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Sex difference regarding the association of metabolic syndrome with the risk of stroke: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

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 7 November 2024 and was last updated on 7 November 2024.

INTRODUCTION

Review question / Objective The aim of this study is to investigate the sex difference regarding the association between metabolic syndrome and stroke.

Condition being studied Metabolic syndrome is composed of multiple cardiovascular risk factors, and previous studies have confirmed a significant association between metabolic syndrome and an increased risk of stroke. However, there is currently no systematic meta-analysis to evaluate the gender differences in the relationship between metabolic syndrome and stroke.

METHODS

Search strategy ("cardiovascular risk" OR "cardiovascular disease" OR "stroke") AND ("metabolic syndrome") AND ("cohort studies" OR "prospective studies").

Participant or population All of participants were free of stroke at baseline.

Intervention MetS.

Comparator non-MetS.

Study designs to be included Prospective cohort studies.

Eligibility criteria A study was included if it met the following criteria: (1) Patients: all of participants were free of stroke at baseline; (2) Exposure: MetS; (3) Control: non-MetS; (4) Outcome: stroke incidence or effect estimate regarding the relation between MetS and the risk of stroke; (5) Study design: prospective cohort studies; and (6) Additional criteria: the study had to have report the relation between MetS and the risk of stroke in men and women, simultaneously.

Information sources PubMed, Embase, and the Cochrane library.

Main outcome(s) stroke incidence or effect estimate regarding the relation between MetS and the risk of stroke.

Quality assessment / Risk of bias analysis Newcastle-Ottawa Scale (NOS) based on selection (4 items), comparability (1 item), and outcome (3 items).

Strategy of data synthesis The sex-specific effect estimate with 95% confidence interval (CI) in published studies were assigned to assess the sex difference regarding the association of MetS with the risk of stroke. Then the male-to-female relative risk ratio (RRR) were calculated using the random-effects model, this approach considering the underlying varies across included studies.

Subgroup analysis Subgroup analyses were performed based on the country, mean age, smoking proportion, adjusted level, reported outcomes, follow-up duration, and study quality.

Sensitivity analysis The stability of pooled conclusion was assessed by a sensitivity analysis through sequential removing single study.

Language restriction No restriction.

Country(ies) involved China.

Keywords Sex difference; metabolic syndrome; stroke; systematic review; meta-analysis.

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