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None declared.

A meta-analysis of related factors Mechanical phlebitis caused by PICC

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Review question / Objective: Mechanical phlebitis is the most common complication after PICC catheterization, which increases the pain of patients and adversely affects the effect of radiotherapy and chemotherapy in tumor patients. The relevant research on the influencing factors of mechanical phlebitis has not been unified. This study intends to conduct an integrated analysis of the research on the influencing factors of mechanical phlebitis, obtain more comprehensive and advanced clinical evidence, and provide reference for the clinical prevention of mechanical phlebitis.

Eligibility criteria: Inclusion criteria: The research content is the influencing factors of mechanical phlebitis in PICC catheterized patients; The value of the research results should be multi-factorial Logistic regression analysis of OR value and 95% CI Exclusion criteria: ① The full text of the literature cannot be obtained; ② low-quality literature; ③ research content does not meet.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 June 2022 and was last updated on 05 June 2022 (registration number INPLASY202260014).

INTRODUCTION

Review question / Objective: Mechanical phlebitis is the most common complication after PICC catheterization, which increases the pain of patients and adversely affects the effect of radiotherapy and

chemotherapy in tumor patients. The relevant research on the influencing factors of mechanical phlebitis has not been unified. This study intends to conduct an integrated analysis of the research on the influencing factors of mechanical phlebitis, obtain more comprehensive and advanced

clinical evidence, and provide reference for the clinical prevention of mechanical phlebitis.

Rationale: It is to use statistical concepts and methods to collect, organize and analyze many empirical studies done by scholars and experts on a certain topic before, hoping to find a clear relationship pattern between the problem or the variables concerned, which can make up for the traditional Weaknesses of Review Articles.

Condition being studied: Mechanical phlebitis is one of the most common complications of PICC cannulation. Mechanical phlebitis caused by PICC usually occurs 8 to 10 cm above the puncture site, usually about 7 days after puncture, and redness occurs along the vein. , tenderness, fever and other symptoms. The factors of PICC-induced mechanical phlebitis include individual patient, catheter size and type, nurse's operating skills, puncture site, catheterization time, etc.

METHODS

Search strategy: Computer search CNKI, Wanfang, VIP, Cochrane Library, Duxiu, PubMed, Embase, Scopus, Ovid and other databases, using a combination of free words and subject words to search. (("Catheterization, Peripheral"[Mesh]) OR (((Peripheral Catheterization[Title/Abstract]) OR (Peripherally Inserted Central Catheter[Title/Abstract])) OR (Venous Catheterization, Peripheral[Title/Abstract])) OR (Peripheral venous catheter[Title/Abstract])) OR (PICC[Title/Abstract])) AND (mechanical phlebitis[Title/Abstract])) AND (("Risk Factors"[Mesh]) OR (((Related Factors[Title/Abstract]) OR (Relevant factor[Title/Abstract])) OR (Infection[Title/Abstract])) OR (factors[Title/Abstract])) OR (determinant[Title/Abstract]))).

Participant or population: Intubating patients with PICC in various medical institutions.

Intervention: Patients with mechanical phlebitis caused by PICC.

Comparator: Patients without mechanical phlebitis caused by PICC.

Study designs to be included: Case-control and cohort studies.

Eligibility criteria: Inclusion criteria: The research content is the influencing factors of mechanical phlebitis in PICC catheterized patients; The value of the research results should be multi-factorial Logistic regression analysis of OR value and 95% CI Exclusion criteria: ①The full text of the literature cannot be obtained;② low-quality literature; ③ research content does not meet.

Information sources: Computer search CNKI, Wanfang, VIP, Cochrane Library, Duxiu, PubMed, Embase, Scopus, Ovid and other databases.

Main outcome(s): Incidence, The odds ratio (OR), 95% confidence interval (CI) and standard error (SE) of the research results cannot be provided or the data provided cannot be converted into an OR value, 95% CI and SE literature.

Data management: Use excel and Noteexpress to classify and summarize documents Noteexpress.

Quality assessment / Risk of bias analysis: Newcastle Ottawa Quality Assessment Scale, NOS.

Strategy of data synthesis: RevMan5.3 software analyzes the included literature, OR is used as the effect index to merge, and the Q test and I² test are used for heterogeneity analysis. When $P \geq 0.1$ and $I^2 \leq 50\%$, it indicates that the heterogeneity is small, and the fixed effect model is selected. Combined effect size; when $P > 50\%$, it indicates that the heterogeneity is large, select the random effect model to combine the effect size, and conduct

sensitivity analysis to clarify the source of heterogeneity.

Subgroup analysis: Forest plot meta-analysis was performed according to the literature mentioned by risk factors.

Sensitivity analysis: If there is heterogeneity in the meta-analysis of a single risk factor, each literature is separately kicked out to see which literature caused the heterogeneity, until the model is stable, or a random model is used. And each influencing factor is combined with a national effect model and a random effect model to see if there is a difference. If there is heterogeneity in the meta-analysis of risk factors, each literature will be kicked out to see which literature caused the heterogeneity, until the model is stable, or a random model is used.

Country(ies) involved: China.

Keywords: PICC; Mechanical phlebitis; factor; Meta-analysis; Systematic review.

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