Estrogen-Lowering Drugs Minimizes Breast Cancer Surgery

A nationwide study has confirmed the benefit of giving estrogen-lowering drugs before surgery to breast cancer patients. The treatment increased the likelihood that women could undergo breast-conservation surgery, also called lumpectomy, instead of mastectomy.

Sponsored by the American College of Surgeons Oncology Group, the study took place at 118 hospitals across the country and involved 352 postmenopausal women with estrogen-receptor positive (ER+) breast tumors. The participants received aromatase inhibitors for 16 weeks before surgery for breast cancer, and the extent of their tumors was monitored before and after the drug treatment.

The lead investigator at the Washington University site was Julie A. Margenthaler, MD, assistant professor of surgery and a breast surgeon at the Siteman Cancer Center. Aromatase inhibitors are also referred to as estrogen-lowering agents because they interfere with the body's production of estrogen, a hormone that stimulates the growth of ER+ breast tumors. ER+ is the most common breast cancer, accounting for three-quarters of cases.

All women in the study had stage II or III breast cancer, in which tumors are about an inch or larger in size and may have spread to the lymph nodes in the underarm area. Participants were placed in one of three groups at the study's start:

- Marginal, meaning breast-conservation surgery was possible but likely to be disfiguring or to require several surgical procedures.
- Mastectomy-only, meaning breast-conservation surgery was not possible; and inoperable, meaning mastectomy would not completely remove the cancer.
- After the 16-week aromatase inhibitor therapy, the women were re-evaluated to see which surgical option was appropriate for them. The results showed that 82 percent of women in the marginal group, 51 percent in the mastectomy-only group and 75 percent in the inoperable group had successful breast-conservation surgery instead of mastectomy.

“Aromatase inhibitor therapy shrank the tumors in many of these women and improved surgical outcomes,” Ellis says. “These results will encourage a change in practice across the country so that more women can benefit from the currently underutilized approach of administering estrogen-lowering agents before surgery.”

The study participants were randomly assigned to receive one of three estrogen-lowering agents: exemestane (25 mg daily), letrozole (2.5 mg daily) or anastrozole

(1 mg daily). No statistically significant difference in effectiveness was found among the three drugs. Ellis explains that there are other benefits to using estrogen-lowering agents before surgery.

“ER+ breast cancer can be thought of as a chronic disease because patients generally take estrogen-lowering agents for many years after surgery to repress recurrence,” Ellis says. “In other chronic diseases, such as hypertension or diabetes, a patient's response to treatment is continually monitored. But we've never done that with breast cancer. By treating breast cancer patients with estrogen-lowering drugs for three or four months before surgery, we can monitor treatment response and then specifically tailor surgical and post-surgical treatment based on this response.”

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