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“Our study - although retrospective - indicates that the administration of trastuzumab with chemotherapy is associated with significant benefits for women with these lower-risk tumors. This analysis should provide some much-needed guidance.”

Heather McArthur, MD, lead author and medical oncologist on the Breast Cancer Medicine Service at Memorial Sloan Kettering Cancer Center

“To date, there has been little to no data to help guide clinicians in making treatment recommendations for this population because previous large, randomized trastuzumab trials typically excluded patients with these lower-risk cancers,” said Heather McArthur, MD, a medical oncologist on the Breast Cancer Medicine Service at Memorial Sloan Kettering Cancer Center, and the study’s lead author. “Our study - although retrospective - indicates that the administration of trastuzumab with chemotherapy is associated with significant benefits for women with these lower-risk tumors. This analysis should provide some much-needed guidance.”

Previous studies testing the effectiveness of trastuzumab in the postsurgery setting most often did not include women with such lower-risk cancers because of their modest event rate. According to Dr. McArthur, a prospective randomized trial would be difficult to conduct because that would require many thousands of patients and many years of follow-up.

Almost 200,000 new breast cancers are diagnosed in the United States each year, and approximately 20 percent are *HER2* positive, meaning the patient’s tumor has higher than normal levels of the *HER2* protein, which promotes cancer cell growth. Typically, *HER2*-positive breast cancers are more aggressive and have higher recurrence rates than tumors with normal levels of *HER2*. But with adjuvant treatment with chemotherapy and trastuzumab - a monoclonal antibody that works by latching itself on to the tumor and blocking its growth - the risk of recurrence and even death can be dramatically reduced in some populations.

In the study, Dr. McArthur and colleagues collected and analyzed data from 261 women with small ( $\leq 2$  cm), node-negative, *HER2*-positive breast cancer. Two cohorts of women were then identified. The first group of 106 women was diagnosed before the trastuzumab studies were reported and did not receive trastuzumab; the second group of 155 women was diagnosed after the trastuzumab studies were reported and did receive trastuzumab. The authors note that a major difference between the cohorts - in addition to the use of trastuzumab or not - was the administration of conventional chemotherapy. Specifically, all women who received trastuzumab also received chemotherapy, while only 66 percent of women in the no-trastuzumab group received chemotherapy.

“We found statistically significant benefits in favor of the trastuzumab-treated group,” said Dr. McArthur. For example, after three years of follow-up, women who did not receive trastuzumab experienced an 8 percent recurrence rate in the breast or local lymph nodes, compared with just 2 percent in

the trastuzumab-treated group. Furthermore, 5 percent of women who did not receive trastuzumab developed metastases. Although not statistically significant, consistent benefits were observed in the subset of patients with tumors smaller than 1cm. "Because of the differences in chemotherapy administration rates between the two groups, we are unable to definitively state whether the benefits are attributable to trastuzumab or chemotherapy. However, these results indicate that the combination should be considered by clinicians and these patients, who to date, have typically not been considered candidates for adjuvant trastuzumab-based treatment," said Dr. McArthur.

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