



## Original Article

## Effectiveness of Maitland and Mulligan Mobilization in Cervical Radiculopathy Patients

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## ABSTRACT

Cervical radiculopathy refers to a compression or inflammation of a cervical nerve from its point of origin in the spine, called the neuro-foramen. **Objective:** the objective of the study is to differentiate the effectiveness of Mulligan and Maitland mobilization in cervical radiculopathy. **Methods:** 200 patients were selected and divided by lottery method into two groups. In one group i.e., Group A Maitland mobilization and in group B Mulligan mobilization was given. Patients were followed till 2 weeks. **Results:** There were 124(62%) male and 76(38%) female cases in study. The average age in group-A and group-B was  $38.90 \pm 6.97$  years and  $42.07 \pm 7.03$  years, p-value 0.085. Before treatment the mean of pain in both group were calculated. So, in group-A was  $7.40 \pm 1.45$  and in group-B was  $7.63 \pm 1.27$  respectively, with insignificant difference. After treatment the mean pain in group-A was  $3.40 \pm 1.73$  and group-B was  $2.53 \pm 1.57$  respectively, P-value < 0.05 with significantly much less pain in group-B. The difference of pain represents in group-A and group-B was  $3.77 \pm 2.18$  and  $4.90 \pm 1.83$  while group A shows better results with, p-value < 0.05. Before treatment range of motion was restricted in all patients, while after treatment 80% of cases achieved normal range of movement in group-A while in group-B 92% cases achieved normal movement range. The improvement in both study groups was significantly higher at 2<sup>nd</sup> week of treatment, but in group B the improvement was higher when compared to group-A, p-value. **Conclusion:** The study concluded "Mulligan technique is much more effective than Maitland technique in terms of less pain and normal range of motion for cervical radiculopathy patients".

## INTRODUCTION

Cervical radiculopathy refers to a compression or inflammation of a cervical nerve from its point of origin in the spine, called the neuro-foramen. Some neck pain can occur for a long time and its pain may also be present in shoulder and arm whereas neck pain is a most common pathology that settled with in a couple of weeks or months. Pain, numbness or weakness in different areas of the arm or hand are the symptoms of cervical radiculopathy [1]. Lumbar radiculopathy occur at a much higher rate than cervical radiculopathy. 85 cases per 100,000 population are the annual incident rate of cervical radiculopathy [2]. Individuals with symptoms of cervical radiculopathy among a population-are at risk with an incidence rate of 1.79 per 1000 person-years [3]. The results of some studies have shown that cervical radiculopathy does not need

surgery, it normally treats with time. The participants of the two studies who treated non-surgically for cervical radiculopathy have revealed herniation of the disc have decreased in size on repeated scan after a certain time period [4, 5]. Different studies have shown excellent outcome for cervical radiculopathy treated with non-operative therapies [6, 7]. Prior outcomes from the study concluded that 65 % cervical radiculopathy patients can get significant benefit from cervical epidural steroid injection, then taking oral medications and physical therapies performing MWM (sustained movement to increase the joint mobility and decrease pain). Mulligan's techniques encompass accessory mobilization to a peripheral joint by physical therapist while the patient generate active movements simultaneously [9, 10]. In

