PD-L1 Expression as a Predictive Biomarker in Advanced Non-Small Cell Lung Cancer Patients with or without EGFR Mutation

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Background: The prognostic value of PD-L1 expression and its clinical relevance of NSCLC with and without EGFR mutation is controversy and the impact of PD-L1 expression as the predictive biomarker for EGFR-TKIs treatment is needed to explore.

Method: We retrospectively reviewed and analyzed programmed death-ligand 1 (PD-L1) expression in advanced non-small cell lung cancer (NSCLC). PD-L1 immunohistochemistry, clone 22C3 from pharmDx assay was used. The PD-L1 positive was defined by tumor proportion score (TPS) > 1%.

Results: 204 patients were included and stained for PD-L1 IHC analyses. Patients with positive PD-L1 expression had increased numbers of metastatic sites (P=0.009) and increased lung metastasis (P=0.045) compared to PD-L1 negative patients. Overall survival (OS) was longer in PD-L1 negative patients (22.7 months) compared to PD-L1 positive groups (13.6 months) (HR=1.48; P=0.03). Median OS were significantly different with the number of 7.2, 11.1, 25.7, 42.6 months in EGFR-/PD-L1+, EGFR-/PD-L1-, EGFR+/PD-L1+ and EGFR+/PD-L1-, respectively (P<0.001). Among EGFR positive patients, mOS of T790M-/PD-L1+, T790M-/PD-L1-, T790M+/PD-L1-, and T790M+/PD-L1+ were 22.1, 28, 42.6 and 48.4 months, respectively (P=0.03).

Conclusions: PD-L1 expression was associated with poorer survival outcomes among advanced NSCLC patients regardless of EGFR mutation status. PD-L1 expression is also the potential of predictive biomarker for EGFR TKIs treatment. The larger studies are needed to identify the prognostic and predictive values in T790M mutation population.