INPLASY PROTOCOL

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None declared.

Prognostic and clinicopathological significance of pretreatment systemic immune-inflammation index in esophageal cancer: A systematic review and meta-analysis

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Review question / Objective: **We performed this systematic review and meta-analysis to investigate the prognostic value of pretreatment systemic immune-inflammation index (SII) in esophageal cancer patients and the association between SII and the clinicopathological features of esophageal cancer.**
Eligibility criteria: **(I) involved patients diagnosed with EC histopathologically; (II) hazard ratios (HRs) and corresponding 95% confidence intervals (CIs) for pretreatment SII and survival outcomes were reported, or the correlation between SII and clinicopathological characteristics of EC was stated; (III) SII was calculated by the following formula: platelet count × neutrophil count/lymphocyte count; and (IV) a definite cut-off value of pretreatment SII was available to divide the patients into high or low SII group.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 August 2022 and was last updated on 06 August 2022 (registration number INPLASY202280024).

INTRODUCTION

Review question / Objective: **We performed this systematic review and meta-analysis to investigate the prognostic value of pretreatment systemic immune-inflammation index (SII) in esophageal cancer patients and the association between SII and the clinicopathological features of esophageal cancer.**

Condition being studied: **The prognostic value of pretreatment SII in esophageal cancer patients and the association between SII and the clinicopathological features of esophageal cancer.**

METHODS

Participant or population: **Patients with esophageal cancer.**

Intervention: Patients with higher pretreatment SII.

Comparator: Patients with lower pretreatment SII.

Study designs to be included: Corhort studies and Randomized Clinical Trials.

Eligibility criteria: (I) involved patients diagnosed with EC histopathologically; (II) hazard ratios (HRs) and corresponding 95% confidence intervals (CIs) for pretreatment SII and survival outcomes were reported, or the correlation between SII and clinicopathological characteristics of EC was stated; (III) SII was calculated by the following formula: platelet count × neutrophil count/lymphocyte count; and (IV) a definite cut-off value of pretreatment SII was available to divide the patients into high or low SII group.

Information sources: The literature review was performed relying on 4 online databases: PubMed, Web of Science, EMBASE and the Cochrane Library until June 3rd, 2022. In addition, we manually scanned the reference list of excluded publications to indicate any additional viable nonduplicate studies. We did not contact the authors for any unpublished data. Any differences between the reviewers are resolved through discussion.

Main outcome(s): Overall survival (OS).

Additional outcome(s): Progression-free survival (PFS); Disease-free survival (DFS); Cancer-specific survival (CSS).

Quality assessment / Risk of bias analysis: The quality of eligible cohort studies was evaluated using the Newcastle-Ottawa Quality Assessment Scale (NOS). We determined that studies with a score comparable to or higher than 6 were applicable to further meta-analysis. Any disagreement on quality assessment was resolved by discussion.

Strategy of data synthesis: The pooled hazard ratios (HRs) and 95% CIs were calculated to evaluate the prognostic significance of pretreatment SII in patients with EC, while pooled odds ratios (ORs) and 95% CIs were used to assess the correlation between pretreatment SII and clinicopathological characteristics. In this study, random effects models were applied to calculate pooled effect sizes in order to decrease possible bias. The Cochrane Q test and I2 statistics were used to quantify the heterogeneity level, and an I2 greater than 50% is considered to have considerable heterogeneity. Subgroup analyses were then performed to confirm the source of heterogeneity. Potential publication bias was evaluated by Egger's and Begg's test, and the trim-and-fill method analysis was used for correction if there was significant publication bias. All statistical analyzes were conducted using the Stata software (version 15.1; Stata Corp, College Station, TX, USA). A 2-sided P value of less than 0.05 was defined as statistical significance.

Subgroup analysis: Subgroup analyses were performed based on histological type, treatment procedure, cut-off value of SII, and sample size.

Sensitivity analysis: Sensitivity analyses were performed to further examine the stability of pooled estimates, in which the impact of each study on the overall estimates could be detected by omitting individual studies sequentially.

Language restriction: English and Chinese.

Country(ies) involved: China.

Keywords: esophageal cancer, systemic immune-inflammation index, prognosis, survival, systematic review, meta-analysis.

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