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Prognostic and clinicopathological value of systemic inflammation response index in patients with breast cancer: 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 09 December 2023 and was last updated on 09 December 2023.

INTRODUCTION

Review question / Objective Many existing articles explore the value of systemic inflammation response index (SIRI) in predicting prognosis of breast cancer (BC) patients, however, their findings remain controversial. Consequently, we performed the present meta-analysis for identifying accurate role of SIRI in predicting BC prognosis.

Condition being studied PubMed, Embase, Cochrane library and Web of Science databases were comprehensively searched between inception and October 22, 2023. Significance of SIRI in predicting overall survival (OS) and disease-free survival (DFS) of BC patients was analyzed through calculating pooled hazard ratios (HRs) and corresponding 95% confidence intervals (CIs).

METHODS

Search strategy In this study, we comprehensively searched PubMed, Embase, Cochrane library and Web of Science databases between inception and October 22, 2023 using the following search strategies: (system inflammation response index or systemic inflammation response index or SIRI or systemic inflammatory response index) and (breast carcinoma or breast tumor or breast cancer or breast tumors). The language was restricted to English. A manual search of relevant studies and reviews was also conducted to determine additional eligible studies.

Participant or population BC was diagnosed based on pathology.

Intervention Studies reporting association of SIRI with BC prognosis; and outcomes of interest, included but not limited to overall survival (OS), cancer-specific survival, disease-free survival (DFS), progression-free survival (PFS); and studies with available or calculable hazard ratios (HRs) and 95% confidence intervals (CIs).

Comparator BC patients with low SIRI level.

Study designs to be included Cohortstudies, including prospective and retrospectivecohorts.

Eligibility criteria Studies below were involved, (1) BC was diagnosed based on pathology; (2) those reporting association of SIRI with BC prognosis; (3) outcomes of interest, included but not limited to overall survival (OS), cancer-specific survival, disease-free survival (DFS), progression-free survival (PFS); (4) studies with available or calculable hazard ratios (HRs) and 95% confidence intervals (CIs); (5) studies identifying the threshold SIRI; and (6) English publications. Studies below were excluded, (1) reviews, meeting abstracts, comments, case reports and letters; (2) those with duplicate patients; and (3) animal studies.

Information sources In this study, we comprehensively searched PubMed, Embase, Cochrane library and Web of Science databases between inception and October 22, 2023. The language was restricted to English. A manual search of relevant studies and reviews was also conducted to determine additional eligible studies.

Main outcome(s) The primary and secondary survival endpoints were OS and DFS, respectively.

Additional outcome(s) Correlation between SIRI and clinicopathological characteristics of BC was assessed through pooling ORs and 95%CIs.

Quality assessment / Risk of bias analysis The primary and secondary survival endpoints were OS and DFS, respectively. The Newcastle-Ottawa Scale (NOS) was employed for evaluating enrolled study quality with the score ranging from 0-9, and NOS score >6 suggested high-quality studies.

Strategy of data synthesis We computed combined HRs and 95%CIs for estimating the role of SIRI in determining OS and DFS of BC patients. Between-study heterogeneities were evaluated by Cochran's Q and Higgin's I2 tests. I2 > 50% or p < 0.10 stood for obvious heterogeneity, so we adopted the random-effects model, or else, we employed the fixed-effects model. Correlation between SIRI and clinicopathological characteristics of BC was assessed through pooling ORs and 95%CIs.

Subgroup analysis Subgroup analysis was carried out for detecting potential heterogeneity source.

Sensitivity analysis None.

Language restriction English.

Country(ies) involved China.

Keywords systemic inflammation response index; breast cancer; meta-analysis; survival; biomarkers.

Contributions of each author

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