

Effectiveness of Maitland mobilisation versus Conventional Physiotherapeutic Exercises on pain and function in patients with Cervical radiculopathy

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Abstract

Objective: To assess the effectiveness of Conventional Physiotherapeutic Exercises versus Maitland Mobilization on pain & function in patients with Cervical radiculopathy.

Material & methods: Total 60 subjects with neck pain were included for two weeks in this study and categorized into two groups: Group-A (N=30) & Group-B (N=30). Subjects in group-A were received Maitland mobilization & subjects in the group-B were received conventional physiotherapeutic exercises. Pain was measured using visual analog scale (VAS) and disabilities were measured by Neck disability index (NDI).

Result: The outcome of the current study demonstrates that conventional physiotherapeutic exercises (group B) are considerably more effective than Maitland mobilisation alone (group B) in reducing pain, improving NDI, muscular power, and functional activities.

Conclusion: When it comes to decreasing pain, disabilities and increasing range of motion in individuals with cervical radiculopathy, conventional physiotherapeutic exercises are more clinically successful than applying Maitland mobilisation alone.

Introduction

A condition known as cervical radiculopathy is characterised by nerve compression caused on by a prolapsed disc or bone spurs. Typically, this impingement causes sensory impairments, motor dysfunction, and discomfort or numbness in the neck and upper extremities. Cervical radiculopathy, sometimes known as a "pinched nerve," develops when a neck nerve becomes inflamed or gripped as it emerges from the spinal cord. This could result in numbness and weakened muscles, as well as pain that spreads into the arm and/or shoulder.¹

As we age, the spine undergoes "wear and tear" alterations like arthritis that frequently lead to cervical radiculopathy. The most frequent cause of it in younger people is a sudden accident that results in a bulging disc.

Muscles and the brain exchange messages via the nerves that pass through your cervical spine. These nerves' roots emerge from foramina, or apertures, in your vertebrae. Depending on where the affected roots are located, injury to these nerve roots might result in discomfort and a loss of sensation along the nerve's course into the arm and hand.²

The prevalence rate is currently 83 per 100,000 people, although it is anticipated to increase due to modern society's increased sedentarism lifestyles and greater workplace use of computer technology. The fifth decade is the most typically affected age group for cervical radiculopathy, and C6,C7 nerve roots are more frequently involved.³

The results of conservative treatment for cervical radiculopathy are encouraging. Therapeutic activities, manual therapies, and electrical modalities like IFT, TENS are available as treatment choices. The Maitland idea is a method for assessing, analysing, researching, and treating musculoskeletal diseases via manipulative therapy. In order to relieve pain and stiffness, Maitland's mobilisation technique involves applying passive and oscillatory movements to spine and vertebral joints. These movements are rated from 1 to 5. In Maitland's method, stretching exercises are also advised for the treatment of muscle spasm.⁴

Material And Method

A clinical trial with randomization was conducted. Subjects in group-A were received Maitland mobilization & subjects in the group-B were received conventional physiotherapeutic exercises. This study was carried out at the physiotherapy OPD of University Institute of Health Sciences CSJMU. Following the sequential sampling procedure, there were 30 samples in each group. It was agreed to conduct the study for two weeks, five days a week, for one session each day.

Inclusion criteria

Patients of both sex aged between 30 to 60 years with radiating pain to upper limb were selected for study and special tests like spurling test and distraction test were found to be positive on examination.

Exclusion criteria

Patients with severe muscle spasms, abnormal cervical spine curvature, Rheumatoid arthritis, Ankylosing spondylitis and radicular pain due to Carpal tunnel, Pronator teres syndromes etc. were excluded from the study.

Intervention program

Group – A: This group included 30 participants. Male and female individuals were included, and Maitland Mobilisation was administered to them for two weeks on a daily basis. A 10-minute session was provided overall, with each mobilisation lasting 2 minutes and being followed by a 30-second rest.

