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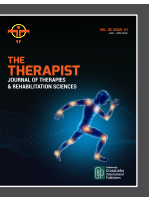

Original Article

Comparison of Effectiveness of Muscle energy Technique with Strain Counter Strain Technique on the Patients of Non-Specific Neck Pain

Taimoor Ameer[1*], Noman Ghaffar[2], Idrees Ahmed Zahoor[2], Arif Ali Rana[3], Irfan Ahmad[2] and Humaira Azam[4]

[1]Mayo Hospital, Lahore, Pakistan
[2]Central Park Medical College, Lahore, Pakistan
[3]Department of Physical Therapy, Central Park Medical College, Lahore, Pakistan
[4]REX Medical centre, Lahore, Pakistan

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***Corresponding Author:**
Taimoor Ameer
Mayo Hospital, Lahore,Pakistan

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ABSTRACT

Non-specific neck pain is a condition which is diagnosed through symptoms when serious and objective cervical spinal pathology (e.g., trauma, malignancy, radiculopathy, etc.) has been ruled out. Many studies have done previously for both techniques, muscle energy technique and strain-counter strain technique, for treatment of patients with non-specific neck pain. **Objective:** To compare the effectiveness of Muscle Energy Technique with Strain Counter-Strain Technique in patients with non-specific neck pain. **Methods:** Single blinded randomized clinical trial was conducted. The assessor was blinded from the allocation in the groups. Forty Patients were included in the study divided into two groups; each group received one technique. They were followed for Seven sessions. Questionnaire including visual analogue scale, NDI were used to collect pre-treatment and post- treatment data. Data was analyzed by using SPSS ver. 21. *Independent sample t test* was applied to compare means of patients. **Results:** Neck flexion of the Patients pretreatment Mean Group 1:24.6500, Group2:23.0500. Neck Flexion of the patient after treatment Mean Group 1(SCS) 32.0500 Group 2(MET) 40.0000 Neck Extension of the Patient pretreatment Mean Group 1: 33.8500 Group 2: 30.6500. Neck extension of the patients. Post treatment Mean SCS 41.5000 MET53. 2500.The given results and detailed results given in the table shows that both techniques are improving ROM, but MET are more effective than SCS. *p value is 0.001* which is significant. **Conclusions:** This study concluded that Muscle Energy Technique is better in reducing pain as compared to Strain Counter Strain Technique

INTRODUCTION

Non-specific neck pain is a condition which is diagnosed through symptoms when serious and objective cervical spinal pathology (e.g., trauma, malignancy, radiculopathy, etc.) has been ruled out [1]. The disorder which has statistics showing that it affect 30% of males and 50% of female across their life and total 13% of adults at any one time [2]. Epidemiological studies on neck pain shows neck pain is more prevalent in females than males [3]. The neck pain is the cause of major financial load on health care program that can lead to extreme impairments [4]. Research, which have been conducted on subjects using computer in maximum time in Pakistan, shows 27.7% subjects with radiating and I pilot survey in Pakistan on computer users showed that 27.7% had radiating and localized cervical Ache [5]. The potential cause of this neck pain is Myofascial trigger points (MTrPs) which are present in muscles and fascia. MTrPs refers as hypersensitive taut bands present in skeletal muscle. These are painful on compression or palpation and also show unique pattern of pain radiating beyond its point of origin [9]. There have been used many therapeutic techniques by therapists to manage the Mayo-fascial trigger points but Strain counterstains is an approach that is to be evaluated regarding its efficacy on scientific basis [6]. Strain

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counterstain is an osteopathic technique which is executed by physiotherapists, osteopaths, and manual therapists. It is the technique that is defined "passive specific positioning of patient and affected region by the physiotherapist for about 90 seconds which would result in decrease the sensitivity of trigger point[7]. The unique positioning for upper trapezius is as follows, ipsilateral side flexion, contralateral rotation, and ipsilateral shoulder abduction, external rotation. This position is maintained for approximately 90 seconds[10]. The other technique which is Muscle energy technique (MET) is well-known osteopathic manipulative technique frequently used to manage spinal somatic disorders[11]. There is less evidence to show its effectiveness, however, the effect of MET is compared in a study to determine the active neck range of motion (ROM). Two groups, asymptomatic young and middle-aged adults, were compared (n=18) pre-treatment and post-treatment protocol. The results against matched control subjects (n=14) that had received sham manipulative treatment regimen were compared[12]. The MET showed a substantial increment in overall regional neck range of motion in the treatment group (approximately 4 degrees) when matched with control group (p<.001). Significant differences were also seen in the size of change in the domain of three planes of motion (rotation, p<.002; lateral bending, p<.01), with flexion/extension being the minimum affected (p=.2). These statistics show that the use of the MET can make sharp rises in active cervical degree of movements in asymptomatic group [18]. The effectiveness of various mobilization and therapeutic techniques in improving cervical ROM and decreasing neck pain in the patients of non-specific neck pain is still ambiguous and unclear.

