

RESEARCH WATCH

Lung Cancer

Major finding: Circulating tumor cell (CTC) number is an independent prognostic factor in SCLC.

Approach: CTC analysis was performed on SCLC patients before and after chemotherapy.

Impact: SCLC patients with persistent CTCs after one round of treatment have a worse prognosis.

POOR OUTCOME IS ASSOCIATED WITH HIGH CTC NUMBER IN SCLC

Small-cell lung cancer (SCLC), an aggressive malignancy that is often metastatic upon diagnosis, is characterized by a high relapse rate and poor overall survival. In an effort to develop a clinically useful biomarker for disease progression, Hou and colleagues investigated the prevalence and prognostic significance of circulating tumor cell (CTC) number in SCLC patients. The authors used CellSearch, the only U.S. Food and Drug Administration–approved method for enumeration of CTCs in whole blood, to analyze the number and molecular characteristics of CTCs at baseline and after one round of chemotherapy.



Patients were categorized into either a favorable or unfavorable prognostic group based upon CTC number. At baseline, 85% of patients were positive for CTCs, with 43% of these considered unfavorable. When patients who had a favorable CTC number were compared with those who had an unfavorable CTC number, the unfavorable group showed a significant decrease in overall survival duration from 11.5 months to 5.4 months. CTC number after one round of chemotherapy was also prognostic; compared with those who showed persistently high CTCs, patients whose CTC number decreased into the favorable range had longer progression-free and overall survival. In addition to CTC number, the authors examined baseline blood samples for circulating tumor microemboli, defined as clusters of 3 or more CTCs, and apoptotic CTCs, and found that the presence of either one independently predicted worse progression-free and overall survival. Together, these findings not only establish the prognostic value of CTCs in SCLC but also suggest that CTC number may serve as a clinical biomarker to monitor treatment efficacy.

Hou JM, Krebs MG, Lancashire L, Sloane R, Backen A, Swain RK, et al. *Clinical significance and molecular characteristics of circulating tumor cells and circulating tumor microemboli in patients with small-cell lung cancer.* *J Clin Oncol* 2012 Jan 17. [Epub ahead of print].

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CANCER DISCOVERY

Poor Outcome Is Associated with High CTC Number in SCLC

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