Group – B: This group included 30 participants. The study comprised both male and female patients, who underwent 2 weeks of conventional physiotherapeutic exercises. They were given ten repetitions of neck and shoulder joint active exercises in all directions. Flexors, extensors, side flexors, and rotators all received isometric exercises with 10 seconds hold. 10 repetitions were completed in one set overall, with a 5-second break in between each repetition. A 20-second hold was used to gently stretch the flexors, extensors, side flexors, and rotators. Electrical modalities like therapeutic ultrasound was administered for a total of 6 minutes at a power density of 1.5 W/cm² and a frequency of 1 MHz and intermittent cervical traction was given for 20 min with 1 min hold and 20 sec rest periods.

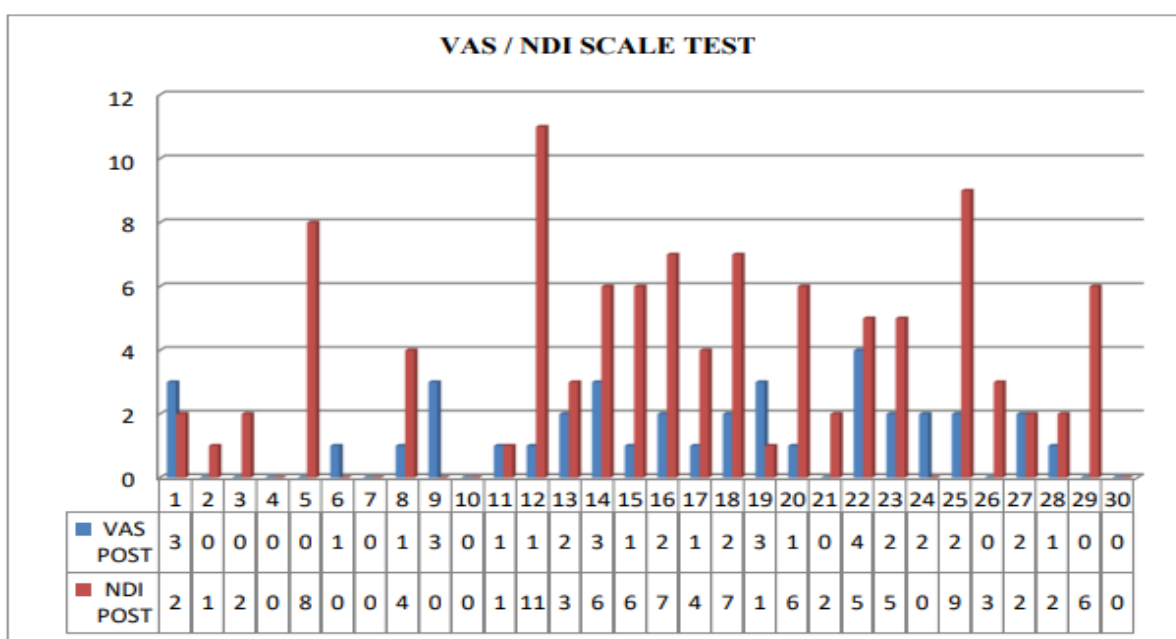
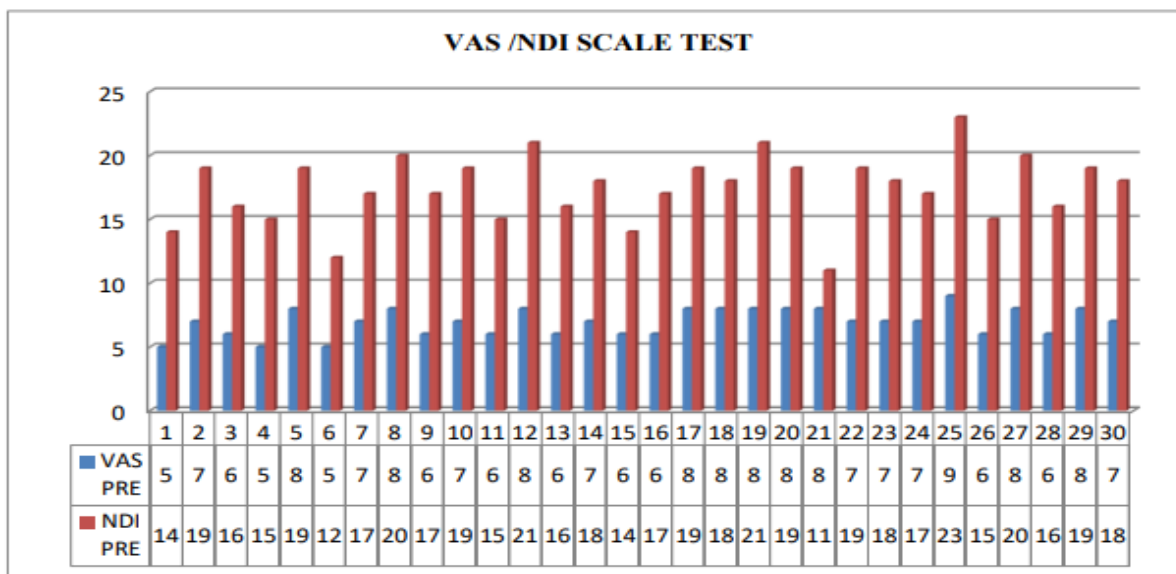
Pre And Post Test Measurement

