INPLASY

Prognostic and clinicopathological role of C-reactive protein in glioma: a meta-analysis of 2,064 patients

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 October 2023 and was last updated on 04 October 2023.

INTRODUCTION

Review question / Objective Previous studies have explored whether C-reactive protein (CRP) can be used to predict prognosis of glioma patients, but their findings are not consistent. This meta-analysis therefore focused on identifying precise prognosis prediction and clinicopathological role of CRP in glioma.

Condition being studied The electronic databases of Web of Science, PubMed, Cochrane library, and Embase were comprehensively searched. Additionally, prognostic effect of CRP on glioma was analyzed through calculating combined hazard ratios (HRs) and 95% confidence intervals (CIs).

METHODS

Search strategy We comprehensively searched PubMed, Web of Science, Embase, and Cochrane library between their inception and July 10, 2023. Key words below were used during the literature search: (CRP or C-reactive protein) and (gliomas or glioma or glioblastoma or glioblastoma multiforme or GBM or medulloblastoma or oligodendroglioma). There was no restriction on literature language. In addition to these terms, references within those collected articles were analyzed manually for identifying additional relevant studies.

Participant or population The diagnosis of glioma was made pathologically.

Intervention Relation of CRP levels with survival outcomes like OS, progression-free survival (PFS), and cancer-specific survival (CSS) was investigated and hazard ratio (HR) as well as 95% confidence interval (CI) was reported or can be calculated.

Comparator Glioma patients with normal level of CRP.

Study designs to be included Cohort studies, including prospective and retrospective cohorts.

Eligibility criteria Studies below were included: (1) the diagnosis of glioma was made pathologically; (2) the pretreatment CRP was measured using a serum-based method; (3) relation of CRP levels with survival outcomes like OS, progression-free survival (PFS), and cancer-specific survival (CSS) was investigated; (4) hazard ratio (HR) as well as 95% confidence interval (CI) was reported or can be calculated; and (5) the threshold was identified for stratifying low/high CRP levels. The exclusion criteria included: (1) reviews, case reports, comments, and letters; (2) animal studies; and (3) articles involving duplicate patients.

Information sources We comprehensively searched PubMed, Web of Science, Embase, and Cochrane library between their inception and July 10, 2023. There was no restriction on literature language. In addition to these terms, references within those collected articles were analyzed manually for identifying additional relevant studies.

Main outcome(s) Overall survival.

Quality assessment / Risk of bias analysis All enrolled articles were assessed with regard to their methodical quality by Newcastle-Ottawa Scale (NOS). Generally speaking, NOS assesses quality from three points of view: selection, comparability, together with outcome assessment. NOS scores range from 0 to 9, with NOS scores of more than 6 suggesting high-quality studies. Funnel plot and Begg's test were applied to assess potential publication bias.

Strategy of data synthesis We determined combined HRs and 95%CIs for evaluating whether CRP can be applied in determining the prognosis of glioma. Inter-study heterogeneities were estimated using Higgins Higgin's I2 statistics and Cochran's Q test. The I2 >50% stood for obvious heterogeneity, and thus a random-effects model was used in combined HRs and 95%CIs; or else, the fixed-effects model was applied.

Subgroup analysis Subgroup analysis stratified by various factors was performed for the detection of potential heterogeneity source.

Sensitivity analysis This work performed sensitivity analysis for assessing whether our combined data were stable and for identifying heterogeneity cause.

Language restriction No language restrictions were applied.

Country(ies) involved China.

Keywords CRP; glioma; meta-analysis; prognosis; clinical practice.

Contributions of each author

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