

Effect of Cervical Manual Traction, TENS and Neural Tissue Mobilization on Pain and Functional Disability in Unilateral Cervical Radiculopathy

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ABSTRACT

Background: Cervical Radiculopathy is defined as a disorder of the peripheral nerves and nerve Root's. Mostly, it is the result of a comprehensive or inflammatory pathology from disc herniation, spondylitic spur or cervical osteophytes resulting from inflammation of cervical nerve root leading to narrowing of intervertebral foramen. It affects 85 out of 100,000 people every year.

Methodology: A experimental study was done two group's were made. Group A (n=14) received cervical manual traction and TENS. Group B was treated with cervical manual traction, TENS and neural tissue mobilization. Treatment was given for 10 Session, 5 times a week for 2week's. Pain was assessed using numerical pain rating scale and functional disability assessed using patients' specific functional scale.

Results: Group B showed significant decrease in pain and functioning as compared to Group A.

Conclusion: The study is concluded that the effects of cervical manual traction, TENS and neural tissue mobilization are more effective than the only cervical manual traction

Keywords: Cervical radiculopathy, cervical manual traction, TENS, neural tissue mobilization, NPRS, PSFS.

INTRODUCTION

Cervical radiculopathy is a disorder of the peripheral nerves and nerve root's. Mostly, it is the result of a comprehensive

or inflammatory pathology from disc herniation, spondylitic spur or cervical osteophytes resulting from inflammation of cervical nerve Root leading to narrowing of intervertebral foramen [1]. It affects 85 out of 100,000 people every year [2].

Patients usually present with complaints of pain, numbness, tingling and weakness in the upper extremity which often result in significant functional limitations and disability [3].

Evidences show's that conservative management is the gold standard & Manual Physical Therapy is a part of conservative management and effective in managing pain, joint restrictions and disability, while applied in combination with therapeutic exercises [4].

Cervical manual traction is effective in relieving pain due to cervical radiculopathy traction is given by towel method for 20 min with 10 second traction period and 5 second rest once a day[5].

TENS has been increasingly used in physical therapy for the relief of acute and chronic pain[6].TENS is particularly suited for the treatment of pain of neurogenic origin, including peripheral nerve injury, radiculopathies etc. There is experimental evidence to suggest that the analgesic effect of TENS may be modulated by the endogenous opiate system through the release of endorphinergicsubstances [7].

Neural tissue mobilization (flossing techniques) reduced pain and increased neck

function along with reduced painful range of motion[8].The hypothesized benefits from such Techniques include facilitation of nerve gliding, reduction of nerve adherence, dispersion of noxious fluids, increased neural vascularity, and improvement of axoplasmic flow[9,10].

MATERIALS AND METHOD

An approval for the study was obtained from the Institutional Ethical Committee. Experimental study was conducted in subjects with unilateral cervical radiculopathy in Physiotherapy OPD Sample was achieved by simple random sampling method. A total of n=28 subjects were selected. All the subjects were screened for inclusion criteria i.e. both males and females of age 30-50 years, confirmed diagnosis of unilateral cervical radiculopathy, Willingness of subjects. Subjects excluded were patients with fracture of upper limb, cervical spine, Contracture of upper limb muscle and cervical canal stenosis. Subjects were briefed about the nature of the study and intervention.

The demographic data including age, height, gender, weight, side affected, and duration of symptoms was collected through data sheet. Subjects were given written consent prior to the intervention. Group A (n=14) received cervical manual traction and TENS. Group B was treated with cervical manual traction, TENS and neural tissue mobilization. Treatment was given for 10 Session, 5 times a week for 2 weeks. Data was collected pre- treatment and post - treatment using numerical pain rating scale and patients specific functional scale.

GROUP A -

TENS-

Type- pulse width modulation

Frequency-40-70Hz

Intensity- as per patient tolerance

Electrodes Placement- Four TENS pad electrodes will be placed on affected area

Manual Cervical traction-

Position: Supine

Procedure: To perform manual traction.

Therapist stand at head of the table facing patient head is cradled to allow distraction of cervical vertebrae without hurting patient. Traction is applied head is slowly moved to the maximize relaxation and comfort. In which manual cervical traction is given by using towel method for 20 min repetition with 10 second traction period and 5 second rest once a day as it is evidence based and effective treatment for vertebral separation.

GROUP B-

TENS +Cervical manual traction + Neural tissue mobilization

Neural tissue mobilization-

Flossing was started from root along with brachial plexus, median nerve root. since neural flossing is active releasing technique all were performed by the subjects and position were maintain by a therapist .

Each flossing was performed with 10 repetitions starting from neck arm elbow wrist and then whole nerve flossing.

Statistical Analysis

Data analysis was performed with SPSS version 20.0.the level of significance for NPRS and PSFS was calculated by applying Mann Whitney U test.

RESULTS

Table 1: Affected side wise distribution of patients in both groups

Affected side	Group A		Group B	
	Frequency	Percent	Frequency	Percent
Left	7	50	6	42.9
Right	7	50	8	57.1
Total	14	100	14	100

Table 2: Numerical Pain Rating Scale (NPR) of patients in both groups

Scale	N	Group A			Group B			Mann-Whitney U	p value
		Mean	Std. Deviation	Median	Mean	Std. Deviation	Median		
NPRS Pre	14	7.29	1.14	7.00	7.57	1.34	7.00	91.50	0.76
NPRS Post	14	3.50	1.45	3.50	2.36	1.28	2.50	56.50	0.05
W= 3.31, p= 0.001					W= 3.31, p= 0.001				

Table 3: Patient specific functional scale in both groups

Scale	Group A				Group B			Mann-Whitney U	p value
	N	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median		
A Pre	14	2.07	1.38	2.00	2.64	2.37	2.50	86.00	0.58
A post	14	4.79	0.89	5.00	9.14	0.66	9.00	93.00	0.82
		W= 3.35, p= 0.001			W= 3.31, p= 0.001				
B Pre	14	2.14	1.61	2.00	2.79	2.81	1.00	85.00	0.54
B post	14	4.50	1.29	4.00	9.14	0.77	9.00	0.00	<0.01
		W= 3.49, p= 0.001			W= 3.31, p= 0.001				
C Pre	14	2.14	1.61	2.50	3.21	3.14	1.50	0.00	<0.01
C Post	14	4.57	0.94	5.00	9.14	0.77	9.00	0.00	<0.01
		W= 3.45, p= 0.001			W= 3.21, p= 0.001				

DISCUSSION

It shows that if neural tissue mobilization is used as an additional manual therapy with the combination of other technique it can provide additional benefits to the patients with pain and disability. Future study might be carried out on wide age group, people from a specific field or profession, comparison between different neural mobilization techniques for specific nerve involvement, different parameters of TENS can be used in the study.

CONCLUSION

The study is concluded that the effects of cervical manual traction, TENS and neural tissue mobilization are more effective than the only cervical manual traction and TENS.

Source of Funding: Self.

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How to cite this article: Gore V, Patil H, Chogule A. Effect of cervical manual traction, tens and neural tissue mobilization on pain and functional disability in unilateral cervical radiculopathy. International Journal of Research and Review. 2020; 7(10): 198-200.