METHODS

Single blinded randomized clinical trial was conducted at Mayo Hospital Lahore Pakistan. The assessor was blinded from the allocation in the groups. Permission was obtained from the Head of the department of physiotherapy Mayo Hospital Lahore. Sample of patients was taken randomly. Both male and female between age of 20-40 year having neck pain and decrease cervical ROM, diagnosed cases of non-specific neck pain were included in the study while patients with cervical injury, radiculopathy and spondylosis were excluded. 40 patients were included and divided into two groups. Consent is taken from the patients for inclusion in the study. Patients in both groups were assessed for same parameters (VAS, ROM and NDI). Patients were followed by 2 weeks. Patients were divided into two groups Group 1 and Group 2. Pre-test measurements was taken with the help of Visual Analogue Scale, and Neck Disability Index and goniometer prior to the intervention. Group 1 patients were given Strain Counter Strain technique for 7 sessions in two weeks. Patient was remained in the position of ease for 90-120 seconds. Group 2 patients were given muscle energy techniques for 7 sessions in two weeks. 3-5 muscle contractions with 5-7 seconds each contraction (not more than 20% of total muscle strength) for 5 repetitions. Collected data was analysed by entering it into the SPSS ver. 21. Outcome measuring tools were compared by means compared for both techniques which were going to be compared in this study. It compared by using independent sample t test.

RESULTS

Results for Independent sample t test are given as for the ROM and NDI. Neck flexion of the Patients pretreatment Mean group 1: 24.6500 group 2: 23.0500. Neck Flexion of the patient after treatment Mean SCS 32.0500 MET 40.0000. Neck Extension of the Patient pretreatment Mean Group 1: 33.8500 GROUP 2: 30.6500. Neck extension of the patients Post treatment Mean SCS 41.5000 MET 53. 2500.Neck disability Index pain intensity. Group 1: 4.2500 Group 2: 5.2000. Neck disability index Pain intensity post treatment. SCS 2.8500 MET 1.7500. Neck disability index personal care Group 1: 4.8500 Group 2: 5.1500. Neck disability index personal care post treatment SCS 3.5000 MET 2.2500. Neck disability index Lifting pretreatment Group 1: 4.5500, Group 2: 5.3500. Neck disability index post treatment SCS 3.4000, MET2.4000. Both groups showed decrease in pain and increased ROM of neck within group in pre and post-treatment analysis as the p-value was >0.05 while Muscle Energy Technique more reduction in pain and to increase ROM in patients suffering from non-specific neck pain as compared to Strain Counter strain technique. the independent sample T-test showed that both techniques were improving ROM, but MET was more effective than SCS. p value is 0.001 which is significant

Group Statistics

	Treatment Applied to the patient	N	Mean±SD	Std. Error Mean
Neck flexion of the Patients	SCS	20	24.6500±7.52032	1.68160
	MET,S	20	23.0500±7.27993	1.62784
Neck flexion after treatment	SCS	20	32.0500±7.58444	1.69593
	MET,S	20	40.0000±4.86664	1.08821
neck extension of the patients pre treatment	SCS	20	33.8500±9.40479	2.10297
	MET,S	20	30.6500±6.15822	1.37702
Neck extension of the patients after treatment	SCS	20	41.5000±8.90003	1.9901
	MET,S	20	53.2500±4.06364	1.9086
Neck left side flexion pre treatment	SCS	20	20.6000±3.80305	6.85039
	MET,S	20	23.5000±5.64288	1.26179
neck left side flexion after treatment	SCS	20	27.4000±3.81686	.85348
	MET,S	20	38.4500±2.45967	.55000
Neck right side flexion of the patients pre treatment	SCS	20	20.6000±3.80305	.85039
	MET,S	20	23.5000±5.64288	1.26179
neck right side flexion after treatment	SCS	20	27.4000±3.81686	.85348
	MET,S	20	37.3500±3.06551	.68547

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neck right rotation of the patient pre treatment	SCS	20	32.0500±7.58444	1.69593
	MET,S	20	40.0000±4.86664	1.08821
Neck right rotation of the patients after treatment	SCS	20	40.6000±7.25041	1.62124
	MET,S	20	56.0000±3.07794	.68825
Neck left rotation of the patients pre treatment	SCS	20	27.4000±3.81686	.85348
	MET,S	20	37.3500±3.06551	.68547
Neck left rotation of the patients after treatment	SCS	20	38.0000±4.5653	1.02084
	MET,S	20	22.94511±2.94511	.65855