During pre-test all clinical assessments were made using instruments like the Neck Disability Index (NDI) and Visual Analogue Scale (VAS) for Pain. After the test was completed and the data were analysed to determine the findings, the measurements were safely stored for further analysis. Following the two weeks of treatment period, post-test readings were taken on each individual, and the identical tools were utilised for the measurements. The findings were then calculated by comparing the readings to the pre-test readings.

Result

Data from both groups were collected, evaluated, and interpreted using the proper statistical tools. T-test was the statistical instrument utilised. Results from the conducted investigation were generated after the data were interpreted. The SPSS version was used to conduct the statistical analysis. To create graphs, tables, etc., Microsoft Word and Excel were utilised.

On comparing the both Group we concluded that Group B showed better results in terms of reducing pain, improving ROM and showed better results regarding NDI than Group A. VAS [$p=0.613>0.05$], Active ROM Flexion [$p=0.165>0.05$], Passive ROM Flexion [$p=0.938>0.05$], NDI [$p=0.452>0.05$], The findings of the current study demonstrate that compared to Maitland mobilisation alone (group A), standard physiotherapeutic exercises (group B) are substantially more successful at reducing pain, improving NDI, enhancing muscle power, and restoring functional abilities.



Discussion

The goal of the current study was to compare the effectiveness of traditional physiotherapeutic exercises with Maitland mobilisation techniques in the treatment of cervical radiculopathy. When examining the current study's outcome metrics, it was shown that using conventional therapy exercises rather than just Maitland mobilisation alone is more successful at reducing pain, enhancing range of motion, and improving ADLs.

KEUN SU LEE ET AL. [2017] conducted a study where the subjects were randomly assigned to one of the two groups of nine people each. Group I was the therapeutic exercise group and Group II was the group to which joint mobilization was applied in combination with therapeutic exercise. The pre-test included the VAS, NDI, ACROM, static balance ability, muscle tone of the upper trapezius and respiratory function. Therapeutic exercises involved enhancing mobility, stability and muscular strength of the neck, improving proprioception and performing re-education of movement and the intensity of exercises was adjusted according to the physical abilities of the individual. For joint mobilisation, Maitland Grade 3 and 4 were used depending on the subject's condition.

EMINE ASLAN TELCI AND AYSE KARADUMAN [2010] conducted a research on finding out the Effects of three different conservative treatments on pain, disability, quality of life and mood in patients with cervical spondylosis. A total of 60 patients diagnosed with cervical arthritis and who had suffered from neck pain for atleast 6 months were included in the study. The study continued from June 2007 to May 2009. The patients were randomised into three groups by the numbered envelopes method. Group I received active and passive physical therapy methods together. Group II patients received an active therapy program only. Group III received drug treatment from a physician. The results of this study, which focused on neck pain that radiates to the upper limb, are only applicable to this category. Future studies are therefore required to address these limitations by taking a large sample size with various phases of cervical pain and evaluating the long-term effects of such interventions. Like the majority of other studies, the current study also evaluated for short term benefits of conventional physiotherapeutic exercises in cervical pathology.

Conclusion

The research claimed that traditional physical therapy techniques are superior to the Maitland Mobilization alone for the management of cervical radiculopathy with regard to pain and neck movement-related function.

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