

Efficacy of Combined Conservative Treatments Compared to Isometric Exercises Alone in patients with Cervical Radiculopathy: A Randomized Controlled Trial

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Cervical radiculopathy (CR) is characterised by nerve root compression, resulting in pain, sensory deficits, and functional limitations. Although CR can be managed surgically, conservative treatment remains the first-line approach. Given that CR affects multiple structures, a treatment approach that comprehensively targets each component is essential. There is limited evidence directly comparing the effectiveness of mechanical cervical traction, neural mobilisation, and isometric exercises with isometric exercises alone. Therefore, this study aimed to evaluate the efficacy of adding neural mobilisation and mechanical cervical traction to isometric exercises in managing CR, compared to isometric exercises alone. A single-blind randomised controlled trial involving 46 participants experiencing unilateral radiating neck pain lasting more than four weeks assigned them equally to either an experimental group (receiving neural mobilisation, cervical traction, and isometric exercises) or a control group (receiving isometric exercises only). Interventions were administered twice weekly for six weeks. Pain intensity, neck disability and cervical Range of Motion (ROM) were measured using the Visual Analogue Scale (VAS), Neck Disability Index (NDI), and universal goniometer, respectively. Statistical analysis was performed using SPSS V27.0 following intention-to-treat analysis principles. Missing data were addressed through multiple imputation. Baseline characteristics were comparable between groups ($p > 0.05$). Both groups demonstrated significant post-treatment improvements ($p < 0.05$). However, the experimental group showed greater reductions in VAS scores (median reduction: 2.8 vs. 1.4) and NDI scores (median reduction: 14 vs. 8), as well as significantly greater improvements in cervical ROM ($p < 0.05$), except for cervical rotation, which showed no significant difference ($p > 0.05$). These findings suggest that integrating mechanical cervical traction and neural mobilization with isometric exercises significantly improves pain, disability, and cervical mobility in patients with CR. Further research is needed to enhance outcomes related to cervical rotation.

Keywords: Cervical radiculopathy, neural mobilization, mechanical cervical traction, isometric exercises.