Estrogen deprivation in neoadjuvant chemotherapy is not antagonistic to pathologic complete response

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Neoadjuvant chemotherapy in breast cancer treatment consists of administering docetaxel, carboplatin, trastuzumab and pertuzumab (TCHP) prior to surgery and is primarily used in patients with HER2-positive breast cancers who have large tumors or evidence that the cancer has spread to underarm lymph nodes. Patients whose tumors also are hormone receptor positive, however, have a lower response rate to this treatment.

In research presented at the 2016 San Antonio Breast Cancer Symposium by Dr. Mothaffar F. Rimawi, associate professor and medical director at the Lester and Sue Smith Breast Center, part of the Dan L Duncan Comprehensive Cancer Center at Baylor College of Medicine, he finds that adding an aromatase inhibitor, or estrogen deprivation, to this presurgery treatment did not significantly increase or decrease the percentage of patients who experienced a pathologic complete response.

"We designed a NSABP B52 trial to find out whether adding estrogen deprivation to the neoadjuvant therapy course undergone by the patient group would increase the percentage of patients who have a pathologic complete response, meaning that they would have no residual invasive cancer detectable in the breast tissue and lymph nodes that were removed during surgery," said Rimawi.

The study randomly assigned 315 patients with local advanced, hormone receptor-positive HER2+ invasive breast cancer with no evidence of metastatic disease to receive neoadjuvant therapy consisting of TCHP with or without estrogen deprivation therapy. Premenopausal participants randomized to estrogen deprivation therapy also received ovarian function suppression.

Data from the study reflected the pathologic complete response results from 308 of the 315 participants, revealing 40.9 percent for TCHP and 46.1 percent for TCHP with estrogen deprivation in the breast and lymph nodes, and 44.2 percent for TCHP and 47.4 percent for TCHP with estrogen deprivation in the breast alone.

"These results show that adding estrogen deprivation to neoadjuvant therapy is not antagonistic and the combination did not increase toxicity. While they improved, the pathologic complete responses were not statistically significant," said Rimawi.

Future research will analyze tissue samples from the participants to investigate potential subgroups of patients who could benefit from estrogen deprivation in neoadjuvant therapy.

"In light of the toxicity of standard chemotherapy," added Rimawi, "this trial argues for a tailored de-escalation approach where toxic treatments are omitted or replaced with less toxic ones without compromising outcomes."

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