Programmed cell death ligand 1 expression and CD8 positive lymphocytes in stage III non-small cell lung cancer after neo adjuvant concurrent chemoradiotherapy and their relation with prognosis


1Division of Medical Oncology, Department of Internal Medicine, Yonsei Cancer Center, Seoul, Republic of Korea, 2Department of Pathology, Yonsei University College of Medicine, Gangnam Severance Hospital, Seoul, Republic of Korea, 3Department of Thoracic and Cardiovascular Surgery, Yonsei University College of Medicine, Seoul, Republic of Korea, 4Department of Pathology, Yonsei University College of Medicine, Seoul, Republic of Korea, 5Department of Thoracic and Cardiovascular Surgery, Yonsei University College of Medicine, Seoul, Republic of Korea, 6Medical Oncology, Yonsei Cancer Center Yonsei University, Seoul, Republic of Korea

Background: Previous studies in non-small cell lung cancer (NSCLC) on programmed cell death ligand 1 (PD-L1) expression and its role in prognosis led to conflicting results. For treatment plan after CCRT, we sought to analyze PD-L1 expression and CD8+ lymphocyte and their relation with prognosis in stage III NSCLC patients treated with neo adjuvant CCRT followed by surgery with curative aim.

Methods: We retrospectively enrolled 43 patients with stage III NSCLC treated with neo adjuvant CCRT followed by surgery at Yonsei Cancer Center Severance hospital, between June 2008 and October 2010. Immunohistochemistry (IHC) was performed on tissue sections of PD-L1 expression and presence of stromal CD8+ lymphocytes in NSCLC specimens. Weekly standard chemotherapy based on platinum was included in CCRT.

Results: The median age of patients at diagnosis was 62 years. Thirty patients (70%) were males and 13 patients (30%) were females. Never smokers were 17 patients (40%). Twenty-five patients had squamous cell carcinoma (58%). The post-CCRT PD-L1 positive group exhibited a tendency of poorer recurrence free survival (RFS) compared to post CCRT PD-L1-negative group (p = 0.108). The overall survival (OS) also showed a similar trend (p = 0.215). In the survival analysis with pre-CCRT specimens, both RFS and OS analyses showed no statistically significant differences (p = 0.423). Although it was not statistically significant, in a group showed increase in PD-L1 expression after CCRT resulted in the steepest curve in OS analysis (p = 0.220). Increase in stromal CD8+ lymphocytes after CCRT exhibited better survival than other groups (decrease or no change) (p = 0.017).

Conclusions: Increase in CD8+ lymphocyte density improved OS. Because this study was performed with small number of patients, prognostic value of PD-L1 in this group of patients should be considered for future treatment planning or study design although it was not statistically significant in this study.

Legal entity responsible for the study: Yonsei Cancer Center.

Funding: Has not received any funding.

Disclosure: All authors have declared no conflicts of interest.