Tumor cells in the blood may indicate poor prognosis in early breast cancer

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Tumor cells in bone marrow of early breast cancer patients predict a higher risk of relapse as well as poorer survival, but bone marrow biopsy is an invasive and painful procedure. Now, it may be possible to identify tumor cells in a routine blood sample and use them as prognostic markers, according to a study published May 15 in the *Journal of the National Cancer Institute*.

To assess the prognostic value of circulating tumor cells (CTCs) in patients with early breast cancer, Brigitte Rack, M.D., of the Department of Gynecology and Obstetrics, Klinikum Innenstadt, Ludwig-Maximilians-Universitaet Muenchen, in Munich, Germany, and colleagues analyzed CTCs in peripheral blood from patients from the SUCCESS trial. Samples were taken from 2026 patients after primary surgery and before systemic treatment and in 1492 patients after chemotherapy.

The patients were classified into four groups: positive for CTCs both before and after treatment, negative for CTCs both before and after, positive for CTCs before but negative after, and negative CTCs before but positive after treatment. Those with positive CTCs both before and after treatment had the worst disease-free survival compared to the other three groups. Overall, the probability of being disease-free at 36 months after surgery was lower for patients with CTCs than for patients without, and of those patients who died during follow-up, 40.9% had CTCs in their blood compared to 20.8% of patients who survived. In addition, the greater the CTC count, the worse the prognosis. Patients with 5 or more

CTCs in 30ml of blood were at higher risk of recurrent disease.

The authors conclude that "Our data offer support for the clinical potential of CTCs to assess the individual risk of patients at the time of primary diagnosis and may be used for treatment tailoring in the absence of other strong quantitative markers." However, they note that although they used only two markers to detect CTCs, the identification of other markers could make CTCs even more useful in predicting metastases and guiding therapeutic choices.

In an accompanying editorial, Arnold M. Schwartz, M.D., Ph.D., of the Department of Pathology and Surgery and Norris Nolan, M.D., of the Department of Pathology at The George Washington University, Washington, DC, write that the work of Rack et al. is notable because of the large cohort, the focus on early breast cancer, and sampling both before and after treatment and that "The identification of CTCs represents an additional biomarker that provides insight into clinical behavior."

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