INPLASY PROTOCOL

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NF-κB expression and survival outcomes in gastric cancer: A meta-analysis

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Review question / Objective: Gastric cancer (GC) is one of the deadliest gastrointestinal cancers with aberrant expressions of multiple inflammatory factors. The abnormal expression of Nuclear factor kappa B (NF-κB), an essential inflammatory regulator, is in relation to the prognostic outcomes in various cancers. But the prognostic significance of NF-κB expression in GC remains polemical. Thus, the present meta-analysis was deployed to assess the association of NF-κB with the survival outcomes of GC patients accurately. The studies that detected NF-kB expression levels in GC patients and presented survival outcomes and clinicopathological parameters were screened comprehensively in databases including Web of Science, PubMed, and Embase. Subgroup analyses built on the cellular localization of NF-kB within GC cells is introduced to unravel latent discrepancies. Heterogeneity is calculated by χ^2-based Q test and I^2 statistic. Publication bias is measured by Begg's and Egger's test. Eight eligible studies with an enrollment of 1041 patients are included in this meta-analysis. Our present meta-analysis may enable NF-κB as a specific biomarker for the prognosis of GC patients.

Condition being studied: Gastric cancer.

INTRODUCTION

Review question / Objective: Gastric cancer (GC) is one of the deadliest gastrointestinal cancers with aberrant expressions of multiple inflammatory factors. The abnormal expression of Nuclear factor kappa B (NF-κB), an essential inflammatory regulator, is in relation to the prognostic outcomes in

various cancers. But the prognostic significance of NF-κB expression in GC remains polemical. Thus, the present meta-analysis was deployed to assess the association of NF-κB with the survival outcomes of GC patients accurately. The studies that detected NF-kB expression levels in GC patients and presented survival outcomes and clinicopathological parameters were screened comprehensively in databases including Web of Science, PubMed, and Embase. Subgroup analyses built on the cellular localization of NF-kB within GC cells is introduced to unravel latent discrepancies. Heterogeneity is calculated by χ²-based Q test and I² statistic. Publication bias is measured by Begg's and Egger's test. Eight eligible studies with an enrollment of 1041 patients are included in this meta-analysis. Our present meta-analysis may enable NF-κB as a specific biomarker for the prognosis of GC patients.

Condition being studied: Gastric cancer.

METHODS

Participant or population: Adults diagnosed with gastric cancer.

Intervention: To evaluate whether NF-κB expression is a prognostic biomarker for predicting the outcomes of gastric cancer patients, studies investigating the expression levels of NF-κB in patients with gastric cancer are defined. And survival outcomes and clinicopathological parameters presented are also assessed.

Comparator: The prognostic significance denoted by hazard ratio and 95% confidence interval in gastric cancer patients with different NF-κB expression.

Study designs to be included: We will include clinical studies to assess the prognostic significance of the NF-κB expression in patients with gastric cancer, but will exclude case.

Eligibility criteria: The inclusion criteria will be as follows: human studies of gastric cancer; investigate the expression levels of

NF-κB; present survival outcomes and clinical pathological parameters; articles written in English.

Information sources: Studies will be selected from bibliographic databases: PubMed, EMBASE, and Web of Science.

Main outcome(s): The pooled hazard ratio at a 95% confidential interval is analyzed using Review Manager 5.3. Higher NF-κB expression is associated with unfavorable overall survival for gastric cancer.

Quality assessment / Risk of bias analysis: The risk of bias in eligible studies will be assessed by two review authors independently in accordance with the following characteristics: 1. Randomization sequence generation: was the allocation sequence adequately generated? 2. Treatment allocation concealment: was the allocated treatment adequately concealed from study participants and clinicians and other healthcare or research staff at the enrollment stage? 3. Blinding: were the personnel assessing outcomes and analyzing data sufficiently blinded to the intervention allocation throughout the trial? 4. Completeness of outcome data: were participant exclusions, attrition and incomplete outcome data adequately addressed in the published report? 5. Selective outcome reporting: was there evidence of selective outcome reporting and might this have affected the study results? 6. Other sources of bias: was the trial apparently free of any other problems that could produce a high risk of bias? Disagreements between the review authors over the risk of bias in particular studies will be resolved by discussion, with involvement of a third review author where necessary.

Strategy of data synthesis: The pooled hazard ratio (HR) at a 95% confidential interval (CI) was analyzed using Review Manager 5.3 to evaluate the association of NF-κB expression with gastric cancer patient survival. χ²-based Q test and I² test was used to evaluate the heterogeneity among studies. Significant heterogeneity was considered at I²>50% and P

value<0.05, and the random-effects model was used; otherwise, the fixed-effects model was selected.

Subgroup analysis: If the necessary data are available, subgroup analyses will be done for people with different histological subtypes or ethnicity.

Sensibility analysis: A sensitivity analysis was conducted to test the consistency of combined results by Stata 13.0 software.

Country(ies) involved: China.

Keywords: nuclear factor kappa B; Gastric Cancer; Stomach Neoplasms; meta-analysis; Prognosis.

Contributions of each author:
Author 1 - Wenwen Meng - performed data collection, analysis, interpretation and literature search.
Author 2 - Haiyan Shi - performed data collection, analysis, interpretation and literature search.
Author 3 - Jie Liu - performed data collection, analysis, interpretation and literature search.
Author 4 - Xiaohui Ge - analyzed raw data and screened literatures involved.
Author 5 - Yafeng Xu - extracted and interpreted data statistically.
Author 6 - Shiqi Shan - collected data and was a contributor in writing the manuscript.
Author 7 - Lin Wang - exerted data entry and analysis.
Author 8 - Juwei Liu - conceived study design and planning, instructed study implementation, prepared and revised the manuscript.
Author 9 - Lin Zha - conceived study design and planning, instructed study implementation, prepared and revised the manuscript.
Author 10 - Jun Niu - conceived study design and planning, instructed study implementation, prepared and revised the manuscript.