

[1962] PD-L1 Expression in Thymomas and Thymic Carcinomas: Correlation with Clinicopathologic Features

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Background: Thymomas (TH) and thymic carcinomas (TC) represent the most common tumors of the mediastinum. The expression of Programmed Death-1 ligand (PD-L1) by tumor cells is an effective mechanism to escape anti-tumor immunity. PD-1/PD-L1 blockade by monoclonal antibodies (Ab) are emerging as an effective treatment option in multiple malignant tumors. Few studies have investigated PD-L1 expression in TH and TC. We aim to characterize PD-L1 expression in TH and TC using three different PD-L1 Ab.

Design: 52 TH and 8 TC surgical resection cases were used. Tissue Microarrays (TMA) containing 5 representative cores of each tumor were constructed. PD-L1 expression was evaluated by immunohistochemistry (IHC) using three different PD-L1 Ab clones (E1L3N, 22C3 and 28-8). Image analysis software was used to assess PD-L1 staining. 4 cut-offs (1%, 5%, 10%, 50%) were used to classified the cases as positive or negative. Overall percent agreements (OPA) among the three antibodies were calculated for each cut-off. An optimal cut-off value for PD-L1 expression was calculated and used for statistical associations between PD-L1 expression and clinicopathologic features, and in the evaluation of disease-free survival (DFS) and overall survival (OS) curves.

Results: Thymoma B3 was associated with the highest mean PD-L1 expression (70-76%). The lowest mean PD-L1 expression was related with thymoma type AB (21-27%) and TC (20-25%). As expected, the highest and lowest percentage of PD-L1 positive cases was found with 1% cut-off (97-100%) and 50% cut-off (25-32%) respectively. Optimal OPA was found at 1% cut-off with all antibodies (22C3/E1L3N OPA; 96%, 22C3/28-8 OPA; 96%, 28-8/E1L3N OPA; 100%). Positive PD-L1 cases were associated with type B2/B3 TH, late Masaoka stages (III/IV), and age < 66 yo. Among thymomas, positive PD-L1 cases presented significant shorter OS (22C3 $p = 0.0115$; $p = 0.0262$).

Conclusions: Our data show that TH and TC express high levels of PD-L1, regardless of the clone used, and that there is a strong correlation in the level of staining between the three Ab studied. Given the high levels of expression of PD-L1 among the different thymic epithelial neoplasms, our study supports the relevance of clinical trials to test the efficacy of PD-1 inhibitors for the treatment of TH and TC.

Category: Pulmonary Pathology (including Mediastinal)

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