INPLASY PROTOCOL

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Prognostic value of SII in survival outcome in gastric cancer: A meta-analysis

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Review question / Objective: Gastric cancer (GC) is the most common tumor of the digestive system. It is also the third leading cause of cancer-related death which seriously threatens human life. Although with the advancement of medical technology, the treatments of GC have greatly improved, its prognosis is still poor. About 35%-70% patients died within 5 years after the "curative" resection. The AJCC-TNM stage system is most used by clinicians to evaluate the prognosis of the patients with GC. However, the patients with the same TNM stage can have different prognosis after the same treatment, so more accurate evaluation indicators are needed. In recent years, many studies have reported that the inflammation-related hematological index, such as LMR, NLR, PLR and SII, can evaluate the prognosis of cancer patients. Patients with different levels of these indices may have diverse prognosis, even if they were in the same TNM stage. Among them, SII seems to be more efficient than other biomarkers in evaluating the prognosis of patients with liver cancer or esophageal cancer. Hence, this study conducted a meta-analysis of published articles to explore the relationship between SII and prognosis of GC patients.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 May 2020 and was last updated on 06 May 2020 (registration number INPLASY202050021).

INTRODUCTION

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patients with GC. However, the patients with the same TNM stage can have different prognosis after the same treatment, so more accurate evaluation indicators are needed. In recent years, many studies have reported that the inflammation-related hematological index, such as LMR, NLR, PLR and SII, can evaluate the prognosis of cancer patients. Patients with different levels of these indices may have diverse prognosis, even if they were in the same TNM stage. Among them, SII seems to be more efficient than other biomarkers in evaluating the prognosis of patients with liver cancer or esophageal cancer. Hence, this study conducted a meta-analysis of published articles to explore the relationship between SII and prognosis of GC patients.

Condition being studied: Gastric cancer (GC) is the most common tumor of the digestive system. It is also the third leading cause of cancer-related death which seriously threatens human life. About 35%-70% patients died within 5 years after the curative resection. At present, the TNM system is often used to evaluate the patient's condition and prognosis, but it is relatively expensive and cumbersome.

METHODS

Participant or population: Patients with gastric cancer diagnosed by pathological examination have a life expectancy longer than 3 months after treatment.

Intervention: None.

Comparator: According to the level of SII, patients were divided into two groups: high and low. Follow up the patients in the two groups to the time of death or follow-up. Compare the impact of SII level on the survival of patients.

Study designs to be included: RCT, cohort study and case-control study.

Eligibility criteria: The inclusion criteria is as follow: 1) The GC patients were diagnosed pathologically; 2) SII was measured by serum-based methods. 3) the

correlation of SII and patients' survival outcomes was available. 4) Multivariate proportional hazards models that adjusted for survival outcomes were enrolled in statistical analysis. Only the most complete study were included if data was overlaped in more than one study.

Information sources: Relevant literatures was extracted by systematic retrieval of PubMed, EMBASE and Cochrane Library database from 2014 to March 2020.

Main outcome(s): HR, refers to the overall survival hazard ratio of two groups of patients with different SII values, which is obtained from the Cox semiparametric proportional hazards model.

Quality assessment / Risk of bias analysis: The NOS was used to assess each of the include studies quality by two independent authors. The Newcastle-Ottawa Scale(NOS) was consisted of three parts: selection(0-4 points), comparability(0-2 points), and outcome assessment(0-3 points). NOS scores of 6 were assigned as high-quality studies. Subgroup analysis, meta-regression and sensitivity analysis were to define the applied the origin of heterogeneity. Publication bias was assessed by visual inspection of Begg's funnel plot. P<0.05 was considered significant.

Strategy of data synthesis: All data analysis was performed by Stata12.0 software. The included HR and 95%CI were treated with the combined effect size. In addition, pooled HR>1 means high SII is an unfavorable factor for GC, which indicating that SII is inversely correlated with poorer prognosis. Cochran's Q test and Higgins I-squared statistic were performed to assess heterogeneity. P heterogeneity50% suggested significant heterogeneity. The random-effect model was used, when significant heterogeneity was observed, Otherwise, the fix-effect model was applied.

Subgroup analysis: If necessary, the included studies may be divided into

subgroups based on age, region, cutoff value, etc. for subgroup analysis.

Sensibility analysis: If necessary, a sensitivity analysis will be conducted.

Country(ies) involved: China.

Keywords: Gastric cancer, SII, Prognosis, Inflammation index.

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