INPLASY

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A systematic review of Mendelian randomization of cardiometabolic factors and intracranial aneurysms

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ADMINISTRATIVE INFORMATION

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Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 July 2024 and was last updated on 10 July 2024.

INTRODUCTION

Review question / Objective To explore the application of Mendelian randomization (MR) method in the study of cardiometabolic factors in Intracranial aneurysm (IA) , and provide clues for further elucidation of the etiology and pathogenesis of IA.

Condition being studied Intracranial Aneurysm (IA) is a common cerebrovascular disease with insidious onset. If it ruptures, it can cause subarachnoid hemorrhage, endangering life. For targeted prevention and intervention, the study of the etiology of IA is very important. Previous observational studies have shown that cardiovascular and metabolic factors may be associated with the risk of IA. However, due to confounding factors and time series effects, the causal relationship between them cannot be determined at present. Mendelian randomization (MR) uses genetic variation highly correlated with exposure factors as instrumental variables to infer the causal relationship between exposure and

outcome, which can provide complementary evidence for etiological inference. In recent years, a number of MR Studies have explored the association between cardiovascular and metabolic factors and IA and its subtypes. In this paper, previous studies on the cardiovascular and metabolic factors of IA were systematically reviewed in order to provide clues to the etiology and pathogenesis of IA.

METHODS

Search strategy (((intracranial aneurysm[MeSH Terms]) OR (cerebral aneurysm*[All fields])) OR (subarachnoid hemorrhage[MeSH Terms])) AND ((Mendelian randomization [All fields]) OR (Mendelian randomization[All fields])).

Participant or population ① People with GWAS data of cardiovascular and metabolic factors (blood pressure, blood lipids, blood glucose, obesity-related indicators, inflammatory cytokines and uric acid, etc.) ② GWAS data group with intracranial aneurysms and their subtypes.

Intervention Not applicable. (Only Mendelian randomization (MR) studies is included in this systematic review).

Comparator Not applicable. (Only Mendelian randomization (MR) studies is included in this systematic review).

Study designs to be included Mendelian randomization study.

Eligibility criteria Inclusion criteria: ①MR Research design; (2) Exposure was associated with cardiovascular and metabolic factors, including blood pressure, blood lipids, blood glucose, obesity-related indicators, inflammatory cytokines and uric acid; ③ The outcome was aneurysmal subarachnoid hemorrhage (aSAH) and/or its subtypes (unruptured intracranial aneurysm (uIA)). Patients with uIA and aSAH were diagnosed according to ICD10 codes I67.1 and I60, respectively. Exclusion criteria: ① Comments, reviews, consensus and guidelines; (2) Documents with incomplete research data, such as conference abstracts and book chapters; ③ Repeated publication of literature.

Information sources PubMed, Embase, Web of Science, CNKI and Wanfang databases.

Main outcome(s) The outcome were intracranial aneurysm(IA), aneurysmal subarachnoid hemorrhage (aSAH) and unruptured intracranial aneurysm (uIA)], Patients with uIA and aSAH were diagnosed according to ICD10 codes I67.1 and I60, respectively.

Quality assessment / Risk of bias analysis At present, there is no quality evaluation scale to evaluate Mendelian randomization studies.

Strategy of data synthesis The initial screening was based on the analysis of the articles' title and summary. duplicated articles between databases were excluded. Next, some articles were selected for full-text analysis in order to verify if they meet all the inclusion criteria described by the PICOS strategy.

Subgroup analysis Not applicable . A metaanalysis will not be performed.

Sensitivity analysis Not applicable . A metaanalysis will not be performed.

Country(ies) involved China.

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