

Outcomes of Mechanical Traction and Manual Therapy in C5-C6 Cervical Spondylosis for Radicular Pain Relief

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ABSTRACT

Aim: To compare the outcomes of manual therapy and mechanical traction for relieving radicular pain in patients of cervical spondylosis at C5-C6.

Methods: Fifty patients between ages 41 to 60 years, who agreed to participate and meeting the criteria were involved in the study and divided in to two equal groups. One group received mechanical cervical traction and second group received manual therapy. Manual therapy included grade I, II mobilization and hold relax of neck extensors. The baseline treatment was shortwave diathermy for 15 mins and ultrasonic therapy for 7 mins. Treatment duration was a session of 30 minutes. Treatment frequency was 3 sessions in one week and total 12 sessions were given. The questionnaire was filled at the start of treatment and then after completion of treatment by using Numeric pain rating scale (NPRS) for pain intensity in terms of assessment and analysis. Independent sample t-test was applied

Results: The results showed that p value for NPRS using mechanical traction was 0.027 which is less than level of significance 0.05. So, the findings of this study showed that mechanical traction is more effective than manual therapy for relieving radicular pain in cervical spondylosis at C5-C6

Conclusion : In patients with radicular pain in cervical spondylosis at C5-C6 mechanical traction has proven more effective than manual therapy.

Keywords: Radicular pain, mechanical cervical traction, numeric pain rating scale (NPRS)

INTRODUCTION

Cervical pain is a common problem and highly prevalent condition. It contributes majorly to workload of general population. Chronic neck pain is usually resistant to treatment therefore patients are often referred to multidisciplinary team especially physiotherapy rehabilitation so it is important to know that increased number of sessions of mechanical cervical traction benefit the patients and decrease the intensity of pain¹.

People between 20 to 50 usually presents with the symptoms of cervical spondylosis. Almost 80 percent of population at the age of 40 years have strong evidences of spine spondylosis on radiographic studies. The prevalence of occurrence of spondylosis is mainly relate with the genes history and also with the history of injury. The occurrence of cervical spondylosis is almost same in both gender, but the probability of severity is higher in males. The prevalence of radiculopathy was 3.5 out of 1000 subjects².

The spondylosis have mainly complications of lower backache, middle backache, or cervicogenic headache. Mostly pain of back and neck which is due to spondylosis is not much serious if there is no involvement of neurology, but some patients may

develop chronic back and neck pain issue because of this condition. Neural issues and compression are not seen in initial stages if it became worse than it may be present with the neurological sign and symptoms³.

Common complications includes cervicogenic headache, postural problem, vertigo/ dizziness, vertebral artery signs if it is compressed, brachial plexus compression, impingement syndrome, upper cross syndrome, tightness of ligamentous nuchae, motor and sensory deficit if spondylosis become more severe, lack of coordination, gait problem and occipital headache due to impingement on vessels of occipital area³.

Commonly cervical spondylosis is diagnosed by typical signs and symptoms in clinical practice by looking localized pain over the affected area, limited rom, paresthesia, numbness, muscle weakness and movement related neck pain, radiating pain, pain in posterior part of orbital area, painful temporal area, stiff cervical area, tingling sensation over shoulder, giddiness, vertigo and balance problem⁴.

For treatment usually NSAIDs, muscle relaxants, gabapentin and painkiller injections are used from medicine and anterior cervical discectomy, cervical laminectomy, laminoplasty and prosthetic intervertebral disc replacement was done in surgical context. In physical therapy hot and cold application, massage, cervical traction, cervical collar and

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exercises are used to improve muscle strength, endurance and joint range of motion are used⁵. The research gap which we found that the individual effectiveness of mechanical traction and manual therapy are proved but in comparison either which was best is a question mark. To sort out that quire, we selected these parameters. The rationale of study is to find out the outcomes of mechanical traction and manual therapy in C5-C6 cervical spondylosis for radicular pain relief, so that it will be proved beneficial as well as helpful in earlier recovery.

