INPLASY

Acupuncture combined with repetitive transcranial magnetic stimulation for the treatment of post-stroke depression: a systematic evaluation and Meta-analysis based on a randomised controlled trial

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ADMINISTRATIVE INFORMATION

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 21 March 2024 and was last updated on 21 March 2024.

INTRODUCTION

*R*eview question / Objective The objective of this study was to systematically evaluate the effectiveness of combining acupuncture with repetitive transcranial magnetic stimulation (rTMS) for the treatment of post-stroke depression.

Condition being studied The diagnostic criteria for inclusion were based on those established by the Chinese Association of Cerebrovascular Diseases. Patients with confirmed cerebral hemorrhage or cerebral infarction through CT examination were eligible. The patients' age, gender, disease duration, and race were not restricted, but baseline data were comparable. The diagnostic criteria outlined in the Chinese Psychiatric Classification Scheme and Diagnostic Criteria were alsofollowed.

METHODS

Search strategy A comprehensive computerized search was conducted across multiple databases, including China Knowledge Network (CNKI), Wanfang Database, VIP Database, PubMed, Embase, Cochrane Library, and China Biology Medicine disc (CBMD), to identify relevant randomized controlled trials investigating the efficacy of acupuncture combined with repetitive transcranial magnetic stimulation (rTMS) for post-stroke depression (PSD). The search covered both Chinese and English languages and encompassed the period from the establishment of the databases to December 2023. The search strategy involved combining subject terms with free-text keywords. For Chinese databases, the search terms included "stroke," "cerebral infarction," "cerebral hemorrhage," "post-stroke depression," "depression," "repetitive transcranial magnetic

stimulation," and "acupuncture." The English search terms included "post-stroke depression," "acupuncture," and "repetitive transcranial magnetic stimulation." Supplementary Tables S1 provide detailed information on the search strategies.

Participant or population The diagnostic criteria for inclusion were based on those established by the Chinese Association of Cerebrovascular Diseases. Patients with confirmed cerebral hemorrhage or cerebral infarction through CT examination were eligible. The patients' age, gender, disease duration, and race were not restricted, but baseline data were comparable. The diagnostic criteria outlined in the Chinese Psychiatric Classification Scheme and Diagnostic Criteria were also followed.

Intervention The experimental group received acupuncture in combination with repetitive transcranial magnetic stimulation.

Comparator The control group received treatment with western drugs alone.

Study designs to be included Randomized controlled trials (RCTs) were included, whether blinded or unblinded, and publications in Chinese and English were considered.

Eligibility criteria (1) non-randomised controlled trials such as literature reviews and case reports; (2) repetitive publication of data from the same trial; (3) incomplete original information; (4) animal experiments; and (5) lack of primary outcome indicators.

Information sources China Knowledge Network (CNKI), Wanfang Database, VIP Database, PubMed, Embase, Cochrane Library, and China Biology Medicine disc (CBMD).

Main outcome(s) The primary outcome indicators included the Hamilton Depression Scale (HAMD) and the Self-Depression Scale (SDS).

Additional outcome(s) Clinical effectiveness, Chinese medicine symptom scores, Pittsburgh Sleep Quality Inventory (PSQI) scores, National Institutes of Health Neurological Impairment Rating Scale (NIHSS), cognitive functioning measured by scores on the Mini-Mental State Examination (MMSE) and the Montreal Cognitive Assessment (MoCA), and the Ability to Perform Daily Living Scale (ADL). Inflammatory indicators such as interleukin 6 (IL-6), tumor necrosis factor alpha (TNF-α), interleukin 1β (IL-1β), as well as

neurotransmitters including 5-hydroxytryptamine (5-HT) and brain-derived neurotrophic factor (BDNF) were alsoassessed.

Quality assessment / Risk of bias analysis The methodological quality of the included literature was assessed using the Cochrane Collaboration's Risk of Bias Assessment Tool. This tool evaluates various aspects, including the generation of randomized sequences, allocation concealment, blinding of investigators and subjects, blinding of outcome evaluators, completeness of data, selective reporting, and other potential sources of bias. Each evaluation criterion was categorized as "high risk," "low risk," or "unclear." Two researchers independently performed these assessments to evaluate the risk of bias in the included studies. Any discrepancies in the evaluations were resolved through discussion or consultation with a third party.
The quality of the literature included in this study was evaluated using the Modified Jadad Rating Scale. This scale focuses on four key aspects: (1) generation of random sequence, (2) concealment of randomization, (3) use of double-blind methodology, and (4) description of participant withdrawal and exclusion details. The total score for evaluation ranges from 0 to 7, with studies scoring 3 or below considered low-quality, and those scoring 4 or above considered high-quality.

Strategy of data synthesis Based on the literature inclusion and exclusion criteria, literature screening and cross-checking were conducted independently by 2 researchers, who included literature that met the criteria by reading the title, abstract and full text, and cross-checked the results of the included trials, and if there were any disagreements, they had to be resolved by discussion between the two of them, and if there were any disagreements, they were resolved by discussion with a third party. Data were extracted from the included studies using an Excel spreadsheet, which included: author's name, year of publication, basic information about the included studies, interventions, and outcome indicators.

Subgroup analysis None.

Sensitivity analysis The funnel plot of clinical validity demonstrates approximate symmetry, suggesting low publication bias. Please refer to Figure 13 for a visual representation. Additionally, further analyses using Egger's test (Figure 14) reveal that the study points are evenly distributed on both sides of the line, with a resulting p-value of 0.583, indicating no significant publication bias.

Country(ies) involved China.

Contributions of each author
Author 1 - Keyuan Xiao - Writing – original draft, Supervision, Project administration, Methodology.
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