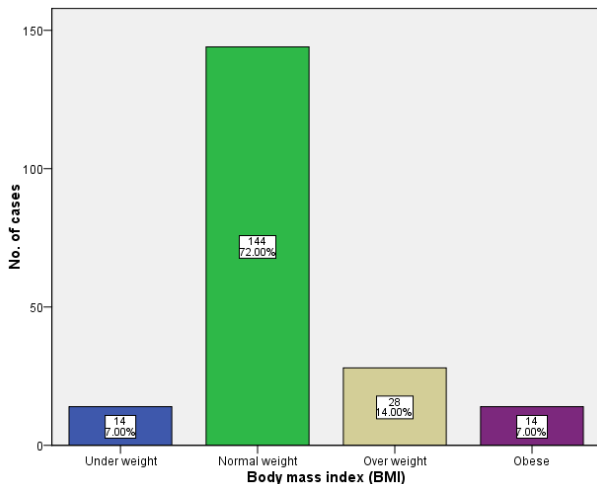
Maitland mobilization procedure small magnitude oscillating and distracting movements are used to prompt the mechanoreceptors that may suppress the forward communication of nociceptive stimuli at the spinal cord or brain stem levels [11, 12]. These techniques are helpful to maintain the nutrient supply and also causing movement of synovial fluid, and thus preclude static movement of swollen, degenerative and painful joint [13, 14]. A study was conducted on choice of therapist for management of cervical radiculopathy. The Maitland approach was used by 59% of the physiotherapists as compared to other techniques[15,16].

**METHODS**

It was the comparative analytical study. The data was obtained from Physiotherapy Department of PSRD, Lahore. To obtain the sample of 200 individual sampling technique of Non-Probability convenient was used. 200 individuals were participated in the study and the participants were divided by lottery method, placed individuals randomly into groups (Group A and Group B). Inclusion criteria was both genders, age 30 years or above and patients diagnosed with cervical radiculopathy. Exclusion criteria was patients with previous steroid intake history, history of neck surgery and having osteoarthritis or osteoporosis. One group (Group A) Maitland technique were applied and another group (Group B) Mulligan Technique were given and followed for 2 weeks. The variables were presented in the form of mean + SD. To compare the mean difference of variables T-test and Chi-square test was applied. P-value < 0.05 was taken as significant.

**RESULTS**

There were 124(62%) male and 76(38%) female cases in this study. The BMI is shown in figure 1. The mean difference of pain in each group was 3.77±2.18 and 4.90±1.83. Group A show better results than second group i.e., group-B respectively, p value<0.05 taken as significant (Table 1).



**Figure 1:** BMI of the participants

|                           | Study groups | Mean | S. D | p-value |
|---------------------------|--------------|------|------|---------|
| (Mean difference of Pain) | Group -A     | 3.77 | 2.18 | 0.033   |
|                           | Group -B     | 4.90 | 1.83 |         |
|                           | Total        | 4.33 | 2.07 |         |

**Table 1:** Comparison of mean pain in both study groups before and after 2 weeks treatment

|              | Range of motion | Before     | At 2 <sup>nd</sup> week | p-value |        |
|--------------|-----------------|------------|-------------------------|---------|--------|
| Study groups | Group -A        | Normal     | 0(0%)                   | 80(80%) | <0.001 |
|              |                 | Restricted | 100(100%)               | 20(20%) |        |
|              | Group -B        | Normal     | 0(0%)                   | 92(92%) | <0.001 |
|              |                 | Restricted | 0(100%)                 | 8(8%)   |        |

**Table 2:** Comparison of range of motion in both study groups before and after 2 weeks of treatment

**DISCUSSION**

Young et al conducted a research on cervical radiculopathy patients to reduce pain, function and disability of patients. He investigated to scrutinize the effects of physiotherapy management by exercise and manual therapy with cervical traction and without cervical traction. The chief outcome measure stated statistically significant change were present in Maitland and mulligan technique groups over time. The patients who followed for follow-up of 4 weeks showed necessary change in NPRS (n=47 (67%) and PSFS (n= 44 (64%)) [17-19]. On the contrary my study showed the mean difference of pain in Maitland technique group and Mulligan technique group was 3.77±2.18 and 4.90±1.83. Group A have shown better outcomes than another group, p-value < 0.05. Before treatment movement was restricted in all patients, while after treatment in group-A 80% cases achieved normal range of movement cases while in group-A 92% cases achieved range of movement [20].

**CONCLUSION**

The study concluded Mulligan technique is much more effective than Maitland technique for cervical radiculopathy patients in terms of pain and restricted ranges of neck movement.

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