](#) who underwent breast operations and chemotherapy either before or after their procedures, or both, from 2006 through 2011. Out of that group, 59,063, or 16.7 percent—about one in six patients—underwent chemotherapy before their operations.

This study did not look at overall survival among women who had pre-surgery chemotherapy, which previously, smaller trials have found to be no different from adjuvant chemotherapy. However, it did confirm a trend that those trials had noted: higher rates of breast conservation among patients with larger tumors for those who received chemotherapy first. This Yale study found that 35 percent of women who had pre-surgery chemotherapy also had breast conservation therapy.

"One interesting thing that we saw over time was that the percentage of women that did receive neoadjuvant therapy increased, going from 13.9 percent to 20.5 percent from 2006 to 2011," Dr. Killelea said—or from about one in seven women in the first year of the study to one in five in the last.

What's more, women with larger breast tumors were more likely toward the end of the trial period to opt for pre-surgery chemotherapy and breast-sparing lumpectomy versus mastectomy, Dr. Killelea noted.

"Those who received neoadjuvant chemotherapy were 70 percent more

likely to have a lumpectomy for tumors larger than three centimeters (about 1.25 inches in diameter), leading to an increased rate of breast preservation," she said. "In other words, those people were able to avoid a mastectomy." This was true for tumors as large as four to eight centimeters, or 1.5 to about three inches in diameter, study authors noted.

Advances in [chemotherapy drugs](#) since 2006 have made these agents more effective in treating increasingly serious forms of breast cancer, such as HER2-positive and triple negative cancers, according to Dr. Killelea, although that factor was not a primary focus of the study. In these patients, chemotherapy before the operation gives surgeons the opportunity to evaluate how the tumor will respond to treatment.

Another advantage of pre-surgery [chemotherapy](#) is that doctors can begin treatment of cancer that has spread to the lymph nodes immediately rather than waiting for the breast to heal after the procedure, Dr. Killelea noted.

"Going forward, it will be interesting to see whether or not the use of neoadjuvant therapy continues to rise as newer drugs and agents are being developed all the time," Dr. Killelea said. "It will also be interesting to watch what happens to the rate of breast conservation over time. We don't know. That's why it's so important for us to have a database like NCDB."

Provided by American College of Surgeons

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