CHARACTERISTICS OF NON-SMALL CELL LUNG CANCER WITH RARE EPIDERMAL GROWTH FACTOR RECEPTOR GENE MUTATIONS

Y. Namba, Y. Nakazawa, M. Niinaka, Y. Yano, T. Yoneda, H. Kimura, M. Mori, T. Okada, T. Yamauchi, S. Yokota
National Hospital Organization National Toneyama Hospital department of thoracic oncology

Objectives: Epidermal growth factor receptor (EGFR) gene mutations predict the effect of EGFR-TKI on non–small cell lung cancer (NSCLC) and are recognized as frequently being present in patients with adenocarcinoma, women, and non-smokers; however, most of these mutations are exon 19 deletions or exon 21 L858R point mutations, and there are a few reports on other rare EGFR gene mutations. We retrospectively examined these mutations.

Method: In NSCLC patients undergoing EGFR gene mutation analysis between September 2007 and December 2012 at our hospital, we studied those who had minor mutations alone, i.e., EGFR gene mutations other than the well-known exon 19 deletions, exon 21 L858R point mutations, and exon 20 T790M resistance mutations.

Results: There were 23 subjects who had minor mutations. The subjects were 56 to 87 years old with a median age of 72 years. There were 12 men and 11 women. Six, 1, 6, and 10 patients were classified as stages I, II, III, and IV cancers, respectively, while 20 had adenocarcinoma and 3 patients had squamous cell carcinoma by histological type. Nine patients had a history of smoking and 14 had no history of smoking. Mutation sites were in exon 18 G719S (n = 15), exon 18 G719A (n = 5), and exon 21 L861Q (n = 6). (Three had both the exon 18 G719S and exon 21 L861Q mutations.) Fourteen patients were treated with EGFR-TKI, resulting in partial response in 2, stable disease in 4, progressive disease in 5, and not evaluable in 3 patients, while the response and the disease control rates were 14% and 42%, respectively.

Conclusion: As compared to NSCLC with major mutations, NSCLC with rare EGFR gene mutations was more common in men, smokers, and patients with squamous cell carcinoma. Therapeutic efficacy was also lower.