

INPLASY PROTOCOL

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None.

INTRODUCTION

Review question / Objective: We aimed to assess the global prevalence, incidence, and outcomes (including coronary artery diseases (CAD) and stroke, breast neoplasms, uterine cervical neoplasms, ovarian neoplasms, leiomyoma,

endometrial neoplasms, uterine neoplasms and all-cause death) of menopausal syndromes in peri- and postmenopausal women based on cross-sectional, descriptive and longitudinal studies by using meta-analysis.

Global epidemiology of menopausal syndromes in peri- and postmenopausal women: Meta-Analytic assessment of prevalence, incidence and outcomes

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Review question / Objective: We aimed to assess the global prevalence, incidence, and outcomes (including coronary artery diseases (CAD) and stroke, breast neoplasms, uterine cervical neoplasms, ovarian neoplasms, leiomyoma, endometrial neoplasms, uterine neoplasms and all-cause death) of menopausal syndromes in peri- and postmenopausal women based on cross-sectional, descriptive and longitudinal studies by using meta-analysis.

Condition being studied: Menopausal symptoms in peri- and postmenopausal women.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 December 2020 and was last updated on 12 December 2020 (registration number INPLASY2020120074).

*Zhen He and Yao Wang contributed equally to this protocol.

Rationale: Classification of menopausal symptoms (MS) includes any MS, vasomotor symptoms (hot flashes/night sweat), palpitations, dizziness, anxiety, irritability, headache, depression, insomnia, incontinence and other symptoms shown in specific scale for MS in peri- and/or postmenopausal women. If some articles did not clarify peri- or postmenopausal period, then women above 40 years old will be considered as population of interest. Besides, we will calculate pooled prevalence of MS based on cross-sectional and descriptive studies. We will also calculate pooled incidence of MS based on longitudinal studies as well as the results of outcomes. Moreover, we plan to extract comorbidities of MS including obesity, diabetes, hypertension and hyperlipidemia.

Condition being studied: Menopausal symptoms in peri- and postmenopausal women.

METHODS

Search strategy: We searched PubMed, Embase and Cochrane databases (before March 2019). The brief search terms included: (“perimenopause” OR “menopause” OR “postmenopause”) AND (“menopausal syndrome” OR “hot flashes” OR “night sweats” OR “depression” OR “anxiety” OR “arthralgia” OR “dyssomnias”) AND (“stroke” OR “coronary Disease” OR “breast Neoplasms” OR “uterine cervical neoplasms” OR “mortality” OR “prevalence” OR “incidence” OR “ovarian neoplasms” OR “uterine neoplasms” OR “endometrial neoplasms” OR “leiomyoma”).

Participant or population: Inclusion: peri- or/and postmenopausal women, or women older than 40 years old. Exclusion: premenopausal women (under 40 years of age).

Intervention: Not applicable.

Comparator: Not applicable.

Study designs to be included: We included cross-sectional and descriptive studies to

assess prevalence of menopausal symptoms, and included longitudinal studies to assess incidence and outcomes of menopausal symptoms.

Eligibility criteria: Cross-sectional and descriptive studies involving prevalence of any kind of menopausal symptoms (hot flashes/night sweat), palpitations, dizziness, anxiety, irritability, headache, depression, insomnia, incontinence and other symptoms shown in specific scale for MS in peri- and/or postmenopausal women) as well as comorbidity of menopausal symptoms will be included. Longitudinal studies related to incidence/RR/HR of menopausal symptoms and outcomes will be included.

Information sources: PubMed, Embase and Cochrane databases.

Main outcome(s): Prevalence and incidence of menopausal symptoms, such as hot flashes, night sweats, headache, dizziness etc., measured using different scales or questionnaires.

Additional outcome(s): Comorbidities of menopausal symptoms include obesity, hypertension, diabetes and hyperlipidemia. Outcomes of menopausal symptoms include coronary artery diseases (CAD) and stroke, breast neoplasms, uterine cervical neoplasms, ovarian neoplasms, leiomyoma, endometrial neoplasms, uterine neoplasms and all-cause mortality.

Data management: We recorded and managed extracted data using word and excel documents. We used Endnotes to manage those articles.

Quality assessment / Risk of bias analysis: In cross-sectional or descriptive studies, Combie tool will be used, which assesses total design, method of collecting data, response rate, representativeness of sample, power analysis and statistics. In longitudinal studies, the Newcastle-Ottawa Scale (NOS) will be applied. It assesses representativeness of the exposed cohort, selection of the non exposed cohort, ascertainment of exposure, demonstration

that outcome of interest was not present at start of study, comparability of cohorts on the basis of the design or analysis, and outcome. Two persons determined the inclusion of selected papers by reviewing the title and abstract of the selected studies. Disagreements will be resolved by group discussion or a third person. During the process of data synthesis, paper with very low score of quality assessment will be possibly excluded.

Strategy of data synthesis: All the included data without very low score of quality assessment will be synthesised. Prevalence and incidence of different menopausal symptoms will be synthesised according to different symptoms respectively. For instance, data of hot flushes, night sweat, headache, etc. will be synthesized independently using random-effect model or fixed-effect model according to heterogeneity.

Subgroup analysis: Prevalence of menopausal symptoms will be analyzed according to age group (peri/postmenopause), publication year, sample size, district (different continents), altitude, random or not, etc. As these variables above may influence the prevalence of menopausal symptoms. Meta-regression will be applied.

Sensibility analysis: Remove the literatures with poor quality and re-conduct meta-analysis, and then we will compare whether there will be significant difference between the two groups. Use different statistical methods to re-analyze. For example, random-effect model is used instead of fixed-effect model, and vice versa.

Language: We identified English-language studies.

Country(ies) involved: China and Netherlands.

Other relevant information: None.

Keywords: menopausal symptoms; prevalence; incidence; meta-analysis; mortality; outcomes.

Dissemination plans: We plan to publish this study to a high impact journal.

Contributions of each author:

Author 1 - Zhen He - designed extraction tables, screened abstracts and extracted data from selected papers, analyzed the data and drafted the manuscript, co-first author.

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