METHODOLOGY

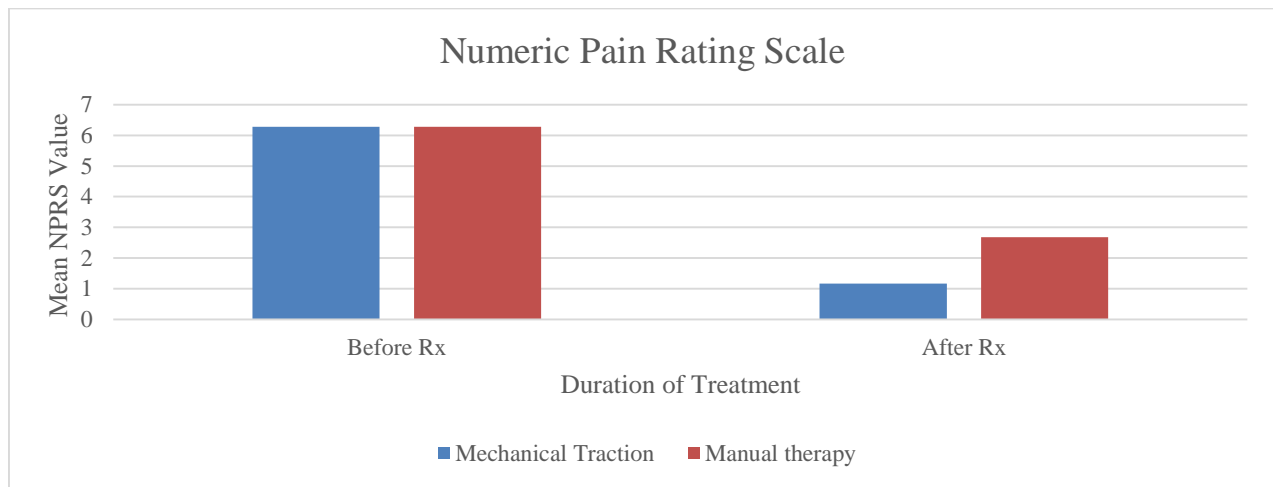
A quasi experimental study with convenient sampling on fifty diagnosed patients of C5-C6 cervical spondylosis with radicular symptoms between ages 41 to 60 years, who agreed to participate and meeting the criteria were involved in the study and divided in to two equal groups. One group received mechanical cervical traction and second group received manual therapy. Manual therapy included grade I, II mobilization and hold relax of neck extensors. The baseline treatment was shortwave diathermy for 15 mins and ultrasonic therapy for 7 mins. Treatment duration was a session of 30 minutes. Treatment frequency was 3 sessions in one week and total 12 sessions were given. The questionnaire was filled at the start of treatment and then after completion of treatment by using Numeric pain rating scale (NPRS) for pain intensity in terms of assessment and analysis.

Statistical analysis: The SPSS version 20 was used for data entry and analysis. The results was shown in the form of tables with frequencies, mean value and Standard Deviation. Independent sample t-test was applied to find out comparative difference among both techniques. P-value less than 0.05 was taken as significant.

RESULTS

Descriptive analysis of NPRS: According to the mean pre and post treatment values, the mean NPRS value before treatment was 2.47 for mechanical traction and 2.20 for manual therapy and after treatment was 1.49 for mechanical traction and 2.93 for manual therapy. By applying independent t test, the obtained p value was 0.046 which was less than 0.05 so, we will reject our null hypothesis and accept alternative hypothesis that mechanical traction is more effective than manual therapy.

Variables	Description	Frequency
Age	Mean age	45.08
	Standard deviation	9.668
Life style	Active	23
	Sedentary	27
Gender	Male	34
	Female	26
Computer usage	Yes	20
	No	30
History of previous illness	Yes	16
	No	34



Group statistics

DOT	Study group	N	Mean	SD	Sd. Error Mean
NPRSbefore Rx	Mechanical traction	25	6.2800	2.47521	.49504
	Manual therapy	25	6.2800	2.20832	.44166
NPRS after Rx	Mechanical traction	25	1.1600	1.49108	.29822
	Manual therapy	25	2.6800	2.93995	.58799

Independent Samples t Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
NPRS 0	Equal variances assumed	.497	.484	.000	48	1.000	.00000
	Equal variances not assumed			.000	47.38	1.000	.00000
NPRS 4	Equal variances assumed	15.658	.000	-2.306	48	.026	-1.52000
	Equal variances not assumed			-2.306	35.58	.027	-1.52000

DISCUSSIONS

Cervical radiculopathy is more common in males than in females with mean age 45.08 years because of sedentary life style and maximum usage of computer with no regular exercises.

The main aim of this study was to determine the most effective treatment in managing the radicular pain in cervical spondylosis at C5-C6 by comparing mechanical traction and manual therapy. P value is 0.027 which is less than level of significance 0.05. Hence it is proved that mechanical traction is more effective in relieving pain than manual therapy⁵.

Pain and discomfort decreased by mechanical traction in cervical radiculopathy as proved by another study by Fritz JM et al who concluded that addition of mechanical traction with exercises minimizes the pain and disability of patients with cervical radiculopathy⁶.

In recent study when comparison was made among mechanical traction and manual therapy. The results were more favorable in context of mechanical traction rather than manual therapy as earlier proved in 2011, Boyles R et al conducted a systematic review of randomized clinical trials to assess the effectiveness of manual therapy for relieving pain in cervical radiculopathy with conclusion of symptomatic pain relief by manual physical therapy but showing not a marked significance⁷.

The current study proved that mechanical traction plays a vital role in decreasing neck pain, as in 2008, Graham et al conducted a study to assess the effectiveness of mechanical traction for neck diseases by using mechanical intermittent traction and placebo traction. The results of that study were significant for mechanical continuous traction and non-significance for placebo traction in sense of improvement of functions and reduction of pain among cervical radiculopathy's patient⁸.

Limitations and recommendations: Randomized clinical trials should be carried out for generalization of results. There was no follow up in current study,

but be focused on follow ups in future studies. Others limitations were that, the analgesics was not be avoided during treatment phase. Assessment tools used in the study were subjective tools. There could be multiple variables that should have been measured at the baseline while in this study only two variables have been quantified. Therefore changes in score may be attributed to these variables.

CONCLUSION

Mechanical traction has proven more effective than manual therapy inpatients with radicular pain in cervical spondylosis atC5-C6 level.

Note: There was no nothing about any funding source and no conflict at all

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