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Prognostic and clinicopathological value of systemic immune-inflammation index in patients with osteosarcoma: a meta-analysis

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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 27 July 2024 and was last updated on 30 July 2024.

INTRODUCTION

Review question / Objective The efficiency of systemic immune-inflammation index (SII) in predicting prognosis of osteosarcoma (OSA) patients has been extensively analyzed, but no consistent findings are obtained. Therefore, this meta-analysis focused on identifying the precise prognostic value of SII for OSA.

Condition being studied We comprehensively searched electronic databases of PubMed, Embase, Web of Science, Cochrane Library, and China National Knowledge Infrastructure (CNKI) from inception to 24 February, 2024. Meanwhile, the efficiency of SII in predicting prognosis of OSA was evaluated by calculating pooled hazard ratios (HRs) as well as 95% confidence intervals (CIs).

METHODS

Participant or population The diagnosis of OSA was made pathologically.

Intervention The relation of SII with prognosis of OSA was reported and HRs and 95% CIs were available or calculable.

Comparator OSA patients with normal level of SII.

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

Eligibility criteria Studies conforming to criteria below were included: (1) the diagnosis of OSA was made pathologically; (2) the relation of SII with prognosis of OSA was reported; (3) hazard ratios (HRs) and 95% confidence intervals (CIs) were available or calculable using Tierney's method; (4)

the SII threshold was provided; and (5) there was no restriction of publication language. Studies below were excluded: (1) meeting abstracts, reviews, case reports, comments, and letters; (2) those did not provide survival data; and (3) animal studies.

Information sources PubMed, Embase, Web of Science, Cochrane Library, and China National Knowledge Infrastructure (CNKI) databases were thoroughly retrieved between inception and 24 February, 2024.

Main outcome(s) Overall survival.

Quality assessment / Risk of bias analysis Two independent reviewers used Newcastle–Ottawa scale (NOS) to evaluate study quality. Publication bias was evaluated by using Begg's funnel plot and Egger's test.

Strategy of data synthesis The value of SII in predicting prognosis of OSA was analyzed by calculating combined HRs and 95%CIs. Moreover, the heterogeneity degree among enrolled studies was quantified by Cochran's Q-test and Higgins I2 statistic. In the presence of obvious heterogeneity (I2>50% or p<0.010), we utilized a random-effects model; or else, we adopted a fixed-effects model.

Subgroup analysis The significance of SII for predicting prognosis of different subgroup OSA populations was explored by subgroup analysis.

Sensitivity analysis Sensitivity analysis was conducted for comparing the pooled effect when each study was excluded individually.

Language restriction No language restrictions were applied.

Country(ies) involved China.

Keywords systemic immune-inflammation index; meta-analysis; osteosarcoma; evidence-based medicine; prognosis.

Contributions of each author
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