Thoracic cancer

Prognostic significance of PD-L1 expression combined with CD8+ TIL density in stage III non-small cell lung cancer patients receiving concurrent chemoradiotherapy

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Aim/Background: Previous studies of patients with recurrent cancer have indicated that clinical responses to immune checkpoint blockers are associated with elevated tumor levels of programmed cell death-ligand 1 (PD-L1) and increased numbers of tumor-infiltrating lymphocytes (TILs). We investigated the prognostic significance of PD-L1 expression and CD8+ TIL density in patients with locally advanced non-small cell lung cancer (NSCLC) receiving concurrent chemoradiotherapy (CCRT).

Methods: We retrospectively reviewed 74 consecutive patients with stage III NSCLC who had received CCRT. PD-L1 expression and CD8+ TIL density were evaluated by immunohistochemical analysis.

Results: PD-L1+ patients showed shorter progression-free survival (PFS) and overall survival (OS) than PD-L1- patients (10.8 versus 17.3 months; p = 0.73, 24.9 vs 36.9 months; p = 0.85; respectively). Univariate and multivariate analyses demonstrated that CD8+ TIL density was an independent and significant predictive factor for PFS and OS. Sub-analysis revealed that the PD-L1+ /CD8 low group had the shortest PFS (8.6 months, p = 0.024) and OS (13.9 months, p = 0.105), and that the PD-L1- /CD8 high group had the longest prognosis (median PFS and OS were not reached) among the four sub-groups.

Conclusions: Among stage III NSCLC patients who received CCRT, there was a trend for poor survival in those who expressed PD-L1. Our analysis indicated that a combination of PD-L1 expression and CD8+ TIL density was significantly associated with favorable survival in these patients. It is proposed that PD-L1 expression in combination with CD8+ TIL density could be a useful predictive biomarker in patients with stage III NSCLC.

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