AB018. Clinical relevance of PD-L1 and PD-L2 in patients with esophageal squamous cell carcinoma

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Background: Immunotherapy was recently applied for the treatment of many kinds of cancer based on cancers can utilize immune checkpoint pathways to evade anti-tumor immunity. The programmed death-1 (PD-1) and PD-1 ligand-mediated interaction between T-cells and antigen presenting cells, which contribute to the maintenance of self-tolerance and control of excessive immune response. PD-1 is expressed on immune cells and PD-1 ligands, such as PD-L1 and PD-L2, are expressed on both immune cell and non-immune cells. PD-L1 and PD-L2expression could be induced by tumor cells that help tumor cells escape from immune surveillance. Thus, the expression of PD-L1 and PD-L2 may influence the survival of patients with different cancers. However, the expressions of PD-L1 and PD-L2 in esophageal cancer remain unknown. The aim of this study is to understand the expression of PD-L1 and PD-L2 and survival influences in esophageal squamous cell carcinoma.

Methods: From 1996 to 2011, 160 patients with esophageal squamous cell carcinoma received esophagectomy with reconstruction in Taipei Veterans General Hospital were enrolled in this study. Clinical data of all subjects were collected from patients' medical charts. All paraffin samples for this study were obtained from the Biobank of Taipei Veterans General Hospital. PD-L1 and PD-L2 expression was performed with immunohistochemical staining and evaluated based on the intensity and proportion of tumor cells with membranous and/or cytoplasmic staining. Moderate or strong intensity in ≥10% tumor cells were deemed to be positive for PD-L1 or PD-L2 expression and weak intensity or <10% tumor cells were considered as negative expression.

Results: The mean age of the 160 patients was 63.7 years with 147 males and 13 females. Positive expression of PD-L1 and PD-L2 were observed in 62.5% (100/160) and 41.9% (67/160) patients with esophageal squamous cell carcinoma. There were no correlations between PD-L1/PD-L2 and clinicopathological parameters, such as age, gender, smoking, tumor size and pathological T, N status and stage. The 5-year disease free survival rate was 39.9%. Patients with a positive PD-L1 expression, pathological high T, N status and late stage had a worse survival rate. In multivariable analysis, PD-L1 expression and pathological stage were the independent prognostic factors. The 5-year overall survival rate was 26.1%. The expression of PD-L1 and PD-L2 did not influence the overall survival, only pathological T, N and stage were the factors influencing the overall survival.

Conclusions: In this study, we demonstrated the expression rate of PD-L1 and PD-L2 in esophageal squamous cell carcinoma and also showed PD-L1 expression was the independent prognostic factor in disease free survival besides pathological factors. However, the expression of PD-L1 and PD-L2 did not influence the overall survival of patients with esophageal squamous cell carcinoma in this series.

Keywords: PD-L1; PD-L2; esophageal cancer; survival

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