INPLASY PROTOCOL

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None declared.

Effects of cardiovascular disease and traditional cardiovascular risk factors on deep vein thrombosis in stroke patients: a meta-analysis

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Review question / Objective: **The aim of this meta-analysis is to determine the effects of cardiovascular disease and traditional cardiovascular risk factors on deep vein thrombosis in stroke patients.**
Condition being studied: **Venous thromboembolism (VTE) is a general term for deep vein thrombosis (DVT) and pulmonary embolism (PE), In the adult population, the annual incidence of VTE is about 1/1000, and about two-thirds of the incidence is manifested as DVT1. Deep venous thrombosis (DVT) refers to the venous return disorder caused by abnormal clotting of blood in the deep veins. It usually occurs in the deep veins of the lower legs and thighs, and may also occur in the deep veins of the upper extremities, visceral veins2. Stroke patients are a high incidence of DVT, 40% of stroke patients have DVT within the first 3 weeks, and the incidence of DVT above the knee is 18%, and the mortality rate of stroke within 1 month after DVT is 30%3. Besides, in the last decade, several studies on the associations of CVD and its risk factors with DVT risk have been conducted with inconclusive results4-6. International conclusions on risk factors for DVT in stroke patients are still mixed. Therefore, this study conducted a meta-analysis of the risk factors for DVT in stroke patients to clarify the cardiovascular risk factors associated with DVT in stroke patients and prevent DVT in stroke patients.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 September 2022 and was last updated on 03 September 2022 (registration number INPLASY202290016).

INTRODUCTION

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METHODS

Participant or population: Patients with deep vein thrombosis after stroke.

Intervention: Deep vein thrombosis after stroke.

Comparator: None-deep vein thrombosis after stroke.

Study designs to be included: Cohort studies; case-control studies.

Eligibility criteria: Inclusion criteria: ①The research object meets the diagnostic criteria revised by the WHO Diagnostic Criteria7, and is confirmed by CT or MRI; ②age≥18 years old; ③After ultrasound examination or color Doppler ultrasound examination confirmed DVT; ④ excluded those with transient cerebral ischemic attack and cerebral venous system thrombosis; ⑤ study type was cohort study or case-control study; ⑥ language was limited to Chinese and English.Exclusion criteria: ①Repetitive publication; ②Study without full text, incomplete information, or data extraction is impossible; ③The definition of exposure is quite different from most of the literature.

Information sources: PubMed, Embase and the Cochrane Library. The search period is from the establishment of the database to April 2020. Using the combination of subject words and free words to search for search terms. Search terms is “Deep Vein Thrombosis/Deep Venous Thrombosis” “Strokes/Cerebrovascular Accident/Brain Vascular Accident/Cerebral Stroke” “risk factor/influence” etc.

Main outcome(s): Risk factors on deep vein thrombosis in stroke patients.

Quality assessment / Risk of bias analysis: Two researchers independently adopted the NOS to evaluate the quality of the literature. If there are differences, they can be resolved through consultation or seeking the opinions of a third party. NOS8 includes 4 items (4 points) for “Research Subject Selection”, 1 item (2 points) for “Comparability between Groups” and 3 items (3 points) for “Result Measurement”, with a full score of 9 points and ≥7 is regarded as High-quality literature, <7 is divided into lower-quality literature.

Strategy of data synthesis: The data was analyzed using STATA 15.1. Counting data is used as the ratio of effects (OR), and the mean difference (MD) of the continuous variables is selected. In this study, the final combined OR value is used as an indicator, and the interval estimate is expressed as a 95% confidence interval (95% CI). If the heterogeneity test P≥0.1, I2≤50%, it indicates that the study has homogeneity, and the fixed effect model is used for combined analysis; if P 50%, it indicates that the study has heterogeneity and sensitive analysis or subgroup analysis will be used to find the source of heterogeneity,

if the heterogeneity is still large, use the random effect model or give up the results and use descriptive analysis. Funnel plot and Egger's test were used to analyze the publication bias of each risk factor.

Subgroup analysis: If P 50%, it indicates that the study has heterogeneity and sensitive analysis or subgroup analysis will be used to find the source of heterogeneity, if the heterogeneity is still large, use the random effect model or give up the results and use descriptive analysis.

Sensitivity analysis: By subgroup analysis.

Country(ies) involved: China.

Keywords: Deep vein thrombosis; Stroke; Cardiovascular disease; Risk factors; Meta-analysis.

Contributions of each author:
Author 1 - Wei Gong - acquisition of data, analysis and interpretation of data, drafting the article.
Author 2 - Yongqi Li - acquisition of data, analysis and interpretation of data, drafting the article.
Author 3 - Yu Tian - conception and design of the study, critical revision.
Author 4 - Jing Zhang - interpretation of data, revising the article, final approval.
Author 5 - Lei Li - interpretation of data, revising the article, final approval.