INPLASY PROTOCOL

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None declared.

Aspirin and Future Stability of Unruptured Intracranial Aneurysms: A Systematic Review and Meta–Analysis

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Review question / Objective: **Aspirin as a potential therapeutic strategy to prevent unruptured intracranial aneurysms(IAs) progression has been suggested but remains controversial. The aim of this systematic review and meta–analysis is to determine the association between aspirin use and unsteady state of unruptured IAs.**

Condition being studied: **Current guidelines for the management of unruptured intracranial aneurysms(IAs) fail to provide a clear recommendation for preventive drug therapy to lower the risk of aneurysm growth and rupture. However, existing studies have shown that inflammation is one of the key factors participate in the formation, growth, and rupture of cerebral aneurysms, which provide a theoretical basis for anti–inflammatory drugs as a potential protective agent to modulate unruptured IAs progression. Aspirin, typical non-steroidal anti-inflammatory drug, has gained traction recently as a promising treatment strategy.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 April 2021 and was last updated on 17 April 2021 (registration number INPLASY202140089).

INTRODUCTION

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METHODS

Search strategy: We will use the MeSH and the keyword search terms "aspirin", "acetly salicylic acid", "acetylsalicylic", "intracranial aneurysm*", "cerebral aneurysm*", "brain aneurysm*", "intracerebral aneurysm*", and "cranial aneurysm*". Our search strategy will be tailored to each database.

Participant or population: Patients with intracranial aneurysms.

Intervention: Aspirin therapy.

Comparator: No aspirin therapy.

Study designs to be included: cohort and case–control study.

Eligibility criteria: Studies were included in our asystematic review and meta–analysis if they met the following criteria: (1) cohort study or case–control study; (2) evaluated the association between aspirin use and unruptured IAs growth and/or rupture; (3) reported the odds ratio(OR) and their 95% confidence interval(CI), or associated data that can be used to re–calculation.

Information sources: PubMed, EMBASE and Cochrane Central Register of Controlled Trials (CENTRAL) will be searched with no restriction on language or year of publication from database inception to 4 April 2021. In order to extract fully data and assess study quality, we excluded studies with only a conference abstracts, all studies included were full–text articles from peer–reviewed journals.

Main outcome(s): Unruptured intracranial aneurysms instability.

Additional outcome(s): Unruptured intracranial aneurysms growth and rupture.

Data management: All records were imported into the EndNote reference management software (Clarivate Analytics), duplicate records were removed.

Quality assessment / Risk of bias analysis: Two reviewers(M.–F.Y. and K.Z.) used the Newcastle–Ottawa Scale (NOS) score to evaluated the quality of study.

Strategy of data synthesis: Odds ratio (OR) with 95% confidence interval (CI) for each outcome will be calculated before pooling. Two-sided $P<0.05$ is considered the statistical significance. Heterogeneity will be evaluated using the I^2 test, an $I^2> 50\%$ is considered to indicate substantial heterogeneity. When we detected significant heterogeneity, we performed randomeffects meta-analyses to measure the effect size. Otherwise, fixed effects meta-analyses were performed. All analyses will be performed by Stata 15.0 (Stata Corp. College Station, TX, USA).

Subgroup analysis: Subgroup analysis also conducted according to outcome definition(growth, rupture), study design(cohort study, case–control study), quality of study(NOS ≥ 7, NOS < 7) and country of origin(Asia, Western).

Sensitivity analysis: Sensitivity analysis will be conducted by excluding trials one by one.

Language: English.

Country(ies) involved: China.

Keywords: Aspirin; Unruptured Intracranial Aneurysms; Growth; Rupture; Meta–analysis.

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