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ORAL

Acquired resistance to with EGFR tyrosine kinase inhibitors by the EGFR T790M mutation in non-small cell lung cancer

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Abstract

Mutations in the tyrosine kinase (TK) domain of the epidermal growth factor receptor (EGFR) gene respond well to treatment with EGFR tyrosine kinase inhibitors (EGFR-TKIs) including gefitinib and erlotinib in non-small cell lung cancer (NSCLC). Detection of these mutations has an important role for therapeutic decision-making in NSCLC treatment. However, all patients who experienced marked improvements with these drugs eventually developed disease progression after 10-20 months of treatment due to the acquisition of drug resistance. Approximately half of the cases with acquired resistance to EGFR-TKIs can be accounted for by a second-site mutation in exon 20 of the EGFR kinase domain T790M. In this study, 40 patients with advanced NSCLC who developed acquired resistance to EGFR-TKIs were selected. The diagnosis was defined based on the Jackman criteria for acquired resistance to EGFR-TKIs in lung cancers. Re-biopsy were performed at National cancer hospital and Oncology hospitals at Ha Noi and Ho Chi Minh City. Scorpion ARMS method was used to detect EGFR mutation status. In all, 40% (16/40) of the patients carried T790M mutation after the failure of EGFR-TKIs. The study demonstrated a critical role of molecular diagnostics for TKI acquired resistance through re-biopsies at the time of disease progression.

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