High levels of circulating DNA may signal faster progression of lung cancer

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High levels of circulating DNA may indicate faster progression of lung cancer and lower overall survival, according to a study published in the February edition of the *Journal of Thoracic Oncology*, the official publication of the International Association for the Study of Lung Cancer (IASLC).

"Thirty-three years ago it was demonstrated that cancer patients presented more free DNA in the blood than healthy people, and further investigations confirmed that much of the circulating DNA in the patients with cancer derives from the tumor," said Rafael Sirera, an associate professor of immunology at the Polytechnic University of Valencia in Valencia, Spain. "Although circulating DNA in established cancers demonstrated a strong power to discriminate patients with lung cancer from those with benign lung diseases or healthy individuals, several critical voices were raised against its relevance for screening and diagnostics."

The study analyzed blood samples from 446 patients with advanced non-small cell lung cancer, all of whom were enrolled in a multicenter clinical trial of the Spanish Lung Cancer Group between February 2003 and January 2005. Levels of free human telomerase reverse transcriptase (hTERT), as a surrogate of circulating DNA, were determined before the planned start of combination chemotherapy with cisplatin and docetaxel.

Patients with hTERT levels below 49.8 nanograms per milliliter (ng/ml)

had a median time to progression (TTP) of 6.3 months, compared with 4.9 months for patients with hTERT of more than 49.8 ng/ml.

In addition, patients with the lower hTERT levels had higher overall survival, at 10.9 months versus 9.3 months for patients with higher hTERT.

A key strength of the study was its larger population size, compared with similar studies that included fewer than 100 patients.

"The standardization of sample source, processing, DNA extraction and titration methods gives a strong reliability to our results," Sirera said. "Another important aspect that should be emphasized is that the DNA concentrations in our study did not seem to be influenced by either pretreatment tumor characteristics or clinical variables."

Because hTERT analysis depends on a simple, noninvasive and affordable procedure that can be performed in sequential samples from the same patient, it could be an important aid in therapy evaluations and follow-up of patients with non-small cell lung cancer, Sirera said.

Provided by International Association for the Study of Lung Cancer