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Abstract

The association between tumor markers, carcinoembryonic antigen (CEA) and cytokeratin 19 fragments (CYFRA21-1), and T790M point mutation in exon 20 (T790M) status after the resistance to epidermal growth factor receptor tyrosine kinase inhibitor (EGFR-TKI) remains unclear. We retrospectively analyzed 126 advanced EGFR-mutant NSCLC patients who were subsequently re-biopsied to investigate T790M mutation following resistance to initial EGFR-TKIs. Results: Serum CYFRA21-1 level was significantly associated with T790M mutation ([<3.5 ng/mL]: 59.7% *versus* [3.5 ng/mL≦]: 38.8%, P = 0.0217). Moreover, patients with high CYFRA21-1/CEA (<0.7) ratio had a significantly lower prevalence of T790M mutation than those with low ratio (≧0.7) [25.4% *versus* 74.6%, P = 0.007]. Multivariate analysis showed that high CYFRA21-1/CEA ratio is a negative predictor of T790M mutation [odds ratio: 0.226 (95% confidence interval: 0.051–0.834), P = 0.025]. In conclusion, igh CYFRA21-1/CEA ratio is a negative predictor of EGFR T790M mutation.