

INPLASY PROTOCOL

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Corresponding author:
Yijia Zhang

597888271@qq.com

Author Affiliation:
Xiang'an Campus of Xiamen University, Xiamen City, Fujian Province.

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None declared.

Meta-analysis of spontaneous colon rupture among Chinese population

Zhang, YJ¹; Xu, L².

Review question / Objective: P (Population) : Patients with spontaneous colon rupture; I (Intervention) : Not applicable; Retrospective study; C (Comparison) : Not applicable;(No control); O (Outcome) : incidence rate; S (Study design) : Retrospective study; the meta-analysis of the non-control binary data.

Eligibility criteria: Studies were considered eligible for inclusion in this meta-analysis if they fulfilled the following criteria: (1) the study contained information about the spontaneous colon rupture; (2) sample size of at least 3 cases. The exclusion criteria were as follows: (1) the number of cases included was less than three; (2) articles that did not obtain complete information; (3) single case report.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 February 2023 and was last updated on 12 February 2023 (registration number INPLASY202320046).

meta-analysis of the non-control binary data.

Rationale: The purpose of this study was to review the cases of spontaneous colon rupture (SCR) in Chinese population and conducted a meta-analysis. Through this study, we hoped to better understand the risk factors, inducements, underlying diseases, clinical manifestations, possible

INTRODUCTION

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misdiagnosis, and causes of death in terms of SCR.

Condition being studied: The purpose of this study was to review the cases of spontaneous colon rupture (SCR) in Chinese population and conducted a meta-analysis. Through this study, we hoped to better understand the risk factors, inducements, underlying diseases, clinical manifestations, possible misdiagnosis, and causes of death in terms of SCR.

METHODS

Search strategy: Three Chinese online databases were searched for relevant articles published from 1980 to 2022: China National Knowledge Internet (CNKI) database, China Science and Technology Journal (VIP series) database and Wan Fang database. Combinations of the following principal search keywords in the titles/abstracts were used: (“spontaneous colon rupture” or “spontaneous” & “colon or rectum” & “rupture”).

Three English online databases were searched for relevant articles published from 1981 to 2022: PubMed database, Web of Science database, Embase database. Combinations of the following principal search keywords in the titles/abstracts were used: (“spontaneous colon rupture” or “spontaneous” & “colon or rectum” & “rupture”), (“fecal perforation” or “fecal” & “perforation”). But relevant literatures could not be found. Finally, combinations of the following principal search keywords in the titles/abstracts were used: (“idiopathic colon perforation” or “idiopathic” & “colon or rectum” & “perforation”).

Participant or population: Spontaneous rupture of colon.

Intervention: Not applicable.

Comparator: Not applicable.

Study designs to be included: Retrospective study.

Eligibility criteria: Studies were considered eligible for inclusion in this meta-analysis if they fulfilled the following criteria: (1) the study contained information about the spontaneous colon rupture; (2) sample size of at least 3 cases. The exclusion criteria were as follows: (1) the number of cases included was less than three; (2) articles that did not obtain complete information; (3) single case report.

Information sources: China National Knowledge Internet (CNKI) database, China Science and Technology Journal (VIP series) database and Wan Fang database; PubMed database, Web of Science database, Embase database.

Main outcome(s): To understand the relevant risk factors of spontaneous colon rupture, increase the diagnosis rate and reduce mortality.

Quality assessment / Risk of bias analysis: The literatures corresponding to each research factor were analyzed for publication bias one by one. The funnel plots of each factor of SCR were basically symmetrical, indicating that the stability of the meta-analysis results was good.

Strategy of data synthesis: The Review Manager 5.3 software (REVMAN, Version 5.3) was used for the meta-analysis of the non-control binary data. Odds ratios (ORs) were calculated to determine efficacy. Cochrane Q test was used to analyze the heterogeneity among the studies, and I² was used to evaluate the heterogeneity among the included studies. I² statistic > 50% or P value < 0.05 indicated the presence of significant heterogeneity, and the random effect model was used; On the contrary, fixed effect model was adopted. Sensitivity analysis was conducted to analyze its heterogeneity. Finally, funnel plot asymmetry was applied to detect any potential publication bias. The meta-analysis of the cases reported in English was used as the evidence of the results of the Chinese analysis. The same results were shown in the meta results of sex, habitual constipation and rupture sites.

Subgroup analysis: The Review Manager 5.3 software (REVMAN, Version 5.3) was used for the meta-analysis of the non-control binary data. Odds ratios (ORs) were calculated to determine efficacy. Cochrane Q test was used to analyze the heterogeneity among the studies, and I² was used to evaluate the heterogeneity among the included studies. I² statistic > 50% or P value < 0.05 indicated the presence of significant heterogeneity, and the random effect model was used; On the contrary, fixed effect model was adopted. Sensitivity analysis was conducted to analyze its heterogeneity. Finally, funnel plot asymmetry was applied to detect any potential publication bias.

Sensitivity analysis: In this study, fixed effect model and random effect model were used to estimate the combined OR value and 95% CI of factors related to spontaneous colon rupture.

Language restriction: English and Chinese.

Country(ies) involved: China.

Keywords: Spontaneous, Colon Rupture, Meta-analysis, Chinese population.

Contributions of each author:

Author 1 - yijia zhang.

Email: 597888271@qq.com

Author 2 - Li xU.

Li Xu designed the study and owned the research idea, supervised data collection and analysis, and wrote the manuscript. Yijia Zhang did the data collection and analysis, and drafted the paper. All authors read and approved the manuscript.