16P- Evaluation of the Relationship between Clinicopathological Features at Diagnosis, and Acquisition of T790M Resistance Mutation in Patients with EGFR-mutant Metastatic Lung Cancer

MOLECULAR ANALYSIS FOR PRECISION ONCOLOGY VIRTUAL CONGRESS MAP

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Objectives:

Data of the acquisition of T790M resistance mutation in patients with EGFR-mutant metastatic lung cancer is limited. This study aimed to assess the relationship between clinicopathological features at diagnosis, and acquisition of T790M mutation in patients with EGFR-mutant metastatic non-small cell lung cancer.

Methods:

We evaluated the EGFR-mutant metastatic lung cancer patients' data who progressed under first-line treatment with tyrosine kinase inhibitors and acquired T790M resistance mutation retrospectively. Survival analyses were assessed with Kaplan-Meier and Cox-regression methods. The relationship between the acquisition of T790M mutation and clinicopathological parameters was evaluated with logistic regression analysis.

Results:

Fifty-two patients were included in the study. The median age was 58 (range, 33-78) years. The ratios of female patients were 53.2%. The ratio of Exon 19, Exon 21, and rare mutations were 67.3%, 23.1%, and 9.6%, respectively. Forty-five (86.5%) patients were de-novo metastatic. The ratio of patients who had one, two, and three or more metastatic sites at diagnosis were 25.5%, 41.3%, and 33.2%, respectively. The ratios of brain, liver, and adrenal gland metastasis were 28.8%, 13.5%, and 7.8%, respectively. All patients received tyrosine kinase inhibitors. After the disease progressed, the acquisition of T790M mutation was detected with liquid (75.5%) or standard biopsies (24.5%). T790M mutations were detected in 33 (63.5%) patients. In logistic regression analysis, age, gender, de-novo metastatic disease, number of metastatic sites, primary tumor localization (left or right lung), and type of tyrosine kinase inhibitor was not statistically significant for the acquisition of T790M mutations.

Table-1 Patients characteristics

Characteristics	Number of patients	Percent (%)
Gender		
Male	24	46.2
Female	28	53.8
History of smoking		
Yes	15	28.8
No	29	55.8
Unknown	8	15.4
Primary tumor location		
Right	31	59.6
Left	20	38.5
Unknown	1	1.9
Type of mutations		
Exone 19	35	67.3
Exone 21	12	23.1
Others	5	9.6
De-novo metastasis		
Yes	45	86.5
No	7	13.5
Metastatic locations		
Bone	33	63.5
Brain	15	28.8
Lymph Node	13	25
Liver	7	13.5
Number of metastatic sites		
1-2	34	65.4
>2	17	32.7
Unknown	1	1.9
Previous treatment		
Primary surgery	4	7.7
Palliative chemotherapy	15	28.8
Palliative radiotherapy	22	42.3

Conclusion:

Due to rarity, the data of the acquisition of T790M mutations is limited. In this study, we showed that clinicopathological features were not related to the acquisition of T790M mutations.

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