INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Tuina for cervical hypertension A protocol for systematic review and meta-analysis

Gao, ZH[1]; Wang, LQ[2]; Li,Y[3]; Li, JF[4]; Lei, Y[5].

Review question / Objective: **The aim of this systematic review is to evaluate the effectiveness and safety of Tuina for cervical hypertension. Patients diagnosed with cervical hypertension will be included in this study. Regardless of sex, age, education, and economic status. Experimental interventions are Tuina manipulation combined with conventional Western medicine, or simply using Tuina manipulation. The control group will receive one of the following treatment methods: conventional pharmacological therapy, no treatment, and placebo. RCTs comparing Different techniques of Tuina therapy will be excluded. The primary outcome will be measured with the Total clinical efficiency. The secondary outcomes include the Systolic blood pressure, Diastolic blood pressure, and Visual Analogue Scoring (VAS). The type of study included was RCT(randomized controlled trials).**

Information sources: **PubMed, Embase, Web of Science, Cochrane Library, Chinese Clinical Trial Registry System, China Biomedical Literature Database (CBM), China National Knowledge Infrastructure (CNKI), Wan-Fang Database, and Chinese Scientific Journal Database(VIP database).**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 May 2022 and was last updated on 06 May 2022 (registration number INPLASY202250038).

INTRODUCTION

Review question / Objective: **The aim of this systematic review is to evaluate the effectiveness and safety of Tuina for cervical hypertension. Patients diagnosed with cervical hypertension will be included in this study. Regardless of sex, age, education, and economic status. Experimental interventions are Tuina manipulation combined with conventional Western medicine, or simply using Tuina manipulation. The control group will receive one of the following treatment**

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Condition being studied: Cervical hypertension. The participants in this study were Zhao-hong Gao, Li-qin Wang, Yan Li, Jun-feng Li, Yu Lei. The systematic review program is registered with INPLASY. The registration number is 202090043. Which will be performed following the guideline of Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P). All steps of this systematic review will be performed according to the Cochrane Handbook(5.3.0).

METHODS

Search strategy: The reviewers will conduct a systematic literature search in the following electronic databases: PubMed, Embase, Web of Science, Cochrane Library, Chinese Clinical Trial Registry System, China Biomedical Literature Database (CBM), China National Knowledge Infrastructure (CNKI), Wan-Fang Database, and Chinese Scientific Journal Database(VIP database). Trials will be searched from their inception to April 2022.

Participant or population: Patients diagnosed with cervical hypertension will be included in this study. Regardless of sex, age, education, and economic status.

Intervention: Tuina manipulation combined with conventional Western medicine, or simply using Tuina manipulation.

Comparator: Conventional pharmacological therapy, no treatment, and placebo.

Study designs to be included: Randomized controlled trials.

Eligibility criteria: Combined with the minutes of the third China Symposium on cervical spondylosis and the guidelines for the prevention and treatment of hypertension in China, To formulate the diagnostic criteria of Cervical Hypertension:① Symptoms: neck and shoulder stiffness, upper arm pain and numbness, tinnitus or hearing loss, blurred vision, nausea and vomitingPalpitation, chest tightness, unstable walking, often accompanied by headache, dizziness, insomnia, mood changes, etc.② Signs: palpation of spinous processes and tenderness points near spinous processes, local muscle cords and nodules; neckLimited flexion and extension rotation; The indications of flexion and neck rotation test, intervertebral foramen compression test and brachial plexus traction test were positive.③ Imaging examination: X-ray and MRI can find that the physiological bending of cervical spine becomes shallow, straightened or reverse arch, and the spinous process deviatesSkew, widening of atlanto odontoid space, asymmetry of atlanto odontoid space, joint hyperplasia, narrowing of intervertebral foramen and intervertebral space, intervertebral discProtrusion, nerve root compression and spinal cord compression are consistent with the symptoms and signs of cervical spondylosis.④ The blood pressure rises, the pulse pressure difference is small, and the blood pressure fluctuation is related to the degree of cervical spondylosis.⑤ Taking conventional antihypertensive drugs has poor antihypertensive effect.

Information sources: PubMed, Embase, Web of Science, Cochrane Library, Chinese Clinical Trial Registry System, China Biomedical Literature Database (CBM), China National Knowledge Infrastructure (CNKI), Wan-Fang Database, and Chinese Scientific Journal Database(VIP database).

Main outcome(s): The primary outcome will be measured with the Total clinical efficiency. The secondary outcomes include the Systolic blood pressure,

Diastolic blood pressure, and Visual Analogue Scoring (VAS).

Quality assessment / Risk of bias analysis: The risk of bias for included studies will be assessed using the Cochrane collaboration tool. We will assess the following aspects of the study including sequence generation, allocation sequence concealment, blinding of participants and staff, outcome assessors, incomplete outcome data, selective outcome reporting, and other sources of bias. There are three levels of risk of bias, namely low risk, high risk, and unclear. If information is unclear, we will attempt to contact the article author for more information. Cochrane collaboration tool.

Strategy of data synthesis: RevMan 5.4 software was applied to combine effect sizes and test for heterogeneity. For dichotomous data, the OR and 95% CI were used as effect analysis statistics; for measurement data, the mean difference and 95% CI were used as effect analysis statistics. The $\chi 2$ test was used to determine the heterogeneity by I2 and P values. When I2 was less than 50% and $P > 0.1$, it indicated that there was no heterogeneity or less heterogeneity among the studies, and the fixed-effect model was applied; when I2 was $\geq 50\%$ and $P \leq 0.1$, it indicated that there was more heterogeneity among the studies and the source of heterogeneity was analyzed and the random-effect model was applied. When the number of included studies was >10, a funnel plot was used for publication bias analysis.

Subgroup analysis: If necessary subgroup analyses were performed based on differences in interventions, controls, outcome measures, etc.

Sensitivity analysis: When sufficient data are available, sensitivity analyses will be performed to test the robustness of the main results, including assessing the quality of the methodology, the quality of the study, and the effects of sample size and missing data.

Country(ies) involved: China.

Keywords: Tuina, cervical hypertension, meta-analysis, systematic review.

Contributions of each author:

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