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Study Design: Systematic Review

Abstract: The aim of this study was to describe and update current knowledge of manual therapy accuracy in treating cervical and lumbar radiculopathy, to identify the limitations in current studies, and to suggest areas for future research. The study was conducted according to PRISMA guidelines for systematic reviews. A comprehensive literature review was conducted using PubMed and Web of Science databases up to April 2020. The following inclusion criteria were used: (1) presence of radiculopathy; (2) treatment defined as manual therapy (i.e., traction, manipulation, mobilization); and (3) publication defined as a Randomized Controlled Trial. The electronic literature search resulted in 473 potentially relevant articles. Finally, 27 articles were accepted: 21 on cervical (CR) and 6 in lumbar radiculopathy (LR). The mean PEDro score for CR was 6.6 (SD 1.3), and for LR 6.7 (SD 1.6). Traction-oriented techniques are the most frequently chosen treatment form for CR and are efficient in reducing pain and improving functional outcomes. In LR, each of the included publications used a different form of manual therapy, which makes it challenging to summarize knowledge in this group. Of included publications, 93% were either of moderate or low quality, which indicates that quality improvement is necessary for this type of research.

NIH Risk of Bias Score: 7/8 (Low Risk of Bias)

Key Findings of the Study:

1. The authors followed study design and intent consistent with their PROSPERO research proposition and used an adequate PRISMA RCT search strategy.
2. The studies included in this SR had an averaged PEDRO score of 6.65, representing low to moderate overall quality, limiting confidence in findings.
3. Definitions, parameters, indications, and executions of manual therapy techniques for those with CR or LR were heterogenous, limiting ability to adequately study and make conclusions on descriptive accuracy and true effect in functional outcomes.
4. Many studies (in particular those studying LR) included diverse and multimodal strategies with limited descriptive characteristics, making it difficult to understand isolated effect of manual therapy on primary outcomes.
5. For those with LR, exercise programs included activation of “core muscles”, spinal mobilization, and traction may be best. Those with acute, moderate-severe impairments seemed to benefit most from an active trunk exercise program, and those with more chronic symptoms seemed to benefit from flexion-distraction oriented exercises. Groups who received a combination of exercise and manual therapy had superior outcomes compared to those who received manual therapy alone.
6. For those with CR, exercise programs included deep neck flexor stabilization, scapular retraction, stretching, active range of motion, and isometric exercises around the shoulder girdle. CR groups who received a combination of exercise and manual therapy had functional outcomes that were superior to those receiving manual therapy alone.
7. Comparison of exercise programs was not the intent of this study, and therefore is improper to draw conclusions on exercise program effectiveness for those with radiculopathic conditions.
8. The most common manual therapy techniques included appears to be mechanical traction but based on available literature and findings of this review, a multimodal treatment approach with traction, spinal mobilizations, and exercise appears to optimize patient reported outcomes.

Reviewer Summary:

Due to a combination of multimodal interventions, poor descriptions of manual therapy performed, and limited consistent use of primary outcome measures for CR & LR, it is difficult to understand the true role of manual therapy for those with radiculopathic conditions. It appears including traction of some form with exercise, spinal mobilization, and avoiding passive modalities may be best for patients with radiculopathic presentations. There does not appear to be a superior form of manual therapy for those with CR or LR, as spinal mobilizations, manipulations, manual/mechanical traction, and neural mobilizations were included in this review with a seemingly positive impact on functional outcomes. It appears that manual therapy techniques, along with an exercise program, should be included for those with radiculopathic conditions to maximize functional outcomes. Future directions for manual therapy and radiculopathy research must include better descriptive characteristics on the indication, execution, and post-treatment response. Additionally, standardization of exercise programs is recommended to better understand effects of manual therapy on functional outcomes for those with CR and LR.