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Impact of a Structured Multimodal Physiotherapy (MENT) Protocol on Pain, Grip Strength, and Function in Cervical Radiculopathy: A Pilot RCT

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ABSTRACT

Introduction: Cervical radiculopathy is a common neuromusculoskeletal disorder that causes pain in the neck that spreads to the upper limb. It is often accompanied by changes in sensation, less grip strength, and limitations in function. Conventional physiotherapy is commonly used for conservative management; however, increasing attention has been directed toward structured multimodal approaches that integrate pain modulation, neuromuscular control, neural mobility, and postural retraining.

Aim: To evaluate the preliminary effectiveness of a Motor control training, Ergonomic retraining, Nerve mobilisation and TENS+hot pack (MENT) protocol on pain intensity, grip strength, and functional ability in individuals with cervical radiculopathy.

Materials and Methods: A pilot randomised controlled trial was conducted involving 16 individuals diagnosed with cervical radiculopathy. Participants were randomly allocated into two equal groups: the experimental group (n=8), which received a structured multimodal intervention based on the MENT protocol, and the control group (n=8), which underwent conventional physiotherapy treatment. The intervention period lasted four weeks. Outcome measures were recorded at baseline and post-intervention using the Numeric Pain Rating Scale (NPRS) for pain intensity, the Patient-Specific Functional Scale (PSFS) for functional ability, and a handheld dynamometer for grip strength assessment.

Results: Following the intervention, both groups exhibited improvements; however, the experimental group achieved greater and more consistent gains. Pain intensity declined more substantially in the experimental group compared to the control group, accompanied by larger improvements in functional ability and grip strength. While inferential statistical analysis was not conducted due to the pilot nature of the study, the observed mean differences consistently favoured the MENT protocol over conventional physiotherapy.

Conclusion: The findings of this pilot study indicate that the MENT protocol is both feasible and potentially more effective than conventional physiotherapy in reducing pain, enhancing grip strength, and improving functional ability among individuals with cervical radiculopathy. To validate and expand upon these preliminary results, larger and adequately powered randomised controlled trials are required.

Keywords: Motor control exercise, Neck pain, Neural mobilisation, Physical therapy modalities, Rehabilitation.

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