

INPLASY PROTOCOL

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Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: This study aimed to evaluate the relationship between NLR and in-hospital or long-term prognosis of patients with heart failure by meta-analysis.

Rationale: The role of inflammatory markers in cardiovascular diseases has been studied extensively and a consistent

Neutrophil-to-lymphocyte ratio as a prognostic predictor for heart failure patients: a systematic review and meta-analysis

Yu, Y¹; Tan, D²; Sheng, D³; Zhong, L⁴; Hu, Z⁵; Liang, H⁶.

Review question / Objective: This study aimed to evaluate the relationship between NLR and in-hospital or long-term prognosis of patients with heart failure by meta-analysis.

Eligibility criteria: Inclusion criteria: (1) Patients with heart failure who underwent NLR measurement; the study types were prospective cohort study or retrospective cohort study; and (3) risk estimates of association between NLR levels and heart failure related events occurring during hospital or follow-up were studied experimentally. Case reports, reviews, animal studies, conference proceedings, letters to editors, abstract only and duplicated studies were excluded.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 March 2022 and was last updated on 14 March 2022 (registration number INPLASY202230062).

relationship between various inflammatory markers and cardiovascular diseases has been established in the past. Neutrophil to lymphocyte ratio (NLR) is a new addition to the long list of these inflammatory markers. NLR, which is calculated from complete blood count with differential, is an inexpensive, easy to obtain, widely available marker of inflammation, which can aid in the risk stratification of patients with various cardiovascular diseases in

addition to the traditionally used markers. It has been associated with arterial stiffness and high coronary calcium score, which are themselves significant markers of heart failure. Our meta-analysis aimed to evaluate the relationship between NLR and in-hospital or long-term prognosis of patients with heart failure.

Condition being studied: This study collected relevant literatures in order to explore the relationship between elevated NLR and prognosis heart failure by meta-analysis.

METHODS

Participant or population: Patients with heart failure who underwent NLR measurement will be included in this study, with no exclusions based on sex, ethnicity and age.

Intervention: Neutrophil-to-lymphocyte ratio (NLR) elevated group.

Comparator: Neutrophil-to-lymphocyte ratio (NLR) decreased group.

Study designs to be included: Cohort study.

Eligibility criteria: Inclusion criteria: (1) Patients with heart failure who underwent NLR measurement ;the study types were prospective cohort study or retrospective cohort study; and (3) risk estimates of association between NLR levels and heart failure related events occurring during hospital or follow-up were studied experimentally. Case reports, reviews, animal studies, conference proceedings, letters to editors, abstract only and duplicated studies were excluded.

Information sources: Embase, PubMed, The Cochrane Library and Google Scholar.

Main outcome(s): "in-hospital all mortality", "long-term all mortality", "relative risk (RR)".

Data management: Data will be entering into an Excel spreadsheet: name of first author, year of publication, journal, number

of patients included in analysis, median age, collection of data (prospective, retrospective), cut-off value used to define high NLR, associated 95% CIs for RR.

Quality assessment / Risk of bias analysis: Two reviewers evaluated the quality of each document by using the NOS bias risk assessment standard. Once there were different results, the final decision was reached based on the consensus after the two sides have resolved the differences. If the two sides still have disputes, a third reviewer would be invited to participate to discuss and decide./ Begg's funnel plot and Egger's linear regression test were performed to evaluate publication bias.

Strategy of data synthesis: Data analyses were performed using Version 5.3 Review Manager statistical software.

Subgroup analysis: If the heterogeneity test $P \leq 0.05$ or $I^2 \geq 50\%$, random effect model was applied for the Meta-analysis after excluding the effects of obvious clinical heterogeneity. OR and 95% confidence interval (CI) effect size were used as indicators of binary qualitative variable data.

Sensitivity analysis: Sensitivity analysis was performed by eliminating each original study one by one. Stata12.0 software was applied for Egger's test to analyze the publication bias.

Language: No language restriction was applied.

Country(ies) involved: China.

Keywords: Heart failure; neutrophil-to-lymphocyte ratio; prognosis; meta-analysis.

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