Table 1: Group Statistics of Neck ROM Pre and Post Treatment

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Neck flexion of the Patients	Equal variances assumed	.109	.743	.684	38	.498	1.60000	2.34043	-3.13796	6.33796
	Equal variances not assumed			.684	37.960	.498	1.60000	2.34043	-3.13813	6.33813
Neck flexion after treatment	Equal variances assumed	3.277	.078	-3.945	38	.000	-7.95000	2.01504	-12.02924	-3.87076
	Equal variances not assumed			-3.945	32.378	.000	-7.95000	2.01504	-12.05263	-3.84737
neck extension of the patients pre treatment	Equal variances assumed	1.983	.167	1.273	38	.211	3.20000	2.51370	-1.88872	8.28872
	Equal variances not assumed			1.273	32.763	.212	3.20000	2.51370	-1.91557	8.31557
Neck extension of the patients after treatment	Equal variances assumed	6.565	.014	-5.371	38	.000	-11.75000	2.18773	-16.17884	-7.32116
	Equal variances not assumed			-5.371	26.592	.000	-11.75000	2.18773	-16.24209	-7.2579
Neck left side flexion pre treatment	Equal variances assumed	4.661	.037	-1.906	38	.064	-2.90000	1.52160	-5.98032	1.1803
	Equal variances not assumed			-1.906	33.308	.065	-2.90000	1.52160	-5.99463	2.19463
neck left side flexion after treatment	Equal variances assumed	3.372	.074	-10.883	38	.000	-11.05000	1.01534	-13.10545	-8.99455
	Equal variances not assumed			-10.883	32.459	.000	-11.05000	1.01534	-13.11704	-8.9829
Neck right side flexion of the patients pre treatment	Equal variances assumed	4.661	.037	-1.906	38	.064	-2.90000	1.52160	-5.98032	6.1803
	Equal variances not assumed			-1.906	33.308	.065	-2.90000	1.52160	-5.99463	2.19463
neck right side flexion after treatment	Equal variances assumed	.334	.567	-9.090	38	.000	-9.95000	1.09466	-12.16603	-7.73397
	Equal variances not assumed			-9.090	36.310	.000	-9.95000	1.09466	-12.16942	-7.73058
neck right rotation of the patient pre treatment	Equal variances assumed	3.277	.078	-3.945	38	.000	-7.95000	2.01504	-12.02924	-3.87076
	Equal variances not assumed			-3.945	32.378	.000	-7.95000	2.01504	-12.05263	-3.84737
Neck right roation of the patients after treatment	Equal variances assumed	16.287	.000	-8.744	38	.000	-15.40000	1.76128	-18.96552	-11.83448
	Equal variances not assumed			-8.744	25.633	.000	-15.40000	1.76128	-19.02289	-11.77711
Neck left rotation of the patients pre treatment	Equal variances assumed	.334	.567	-9.090	38	.000	-9.95000	1.09466	-12.16603	-7.73397
	Equal variances not assumed			-9.090	36.310	.000	-9.95000	1.09466	-12.16942	-7.73058
Neck left rotation of the patients after treatment	Equal variances assumed	5.290	.027	-15.969	38	.000	-19.40000	1.21482	-21.85928	-16.94072
	Equal variances not assumed			-15.969	32.480	.000	-19.40000	1.21482	-21.87308	-16.92692

Table 2: Independent Sample t-test on Neck ROM

The results showed that both techniques were improving ROM but MET was more effective than SCS. p value is 0.001 which is significant.

DISCUSSION

In this study two Techniques were compared one was the SCS and other was MET Patients were followed for Seven sessions. Above given results of ROM and NDI shows that MET is better than the SCS in reducing pain and increasing ROM of the patients suffering from nonspecific neck pain. This study will promote the decision making of the professionals who are treating the nonspecific neck pain in selecting the most appropriate technique for the better outcomes and for the better results. This study will prevent the professionals from the time consuming and further experimental application and a clinician will be able to make the proper decision and proper management of the disease. By using these methods, people are better treated and their non-specific neck discomfort is less painful. In a study on low back pain conducted by Patel *et al*, it was shown that both the muscle energy technique and the strain-counterstrain approach were equally benificial [19]. Sbardella *et al.*, done study which showed that muscle energy technique is effective for the treatment of acute and chronic non-specific neck pain. The results are similar to this study that muscle energy technique reliefs non-specific neck pain [20]. Marzouk A. Ellythy *et al.*, done similar study on low back dysfunction which shows that both Muscle Energy Technique and Strain Counter Strain are effective of treatment [21].

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CONCLUSIONS

From this study it is concluded that Muscle Energy Technique is better to reduce pain and to increase ROM in patients suffering from non-specific neck pain as compared to Strain Counter strain technique

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