Neoadjuvant chemotherapy may help some breast cancer patients skip regional nodal irradiation

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For patients whose breast cancer converted from lymph node-positive to lymph node-negative disease after neoadjuvant chemotherapy, skipping

adjuvant regional nodal irradiation (RNI) did not increase the risk of disease recurrence or death five years after surgery, according to results from the NRG Oncology/NSABP B-51/RTOG 1304 clinical trial presented at the San Antonio Breast Cancer Symposium, held December 5–9, 2023.

Patients who are diagnosed with breast cancer that has already spread to regional lymph nodes may receive neoadjuvant chemotherapy; in some cases, neoadjuvant therapy completely eradicates the cancer from the lymph nodes. Currently, there is no established standard of care for how these patients should be treated after surgery, according to Eleftherios (Terry) Mamounas, MD, MPH, chair of the NRG Oncology Breast Committee, professor of surgery at the University of Central Florida and medical director of the Comprehensive Breast Program at the Orlando Health Cancer Institute.

"There is an active debate on whether these patients should be treated as patients with lymph node-positive disease (which is how they were diagnosed) or as patients with lymph-node negative disease (which is how they present at the time of surgery)," he said.

If treated as patients with lymph node-positive disease, they would be recommended to undergo chest wall irradiation plus RNI after mastectomy or whole breast irradiation plus RNI after breast-conserving surgery. Alternatively, if their disease were considered lymph node-negative, they would be eligible to omit RNI after surgery.

RNI is a form of radiotherapy directed to lymph nodes near the breast; it is intended to reduce patients' risk of disease recurrence after surgery.

"Some patients may prefer to skip RNI to avoid complications associated with the treatment, such as pain, fatigue, lymphedema, and its impact on breast reconstruction," noted Mamounas. "Therefore, it is important to

evaluate whether this treatment can be safely omitted in this patient population."

To evaluate the impact of RNI on patient outcomes, Mamounas and colleagues conducted the NRG Oncology/NSABP B-51/RTOG 1304 phase III clinical trial. The study enrolled 1,641 patients diagnosed with lymph-node positive, nonmetastatic breast cancer whose lymph nodes were found to be cancer-free after neoadjuvant chemotherapy and who had undergone either mastectomy or breast-conserving surgery.

Patients were randomly assigned 1:1 to either the "no RNI" arm (observation after mastectomy or whole breast irradiation after breast-conserving surgery) or the "RNI" arm (chest wall irradiation plus RNI after mastectomy or whole breast irradiation plus RNI after breast-conserving surgery).

Evaluable patients (1,556 patients) had similar outcomes whether they received adjuvant RNI or not: 91.8% of patients in the "no RNI" arm and 92.7% of those in the "RNI" arm were free of invasive breast cancer recurrences five years after surgery. Distant recurrence and overall survival rates were also similar between the arms, with 93.4% of patients in each arm free from distant recurrence five years after surgery, and 94% of those in the "no RNI" arm and 93.6% of those in the "RNI" arm alive after five years.

"Our findings suggest that downstaging cancer-positive regional lymph nodes with neoadjuvant chemotherapy can allow some patients to skip adjuvant RNI without adversely affecting oncologic outcomes. Follow-up of patients for long-term outcomes continues," Mamounas said.

A potential limitation of the study is that patients have so far experienced fewer breast cancer recurrences than expected, which impacted the researchers' ability to perform the planned statistical

analyses based on the number of recurrences. However, the statistical plan of the study also stipulated analyses 10 years after the initiation of the study, which was reached in 2023. The researchers have planned a longer follow-up to strengthen their analysis.

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