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Effect of motor imagery training on recovered motor function in stroke patients: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

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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 23 July 2023 and was last updated on 23 July 2023.

INTRODUCTION

Review question / Objective Stroke survivors often experience various types of functional impairments, with motor dysfunction being the most prominent. Motor deficits significantly limit patients' activities of daily living, reduce their social participation, and lower their overall quality of life. Improving motor function is essential in helping patients enhance their abilities in daily activities, elevate their quality of life, and reintegrate into society.

Research shown that motor imagery training can positively improve motor function in stroke patients. However, significant variations exist among these studies, such as differences in the disease duration of stroke patients included, the timing and content of motor imagery training interventions, and the lack of standardized protocols. This has hindered the establishment of a unified and optimized clinical model for motor imagery training, limiting its clinical guidance for promoting post-stroke motor function recovery.

Condition being studied This study employs an evidence-based medicine approach to rigorously evaluate and analyze the intervention effects of motor imagery training on mid-term motor function recovery in stroke patients. The aim is to provide more reliable evidence from evidence-based medicine to guide clinical practice and develop effective and widely applicable motor imagery training protocols for post-stroke rehabilitation.

METHODS

Participant or population Stroke patients.

Intervention Motor imagery training.

Comparator The control group used conventional rehabilitation therapy (e.g. physiotherapy, occupational therapy, traditional rehabilitation therapy, etc.); the experimental group used motor imagery training + conventional rehabilitation therapy.CRT (e.g. physiotherapy, occupational therapy, traditional rehabilitation therapy, etc.) was

used in the control group; MIT+CRT was used in the experimental group.stroke patients.

Study designs to be included andomized controlled trail RCT.

Eligibility criteria 1. Inclusion criteria:1) Stroke patients aged ≥18 years, those included in the Chinese literature conformed to the diagnostic criteria for stroke adopted by the Fourth National Cerebrovascular Conference of the Chinese Medical Association in 1995, and those included in the English literature conformed to the diagnostic criteria for stroke established by WHO in 1978, and the diagnosis was confirmed by cranial CT or MRI; 2) first onset of disease; 3) motor dysfunction of the upper limbs and lower limbs; 4) no cognitive dysfunction ;2. exclusion criteria:1) Inability to perform MIT; 2) Tests combined with other non-CRT; 3) Non-Chinese and English literature; 4) Repeatedly published literature; 5) Primary literature from which data could not be extracted; (6) Reviews, meta-analyses, conferences, master's and doctoral theses; (7) Literature for which full text is not available.

Information sources The following bibliographic databases were searched without restriction on language or publication year or publication type: PubMed, The Cochrane Library, Web of Science, EBSCO (MEDLINE, APA PsycInfo, ERIC), Embase, Scopus, and ProQuest, from inception to 1 March 2023.

Main outcome(s) Primary outcome of motor function recovery in stroke patients.

Quality assessment / Risk of bias analysis Three reviewers will independently assess the quality of the included literature, using the risk of bias assessment tool for parallel design trials (ROB 2) recommended by the Cochrane Handbook, covering the randomization process Deviations from established interventions Missing outcome data Outcome measures Outcome selection is reported in five domains, and an overall risk of bias assessment of the reported outcomes of individual studies is made based on the evaluation of several signal questions set within each domain.

Strategy of data synthesis Data from the post-test measurements of the intervention and control groups in the included randomized controlled studies were used and entered into RevMan 5.2 software for data analysis. The outcome evaluation indicators were all continuous variables, and the effect indicators were expressed as standard weighted mean differences (SMD) and their 95% confidence intervals. Heterogeneity was evaluated by Cochrane Q test and I 2 statistic. When $p < 0.1$ or I 2> 50% indicates statistical heterogeneity, the random effect model is used to calculate the results, otherwise the fixed effect model is considered.

Subgroup analysis If the included studies had high heterogeneity, we performed subgroup analyzes to explore differences such as age and intervention time.

Sensitivity analysis After excluding a lowquality study, the combined effect size was re-estimated and compared with the results of the Meta-analysis before exclusion to explore the extent of the effect of the study on the combined effect size and the robustness of the results. If the results did not change significantly after exclusion, it indicates that the sensitivity is ow and the results are more robust and credible; on the contrary, if large differences or even diametrically opposite conclusions are obtained after exclusion, it indicates that the sensitivity is high and the robustness of the results is low, and great care should be taken when interpreting the results and drawing conclusions, suggesting the existence of important and potentially biased factors related to the effects of the intervention, and the source of the controversy needs to be further clarified.

Language restriction Chinese; English.

Country(ies) involved China.

Keywords Motor imagery training; stroke patients; motor function; upper limbs; lower limbs.

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