INPLASY

Neural Mobilization for Reducing Pain and Disability in Patients with Lumbar Radiculopathy: A Protocol for Systematic Review and Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - TSUM.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2023100039

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 October 2023 and was last updated on 10 October 2023.

INTRODUCTION

Review question / Objective To investigate the treatment effect of neural mobilization on pain intensity and disability in the lumbar radiculopathy population.

Rationale Lumbar radiculopathy is a condition caused by nerve root compression, often referred to as sciatica due to its hallmark symptom of radiating leg pain. Neural mobilization (NM) is a manual therapy technique aimed at improving the movement of neural structures within tissues. Although several studies have shown the potential of NM in treating lumbar radiculopathy, its effectiveness can vary, prompting the need for a meta-analysis to assess its impact on pain relief and disability reduction compared to other interventions.

Condition being studied The PICO (population, intervention, comparison, outcome) setting of the current meta-analysis included: (1) P: human participants with lumbar radiculopathy; (2) I: the NM technique; (3) C: controls that did not employ NM; and (4) O: changes in pain scores and disability.

METHODS

Search strategy Two authors made independent electronic searches in the PubMed, Cochrane library, and ClinicalTrials.gov with keyword of ("neural mobilization techniques" OR "neurodynamic mobilization techniques" OR "nerve mobilization techniques") AND ("lumbar radiculopathy" OR "sciatica") through the earliest record to October 2023.

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Participant or population Patients with lumbar radiculopathy.

Intervention Neural mobilization.

Comparator Control.

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

Eligibility criteria (1) RCTs investigating pain intensity and disability before/after NM; (2) enrolling adults diagnosed with lumbar radiculopathy and/or sciatica based on radiography, reproducing radiated symptoms in the leg with a passive straight leg raise test or slump test; (3) the intervention groups were treated with NM alone or NM plus other treatments; (4) at least one reference group using treatments other than NM.

Information sources Two authors made independent electronic searches in the PubMed, Cochrane library, Pedro and ClinicalTrials.gov with keyword of ("neural mobilization techniques" OR "neurodynamic mobilization techniques" OR "nerve mobilization techniques") AND ("lumbar radiculopathy" OR "sciatica") through the earliest record to October 2023.

Main outcome(s) The primary outcomes were the changes in the pain scores following NM or control regimens. Secondary outcome: The secondary outcomes were the changes in the disability following NM or control regimens.

Data management Two independent authors extracted data from the recruited studies, encompassing demographic data, study design, details of NM and control regimens, and values of the outcomes.

Quality assessment / Risk of bias analysis To assess the methodological quality of the studies we included, we utilized the Cochrane risk of bias tool for randomized trials (version 2, RoB 2, London, United Kingdom).

Strategy of data synthesis To address the variation in treatment protocols among the included studies, we employed a random-effects model using Comprehensive Meta-Analysis software (version 3, Biostat, Englewood, NJ, United States) to pool effect sizes. Statistical significance was defined as a two-tailed p-value of less than 0.05. We utilized Hedges' g as a metric to quantify study outcomes. To assess the degree of heterogeneity across the studies, we also utilized I2 and Cochran's Q statistics.

Subgroup analysis Subgroup analyses based on the NM regimens was performed. Meta-regressions of the treatment effects on total treatment duration and session per week were conducted to see if the pain and disability relieving effect of NM correlated with the aforementioned parameter.

Sensitivity analysis To confirm the robustness of the meta-analysis, the sensitivity analyses were performed using one-study removal method to see if there was a significant change in the summary effect size after removing a particular trial from the analysis.

Language restriction No language limit.

Country(ies) involved Taiwan.

Keywords sciatica, radiculopathy, manual therapy, physical therapy, peripheral nerve injuries.

Contributions of each author

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