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Blood samples as surrogates for tumor biopsies in patients with lung cancer

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A study examined the feasibility of using circulating free DNA (cfDNA) from blood samples of patients with advanced non-small-cell lung cancer as a surrogate for tumor biopsies to determine tumor-causing epidermal growth factor receptor (EGFR) mutations and then correlate that with expected patient outcomes, according to a study published online by *JAMA Oncology*.

The analysis was a secondary objective of the EURTAC trial, which demonstrated the efficacy of erlotinib compared with standard chemotherapy for the first-line treatment of European patients with advanced non-small-cell lung cancer (NSCLC) with oncogenic EGFR mutations (exon 19 deletion or L858R mutations in exon 21) in tumor tissue.

Rafael Rosell, M.D., of the Hospital Germans Trias I Pujol, Badalona, Spain, and coauthors examined EGFR mutations in cfDNA isolated from 97 baseline blood samples.

Results show that in 76 samples from 97 (78 percent) patients, EGFR mutations in cfDNA were detected. Median overall survival was shorter in patients with the L858R mutation in cfDNA than in those with the exon 19 deletion (13.7 vs. 30 months). For patients with the L858R mutation in tissue, median overall survival was 13.7 months for patients with the L858R mutation in cfDNA and 27.7 months for those in whom the mutation was not detected in cfDNA. For the 76 patients with EGFR mutations in cfDNA, only erlotinib treatment was an independent

predictor of longer disease progression-free survival.

"Testing of tumor tissue remains the recommended method for detecting the presence of oncogenic EGFR mutations; however, the amount of tumor tissue obtained by biopsy is often insufficient, especially in advanced NSCLC, raising the question of whether cfDNA may be used as a surrogate liquid biopsy for the noninvasive assessment of EGFR mutations," the study notes.

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