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To interview Joseph Sparano, contact Julia Gunther at julia.gunther@aacr.org or 770-403-7690. For a photo of Sparano, click here.

Circulating Tumor Cells May Predict Late Recurrence in HR-positive Breast Cancer Patients

SAN ANTONIO —Among patients with hormone receptor (HR)-positive HER2-negative stage 2-3 breast cancer without clinical evidence of recurrence, those who had circulating tumor cells (CTC) detected in blood five years after diagnosis had an increased risk for late recurrence of breast cancer, according to data presented at the 2017 San Antonio Breast Cancer Symposium, held Dec. 5–9.

"We found that a single positive CTC assay result five years after diagnosis provides independent prognostic information for late recurrence," said Joseph A. Sparano, MD, associate director for clinical research, Montefiore Einstein Center for Cancer Care, Albert Einstein Cancer Center, New York. "This provides proof of concept that liquid biopsy-based biomarkers may be used to stratify risk for late recurrence and possibly inform treatment or clinical trial options."

Despite advances in breast cancer treatment in recent years, many women still have late-recurrent disease five years or more after the initial diagnosis. HR-positive breast cancers, which make up more than half of all breast cancer cases, have an increased risk of late recurrence, noted Sparano. "Biomarkers for late recurrence that may help guide therapy are needed," he stressed.

Participants of the study, designed and conducted by Sparano and colleagues in the ECOG-ACRIN Cancer Research Group (ECOG-ACRIN), were previously enrolled in ECOG-ACRIN clinical trail E5103, which assessed the addition of bevacizumab, a vascular endothelial growth factor (VEGF) inhibitor, to chemotherapy as adjuvant treatment following surgery. Sparano and colleagues measured CTCs in blood samples from patients using the CELLSEARCH CTC assay between 4.5 and 7.5 years after an initial diagnosis of HER2-negative stage 2-3 breast cancer. No patients had clinical evidence of recurrence at the time of enrollment. Of patients with HR-positive breast cancer, 4.5 percent had recurrence of the disease; this compares to a recurrence rate of 0.5 percent in the HR-negative group.

Of the 546 patients enrolled in the study, 4.8 percent had a positive CTC assay result. Among patients with HR-positive breast cancer, 5.1 percent had a positive CTC result; among those with HR-negative disease, 4.3 percent had a positive CTC result. After a median follow-up of 1.6 years, a positive CTC assay result was associated with a nearly 20-fold increased risk of breast cancer recurrence in patients with HR-positive disease. The positive predictive value of a positive CTC assay for recurrence by two years in patients with HR-positive disease was 35 percent, and the negative predictive value for patients in this cohort was 98 percent. A positive CTC assay was not associated with recurrence in the HR-negative group.

Sparano commented that these results were somewhat unexpected. "We were surprised to see that 5 percent of patients had CTCs about five or more years after their initial diagnosis," he said. "Although we were expecting that CTC-positive patients would have a higher recurrence rate, we weren't expecting the risk of recurrence to be this high after a relatively short period of time.

"This study provides strong evidence of the clinical validity of the CTC assay as a prognostic biomarker for late recurrence in HR-positive breast cancer, which accounts for about one-half of all recurrences," Sparano said. "Utilizing the CTC assay for prognostic analysis may aid in a more accurate identification of patients who would most benefit from extended adjuvant endocrine therapy or other treatment options," he noted.

Next steps include studying how a single negative CTC test or serial negative tests could serve as a negative predictive marker that may allow sparing of extended adjuvant endocrine therapy beyond five or more years.

Limitations of the study include short follow-up after the CTC assay, with an average time of 1.6 years. Sparano noted that additional follow-up is required, and that further study will be necessary to determine the clinical utility of the CTC assay in this setting.

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