Prognostic value of the platelet-lymphocyte ratio for Glioblastoma: A systematic review

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Abstract

Background: Glioblastoma is the most common type of malignant glioma and is one of the most frequent primary tumors during adult life. The platelet-lymphocyte ratio (PLR) has been studied as an inflammatory marker associated with the prognosis of glioblastoma in previous studies. Considering the morbidity associated with this condition, it is important that there are other ways of assessing the prognosis that do not require invasive methods.Therefore, we performed this systematic review in order to determine the prognostic value of the platelet-lymphocyte ratio.

Methods: We conducted an English-language, literature-based search for papers published from 2012 to 2022, using the PubMed, Cochrane, Biblioteca Virtual em Saúde (BVS) and Biomed Central Journal (BMC). We use the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) recommendations. Titles and abstracts were evaluated independently by 2 authors, after which articles were selected for final analysis based on application of inclusion criteria (patients diagnosed with glioblastoma; address the use of PLR as a prognostic factor; hazard ratio; adults; clinical trials and observational studies) and exclusion criteria (inclusion of pediatric or animals, case reports, letters, conference abstracts, meta-analysis, and non-clinical studies or did not include hazard ratio) during full text screen. Each included article was then assessed for quality using Newcastle-Ottawa scale and relevant variables were extracted for synthesis.

Results: Of 127 results, 11 articles were included for final analysis. There were seven studies from China, one from Italy, one from Portugal, one from Turkey and one from India. The year of publications were between 2015 to 2022. All the studies used PLR from the preoperative blood sample. Among the studies that analyzed the relationship between PLR and overall survival, 7 found a predictive relationship 3 no found association and 1 found an association between PLR and progression-free survival in patients with glioblastoma.

Conclusions: Studies have shown that PLR can be a useful marker to aid in the prognosis of glioblastoma. Due to the ease of obtaining, rapid analysis and low cost, the PLR can be particularly beneficial in health centers with limited financial resources.

Keywords: glioblastoma; platelet to lymphocyte ratio; prognostic; survival.