

AB016. Different pattern of indoleamine 2,3-dioxygenase 1 (IDO1) and PD-L1 immunoexpression in thymomas

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Background: Indoleamine 2,3-dioxygenase 1 (IDO1), a heme enzyme has been implicated in acquisition of peripheral immune tolerance in the tumor microenvironment as well as peripheral blood. It decreases antitumor response by suppressing T cell activation. Thymomas show strong expression of PD-L1 with highest positivity in type B thymomas. With increased advances in immunotherapy, expression of IDO1 in thymomas may have translational relevance and hence the need for this study.

Methods: This was a retrospective study in a tertiary care center including 60 morphologically confirmed cases of thymoma. Tissue microarrays were prepared and immunohistochemistry was performed for PD-L1 (SP263) and IDO1 (V1NC3IDO). Cases with immunopositive aggregates of tumor or other cells (immune cells, mesenchymal cells, endothelial cells) (≥ 2 /low power field) were considered as IDO1 positive. Immunostaining of $>25\%$ in the thymic epithelial cells was considered positive for PD-L1. The results were compared with clinical parameters and statistical analysis was performed.

Results: Of 60 cases of thymoma, 27 (45%) showed IDO1 immunopositivity in the stromal endothelial cells, immune cells, fibroblasts, and tumor cells. IDO1 expression was observed in all the subtypes including 25% of type A, 53.49% of type B (B1/B2/B3) and 25% of type AB (P value =0.199). Most of the IDO1 positive cases did not have myasthenia gravis (MG) (77.78%) (P value =0.053). No significant association was observed between IDO1 positive

tumors and clinical parameters like age, sex and Masaoka Koga stage. PD-L1 immunopositivity showed significant association with type B thymomas (P value =0.001).

Conclusions: IDO1 is expressed in a substantial number of thymomas and show maximum expression in type B thymomas similar to PD-L1. Although immunoreactivity of PD-L1 and IDO1 is seen in different types of cells, both showed maximum expression in type B thymomas. PD-L1 is expressed mostly by thymic epithelial cells whereas IDO1 mostly stains peritumoral stromal endothelial cells, immune cells, and mesenchymal cells. It is possible that the PD-L1-IDO1 axis plays an important role in immune regulation and pathogenesis of thymic epithelial tumors which can be explored in further studies.

Keywords: Thymomas; indoleamine 2,3-dioxygenase 1 (IDO1); PD-L1

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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