INPLASY PROTOCOL

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Corresponding author:
Ke-Vin Chang

kvchang011@gmail.com

Author Affiliation:
Department of Physical Medicine and Rehabilitation, National Taiwan University Hospital, Bei-Hu Branch, Taipei, Taiwan.

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Conflicts of interest:
None declared.

Muscle Energy Technique on Reducing Pain and Disability for Non-Specific Neck Pain: a Study Protocol for a Systematic Review and Meta-analysis

Chang, KV[1].

Review question / Objective: **To investigate the treatment effect of the muscle energy technique (MET) on pain intensity and disability in the non-specific neck pain population.**
Eligibility criteria: **(1) RCTs investigating pain intensity and disability before and after MET; (2) enrolling adult and adolescent diagnosed with NSNP based the area of pain or induced pain by palpation of cervical region muscle; (3) the intervention groups treated with MET alone or MET plus others treatment; (4) at least one reference group using treatments not including MET.**
Information sources: **Two authors will make independent electronic searches in PubMed, Cochrane library, Pedro and ClinicalTrials.gov with keyword of ("muscle energy technique" OR "post-isometric relaxation" OR "reciprocal inhibition") AND ("mechanical neck pain" OR "non-specific neck pain" OR "mechanical cervical pain" OR "non-specific cervical pain" OR "trigger points in neck region").**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 April 2023 and was last updated on 28 April 2023 (registration number INPLASY202340104).

INTRODUCTION

Review question / Objective: **To investigate the treatment effect of the muscle energy technique (MET) on pain intensity and disability in the non-specific neck pain population.**

Rationale: **The cause of neck pain is often difficult to identify, with non-specific neck pain (NSNP) being diagnosed when there is no known pathological basis. NSNP is often caused by postural and mechanical factors. MET is a manual therapy technique used by physical therapists to alleviate pain and improve musculoskeletal function. Studies have shown positive effects of MET on relieving spinal pain, but no meta-**

analysis has specifically analyzed its effect on relieving pain and disability of NSNP.

Condition being studied: The PICO (population, intervention, comparison, outcome) setting of the current meta-analysis includes: (1) P: human participants; (2) I: muscle energy technique; (3) C: other treatment; and (4) O: changes in pain scores and disability.

METHODS

Search strategy: Two authors will make independent electronic searches in PubMed, Cochrane library, and ClinicalTrials.gov with keyword of ("muscle energy technique" OR "post-isometric relaxation" OR "reciprocal inhibition") AND ("mechanical neck pain" OR "non-specific neck pain" OR "mechanical cervical pain" OR "non-specific cervical pain" OR "trigger points in neck region").

Participant or population: Patients with NSNP.

Intervention: MET.

Comparator: Controlled treatment.

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

Eligibility criteria: (1) RCTs investigating pain intensity and disability before and after MET; (2) enrolling adult and adolescent diagnosed with NSNP based the area of pain or induced pain by palpation of cervical region muscle; (3) the intervention groups treated with MET alone or MET plus others treatment; (4) at least one reference group using treatments not including MET.

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Main outcome(s): The primary outcomes are the changes in the pain scores following MET or controlled regimens. The secondary outcomes are the changes in the disability following MET or control regimens.

Data management: Two independent authors will extract data from the recruited studies, encompassing demographic data, study design, details of MET and control regimens, and values of the outcomes.

Quality assessment / Risk of bias analysis: To investigate the methodological quality of the included studies, we will use the Cochrane risk of bias tool for randomized trials (version 2, RoB 2, London, United Kingdom), which composes six major items for evaluating study quality.

Strategy of data synthesis: The effect sizes will be pooled by using a random-effects model on Comprehensive Meta-Analysis software (version 3, Biostat, Englewood, NJ, United States). A two-tailed p value of less than 0.05 will be considered statistically significant. We will use Hedges' g to quantify the study outcomes. I square and Cochran's Q statistics will be employed to evaluate the degree of heterogeneity across studies.

Subgroup analysis: Subgroup analyses based on the MET regimens will be performed.

Sensitivity analysis: The sensitivity analyses will be performed using one-study removal method.

Language restriction: No limitation of languages.

Country(ies) involved: Taiwan.

Keywords: Neck pain, rehabilitation, manual therapy, physical therapy.

Contributions of each author:

Author 1 - Ke-Vin Chang.
Email: kvchang011@gmail.com