Circulating Tumor Cells Predicted Recurrence, Death in Patients with Early-stage Breast Cancer

AACR

Blood was tested after surgery and before chemotherapy.
Risk was apparent with just one CTC in the blood.
More individualized treatment approaches might be possible based on CTC characterization.

SAN ANTONIO - The presence of one to four circulating tumor cells (CTCs) in the blood of early-stage breast cancer patients almost doubled patients risk of cancer relapse and death, and five or more CTCs increased recurrence by 400 percent and death by 300 percent, according to Phase III results of the SUCCESS trial. These cells were found in patients after surgery but before chemotherapy treatment.

Results of this study were presented at the 33rd Annual CTRC-AACR San Antonio Breast Cancer Symposium, held Dec. 8-12, 2010, and demonstrate the value of CTCs in early breast cancer, independent of estrogen-receptor or HER2 status and before use of adjuvant therapy.

The benefit of using CTCs to predict risk for recurrence and death in metastatic breast cancer patients has been shown in a number of studies, and use of a CTC test in metastatic breast cancer has been approved by the Food and Drug Administration.

The CTCs found in this study are likely evidence that a tumor is shedding breast cancer cells, said lead researcher Brigitte Rack, M.D., head of the department of gynecological oncology at the Womens Hospital at the University of Munich, Germany. "The CTCs might have been released from the primary tumor before these patients underwent surgery, and the expression of stem cell markers on disseminated tumors cells has been shown by several groups."

Survival of these CTCs after chemotherapy further suggests they are cancer stem cells, Rack added.

Researchers with this study are testing the effectiveness of two different chemotherapy regimens and extended adjuvant bisphosphonate treatment in early breast cancer. SUCCESS efficacy data are expected to be released next year.

Results of this study showed that 21.5 percent of patients had one or more CTC in their blood before the start of adjuvant treatment. These patients were more frequently node-positive, but no other linkage could be made with tumor size or grade or HER2 status.

Breast cancer recurred in 114 patients, and 66 patients died. Being CTC-positive

was a significant independent predictor for both disease-free and overall survival. Patients with one to four CTCs had an 88 percent increased risk of early breast cancer recurrence and a 91 percent increased risk of death from breast cancer, according to Rack.

Prognosis was worse in patients with five or more CTCs; these patients had a fourfold risk of cancer recurrence and a threefold risk for death from the disease.

"Our study suggests testing CTCs may prove to be important to help individualize therapy for early-stage breast cancer where no measurable tumor is present," she said. "Patients who seem to be at high risk due to CTC may benefit from additional treatment options, and those that dont have CTCs may be spared side effects of some treatments."

She added, however, that prospectively randomized trials are necessary to show an improvement of survival based on CTC diagnostics. Trials testing this notion are either ongoing or about to start in Europe and the United States, according to Rack.

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The mission of the CTRC-AACR San Antonio Breast Cancer Symposium is to produce a unique and comprehensive scientific meeting that encompasses the full spectrum of breast cancer research, facilitating the rapid translation of new knowledge into better care for breast cancer patients. The Cancer Therapy & Research Center (CTRC) at The University of Texas Health Science Center at San Antonio, the American Association for Cancer Research (AACR) and Baylor College of Medicine are joint sponsors of the San Antonio Breast Cancer Symposium. This collaboration utilizes the clinical strengths of the CTRC and Baylor, and the AACRs scientific prestige in basic, translational and clinical cancer research to expedite the delivery of the latest scientific advances to the clinic. The 33rd annual symposium is expected to draw nearly 9,000 participants from more than 90 countries.

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