

The Implications of Micrometastases in Early-Stage Breast Cancer Revealed

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Ways to detect cancer cells that have escaped from their original tumor site have become more sensitive as our knowledge and detection methods of circulating cancer cells have improved. One commonly-used method is sentinel lymph node dissection, where pathologists examine only the lymph node nearest the tumor site to detect any stray cancer cells. If the lymph node contains cancer cells, additional lymph nodes are removed and adjuvant therapy (treatment given after surgery) is given to kill spreading cancer cells.

Unfortunately, the threshold for the amount of cancer that is detected in the sentinel lymph node that is worthy of adjuvant treatment is unclear. And the question physicians face now is what to do when faced with micrometastases, when only a small number of cancer cells are found outside the original tumor site. Strategies can include watch and wait to see if the minimal cancer cells do spread or aggressively treat the patient with adjuvant therapy, which can result in side effects to the patient without clear evidence of benefit.

Results from the MIRROR study, which looked at whether micrometastases and isolated tumor cells—defined as an even smaller number of circulating tumor cells—was predictive of recurrence, helped to answer that question. Researchers also examined whether adjuvant treatment improves disease-free survival. A Dutch research group led by Vivianne Tjan-Heijnen, MD, studied about patients with early-stage breast cancer and determined if they had micrometastases or isolated tumor cells. This was the first such study since the widespread adoption of sentinel lymph node dissection that looked at isolated tumor cells and micrometastases in a large number of patients and included analysis with adjuvant systemic therapy, Tjan-Heijnen said.

The study looked at three sets of patients: those without metastases in nearby lymph nodes, those with micrometastases who did not receive adjuvant therapy, and those with micrometastases who did receive treatment, including hormonal therapy and chemotherapy. Among the women with the treatment arm, 10 percent received chemotherapy, 63 percent received hormonal treatment, such as aromatase inhibitors or tamoxifen, and 27 percent received both.

Researchers compared the different groups to determine the impact of having micrometastases on recurrence with patients who had no micrometastases, and if those patients benefited from adjuvant therapy. After a median follow-up of more than five years, the study showed that treatment did indeed improve disease-free survival. Women who received treatment had a DFS of 86.3 percent,

while women with micrometastases or isolated tumor cells who did not receive treatment had a DFS of 76.7 percent, a difference of 9.6 percent, which was considered statistically significant. In patients with no micrometastases, DFS reached 85.7 percent.

Tjan-Heijnen concluded that patients with micrometastases or isolated tumor cells had similar results with a worse five-year DFS rate, which was worse than patients without micrometastases. And when treated with adjuvant therapy, disease-free survival significantly improved by nearly 10 percent.

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