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**None declared.**

# Acupuncture-related Therapies for the Post-stroke Cognitive Impairment Patients: A Protocol for Systematic Review and Network Meta Analysis

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**Review question / Objective:** **To compare and rank the clinical effects of different acupuncture and acupuncture-related therapies on patients with post-stroke cognitive impairment.**
**Eligibility criteria:** **The interventions in the treatment group were all types of acupuncture-related therapies, including acupuncture alone, electroacupuncture, warm acupuncture, auricular acupuncture, or a combination of acupuncture and medication; the control group was all types of western medications that could improve cognitive function (e.g., donepezil hydrochloride, nimodipine, etc.), or a comparison between all types of acupuncture-related therapies. At least one of the following outcome indicators was required: Effectiveness Rate, Mini-Mental State Examination (MMSE), Alzheimer's Disease Assessment Scale-Cognitive section (ADAS-cog).**

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 December 2021 and was last updated on 25 December 2021 (registration number INPLASY2021120116).

## INTRODUCTION

**Review question / Objective:** **To compare and rank the clinical effects of different acupuncture and acupuncture-related therapies on patients with post-stroke cognitive impairment.**

**Condition being studied:** **The incidence of stroke in China has been increasing year by year with the continuous improvement of medical care, as the life expectancy in China is increasing year by year, and the aging of the population, stroke has become one of the major causes of disability and death in China. Post-stroke cognitive**

impairment (PSCI) is a common post-stroke complication. About 1/3 of stroke patients experience post-stroke cognitive impairment, and the high disability rate of PSCI reduces patients' quality of life, ability to perform activities of daily living, mental health status, and significantly increases the burden of disease on families and society. side effects. In China, acupuncture has a long history of application in the treatment of brain diseases, with unique efficacy, ease of operation, and few adverse effects. There is abundant evidence that acupuncture has satisfactory efficacy in the treatment of vascular dementia, Parkinson's disease, and depression, and it is used in the treatment of ischemic stroke, which can effectively improve symptoms such as limb hemiparesis in stroke patients; in addition, the results of the latest reticulation meta-analysis showed that among the many of complementary alternative therapies, acupuncture may be the best and safer therapy to improve cognitive function in AD patients. Our aim was to evaluate the efficacy of various acupuncture methods in patients with post-stroke cognitive impairment using the Network Meta-Analysis (NMA) method, with the aim of providing evidence-based medical evidence for choosing the best acupuncture option for patients with post-stroke cognitive impairment.

## METHODS

**Participant or population:** Patients were required to have passed the acute phase with clear diagnostic criteria for diagnosis of post-stroke cognitive impairment.

**Intervention:** The interventions in the treatment group were various types of acupuncture-related therapies, including simple acupuncture, electroacupuncture, warm acupuncture, auricular acupuncture, or a combination of acupuncture and medication.

**Comparator:** The control group was various types of western medications that could improve cognitive function (e.g., donepezil hydrochloride, nimodipine, etc.), or a comparison between various types of acupuncture-related therapies.

**Study designs to be included:** Randomized controlled trials (RCTs).

**Eligibility criteria:** The interventions in the treatment group were all types of acupuncture-related therapies, including acupuncture alone, electroacupuncture, warm acupuncture, auricular acupuncture, or a combination of acupuncture and medication; the control group was all types of western medications that could improve cognitive function (e.g., donepezil hydrochloride, nimodipine, etc.), or a comparison between all types of acupuncture-related therapies. At least one of the following outcome indicators was required: Effectiveness Rate, Mini-Mental State Examination (MMSE), Alzheimer's Disease Assessment Scale-Cognitive section (ADAS-cog).

**Information sources:** The following databases were searched by computer: PubMed, EMBASE, Cochrane Library, CBM, CNKI, Wanfang data and VIP, and the search time was from the date of creation to December 01, 2021.

**Main outcome(s):** Effectiveness Rate, Mini-Mental State Examination (MMSE), Alzheimer's Disease Assessment Scale-Cognitive section (ADAS-cog).

**Quality assessment / Risk of bias analysis:** Two researchers evaluated the included studies in accordance with the bias risk assessment tool recommended in the Cochrane Handbook 5.1.

**Strategy of data synthesis:** Statistical analysis was performed using RevMan 5.4, Stata 15.0, and WinBUGS 1.4.3 software. Statistical data were analyzed using the ratio (OR) as the efficacy statistic; measurement data were expressed as weighted mean difference or standardized mean difference (SMD). All effect sizes were expressed as 95% confidence intervals (95% CI). (1) After risk bias evaluation by two investigators, risk bias evaluation was plotted using RevMan 5.4;

(2) A reticulated relationship plot was drawn using Stata15.0 to determine the direct and profile comparison relationships between the interventions. (3) Traditional pair-wise meta-analysis was performed using Stata15.0 to compare the strengths and weaknesses of the two interventions in all original studies with direct comparisons; (4) Mesh Meta-analysis using WinBUGS 1.4.3; non-consistency test using the node-split model; if there is no statistical difference (P > 0.05), consistency model is used for analysis; conversely, inconsistency model was used for the analysis. The potential scale reduced factor (PSRF) reflects the convergence, and when the PSRF is close to 1 or equal to 1, it means that the convergence efficiency has reached a good level, and the conclusion of the consistency model analysis has high confidence. (5) Mesh Meta-analysis using WinBugs1.43 program; the 95% confidence interval (95% CI) of inconsistency factors (IF) was applied to judge the consistency of the closed-loop, and for the closed-loop, if the 95% CI of IF value contains 0, it indicates that the direct and indirect evidence are consistent, otherwise, it indicates that there is inconsistency is more likely. (6) Funnel plots were drawn using the Stata 15.0 program to determine whether there was evidence of small sample effects in the included literature. (7) The surface under the cumulative ranking curve(SUCRA) was generated using STATA15.0 to show the SUCRA scores for all interventions, with higher SUCRA scores implying higher treatment rank.

**Subgroup analysis:** We perform subgroup analysis based on different outcome indicators.

**Sensitivity analysis:** The main methods of sensitivity analysis are excluding low-quality studies, using different statistical methods models to analyze the same data, etc.

**Language:** The language of the publication is limited to Chinese or English.

**Country(ies) involved:** China.

**Keywords:** Acupuncture; Post-stroke Cognitive Impairment(PSCI); Network Meta Analysis(NMA).

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