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Clinicopathological and prognostic value of programmed death ligand-1 (PD-L1) in breast cancer: A meta-analysis

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Background: Programmed death ligand-1 (PD-L1) is an immunological checkpoint protein that has recently been found to be associated with the prognosis of various malignancies. However, the association between PD-L1 expression and the survival of breast cancer patients has remained unclear. Therefore, the aim of the present meta-analysis was to assess the clinical value of PD-L1 in breast cancer patients.

Methods: MEDLINE/PubMed, EMBASE, Cochrane Library, and Grey Literature databases were searched up to 30 March 2016 for articles involving an association between PD-L1 expression and breast cancer prognosis. Hazard ratios for overall survival with 95% confidence intervals (CIs) according to the expression status of PD-L1 were calculated. Odds ratios (ORs) were also analyzed to evaluate the association between clinicopathological parameters and PD-L1 expression.

Results: Ten studies were included in this meta-analysis and 7 of these described clinicopathological features. Elevated levels of PD-L1 were only significantly associated with histological grade (OR = 1.86, 95% CI: 1.38–2.51; $P_{heterogeneity}$ = 0.0196), estrogen receptor status (ER) (OR = 0.36, 95% CI: 0.17–0.75; $P_{heterogeneity}$ = 0.000), and progesterone receptor status (PR) (OR = 0.31, 95% CI: 0.11–0.86; $P_{heterogeneity}$ = 0.000).

Conclusion: There were trends observed in the present meta-analysis, although PD-L1 status as a predictor of prognosis for patients with breast cancer could not be confirmed. Therefore, further studies of mechanism(s) related to PD-L1 expression level and immune escape and antitumor immune responses are needed, especially in relation to breast cancer subtypes. Furthermore, an evaluation standard for PD-L1 expression would facilitate all future studies.

Biography

Zhang Guochao is working as a resident for the second year in Peking Union Medical College and Hospital at present.

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Notes:

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