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From clinical trials to clinical practice: predictors of response to erlotinib in advanced non-small cell lung cancer patients pretreated with chemotherapy

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ABSTRACT

Background. Inhibition of the epidermal growth factor receptor pathway with tyrosine kinase inhibitors can improve outcome of patients with advanced non-small cell lung cancer after first-line chemotherapy. The use of clinical characteristics and molecular markers may permit the identification of patients who are more likely to benefit from erlotinib.

Patients and methods. Retrospective analysis of unselected patients with metastatic non-small cell lung cancer who had previously failed on at least one line of chemotherapy and treated at our institution with erlotinib (150 mg/day orally) until disease progression. Mutations of epidermal growth factor receptor (exon 19-21) and KRAS (codon 12-13) genes were screened with high-resolution melting analysis and identified with direct sequencing.

Results. Fifty-three patients were included in the study. The disease control rate was 38%. Median progression-free survival and median overall survival were 4 and 15 months, respectively. Skin rash, diarrhea and mucositis were the most common toxicities of erlotinib. In 19 patients, erlotinib dose was reduced for toxicity. The disease control rate and progression-free survival were significantly better in non-smokers, responders to chemotherapy and patients with epidermal growth factor receptor mutations. Overall survival was longer in patients with skin toxicity and epidermal growth factor receptor mutations.

Conclusions. In our experience, epidermal growth factor receptor mutations, response to previous chemotherapy and non-smoking status were predictors of higher disease control rate and longer progression-free survival. Overall survival was significantly longer in patients with epidermal growth factor receptor mutations and skin toxicity.

Key words: epidermal growth factor receptor, erlotinib, molecular markers, non-small cell lung cancer.

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