

INPLASY PROTOCOL

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None declared.

Prognostic role of the systemic immune-inflammation index in biliary tract cancers: a meta-analysis of 3,515 patients

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Review question / Objective: The purpose of this study was to evaluate the prognostic and clinical role of SII in biliary tract cancers (BTC) patients by performing a meta-analysis.

Eligibility criteria: The inclusion criteria were as follows: (i) studies reported the relationship between SII and survival outcomes of patients with BTC, including overall survival (OS), progression-free survival (PFS), recurrence-free survival (RFS), and disease-free survival (DFS); (ii) the diagnosis of BTC was pathologically confirmed; (iii) providing a definite cutoff value of SII; (iv) the hazard ratios (HRs) with 95% confidence intervals (CIs) of prognostic factors could be extracted or sufficient data were provided to calculate them; and (v) published in English language.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 August 2022 and was last updated on 21 August 2022 (registration number INPLASY202280082).

INTRODUCTION

Review question / Objective: The purpose of this study was to evaluate the prognostic and clinical role of SII in biliary tract cancers (BTC) patients by performing a meta-analysis.

Condition being studied: In recent years, the prognostic role of systemic immune-inflammation index (SII) in biliary tract cancers (BTC) patients has been gradually

investigated. However, the results were controversial. This meta-analysis aimed to illustrate the prognostic value of SII in BTC. This meta-analysis was performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.

METHODS

Search strategy: Electronic databases of PubMed, Web of Science, Embase, and

Cochrane Library were thoroughly retrieved up to April 15, 2022.

Participant or population: Individuals diagnosed with BTC.

Intervention: All participants with BTC in the intervention group showed high SII.

Comparator: All control patients with BTC were defined with low SII.

Study designs to be included: Retrospective study or case-control study.

Eligibility criteria: The inclusion criteria were as follows: (i) studies reported the relationship between SII and survival outcomes of patients with BTC, including overall survival (OS), progression-free survival (PFS), recurrence-free survival (RFS), and disease-free survival (DFS); (ii) the diagnosis of BTC was pathologically confirmed; (iii) providing a definite cutoff value of SII; (iv) the hazard ratios (HRs) with 95% confidence intervals (CIs) of prognostic factors could be extracted or sufficient data were provided to calculate them; and (v) published in English language.

Information sources: Electronic databases of PubMed, Web of Science, Embase, and Cochrane Library.

Main outcome(s): Overall survival (OS), progression-free survival (PFS), recurrence-free survival (RFS), and disease-free survival (DFS).

Quality assessment / Risk of bias analysis: The quality of included studies was evaluated by using Newcastle–Ottawa Scale (NOS). NOS score ranges from 0 to 9 and studies with NOS score ≥ 6 are regarded as high-quality studies.

Strategy of data synthesis: The pooled HRs and 95% CIs were used to evaluate the prognostic value of SII for clinical outcomes. Heterogeneity across studies was evaluated using a chi-square-based Q-test and the I² index. If low heterogeneity between studies ($P_h > 0.10$, $I^2 < 50\%$) was

observed, a fixed-effects model would be applied for analysis. Otherwise, a random-effects model was selected. Funnel plots, and Begg's test, and Egger's test were used to examine potential publication bias. Stata software version 12.0 (Stata Corporation, College Station) was applied for all statistical analyses. A P-value < 0.05 was considered statistically significant.

Subgroup analysis: Subgroup analysis stratified by various clinicopathological factors was conducted to detect the source of heterogeneity.

Sensitivity analysis: Sensitivity analysis by sequentially omitting each study was performed to observe the impact of individual study on the overall results.

Language restriction: English.

Country(ies) involved: China.

Keywords: systemic immune-inflammation index; biliary tract cancers; meta-analysis; prognosis; risk factors.

Contributions of each author:

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