CASE SERIES

Effectiveness of muscle energy technique on cervical range of motion and pain

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Abstract

Every individual in his/her life experiences cervical pain at some stage which may restrict daily activities. Various approaches are available for the management of cervical pain, which include surgical, pharmacological and physical therapy. Different Manual therapy techniques are used for the treatment of neck pain. Muscle energy techniques and active isolated stretching are under consideration.

This case series study was conducted at physical therapy department of North West General Hospital, Peshawar from August 2015 to January 2016 to find out the effectiveness of muscles energy techniques on cervical range of motion and pain. A total of 20 patients suffering neck pain, both genders having age of 25 - 50 years, cervical ROM limitation and muscles spasm were included in the study. Patients were treated by muscles energy technique (MET). The patient's outcome measures were Inclinometer and Visual Analogue Scale (VAS). Data was analyzed using SPSS version 20.

The mean age was 32.3±6.53 years. The patient treated with muscles energy technique showed clinically improvement in the range of motion and pain. Results showed that pre and post treatment differences were statistically significant for cervical flexion (0.001), cervical extension (0.001), cervical right side rotation (0.001), cervical left side rotation (0.001), cervical right side bending (0.001), and cervical left side bending (0.01). Paired t-test finding for the pain showed statistically significant difference (0.005). It was concluded that Muscles Energy Technique is effective in the treatment of restricted range of motion and cervical pain.

Keywords: Cervical Pain, Cervical Spine, Disability, Range of motion.

Introduction

Cervical pain (Neck Pain) is considered as a most common problem faced by every individual in his life span. Some of these minor postural problems may cause pain and its ignorance lead to severe complications like spasm, stiffness and many more.[1] Mostly mechanical neck pain arises from trigger points in the cervico-thoracic musculature while other disorders may be pathological, traumatic or posture disorders and can directly affect the soft tissue (muscle, disc and ligaments) or cervical spine similar to the lumbo-sacral spine involvement causing symptomatic lower limbs.[2] Chronic pain in the neck with weak cervical muscles effects quality of life of an individual.[5] Neck pain incidence rate is about 83/100000[6] and prevalence rate in ranges about 0.04% to 86.80%.[7] Pain arising from Cervical spine are mostly referred to Head (temporal area), around the eye, upper limb and shoulder girdle unilaterally and sometimes bilaterally to both arms.[3] Poor Posture during work or sleeping position causes muscular spasm; which may persist for a long time and may become chronic.[3]

Study by Hogg et al. also identified few other modifiable (psychological health, exposure to tobacco and non-modifiable (age, sex, and genetics) risk factors that can result in neck pain.[4] Common pharmacological treatment for neck pain is muscle relaxant like cyclobenzaprine (muscle spasm), Narcotics like gabapentin (pain due to neural compression) and steroid injections like prednisone are used for severe pain relief.[8,9] Physical agents like Ultra sound, shortwave diathermy for heating the deep tissue, moist heat and cryotherapy are also used for superficial tissues as a muscle relaxant and pain relief strategy.[10]

A study by Liemohn W[11] following the effect of active isolated and static stretch training on active SLR (straight leg raise) performance. This study shows that active muscle work of the agonist and antagonist in isolated stretching is more effective as compared to contract relax stretching for hamstring flexibility.[11] Effect of muscles energy technique on cervical ROM is supported by the study of Ronald Schenk and his colleagues on patients who had limitation in cervical range of motion and conclude it as an effective treatment to increase Cervical ROM.[12] This study will help people to gain cervical ROM and pain relief by giving MET .

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Case Series

This study is an experimental case series design which was conducted in department of Physical therapy of North West General Hospital, Peshawar from August 2015 to January 2016 on a group of 20 patients with limited cervical range of motion and pain.

Ethical approval from institute and informed consent from each patient was taken before the commencement of the study. The inclusion criteria for the study was patients having cervical pain and limitation of cervical range of motion, in both male and female with age ranging 25-50 years. Patients with Rheumatoid arthritis, trauma, cervical tumour, or instability were not included in this study.

Muscles energy technique (MET), Post Facilitation Stretch with conventional physical therapy was applied to the patients with cervical pain and ROM limitation. The MET included a set of 5 repetitions per session, and 3 sessions per week for six weeks. The Post Facilitation Stretch duration in MET was kept at 10 seconds. Patient was positioned at sitting and lying. Conventional physical therapy included Heating Pad for 10 minutes before treatment to the cervical spine A ROM exercises strengthening exercises, 3 sets of 10 repetitions per session and isometric exercises, 2 sets of 10 repetitions held for 6-10 per session, 3 sessions a week on alternate days for a period of six months. The position of patient for these exercises were supine and sitting.

Tool used for cervical Range of Motion was Universal Inclinometers and goniometer. Pain was measured by Visual Analogue for data collection. The statistical product and service solutions (SPSS Version 20) was used for Statistical analysis.

Results

Mean age of the participants was 32± 6.53 years. There were 08 females and 12 males. The mean Pre Visual analogue scale compared to Post Visual analogue scale showed clinically improvement which was statistically significant. Values are mentioned in the Table-1.

The mean Pre Cervical Range of Motion to Post Cervical Range of Motion showed clinical improvement. The individual patients showed that difference was: statistically significant for Cervical flexion, statistically significant (0.000) for Cervical extension, statistically significant (0.000) for Cervical right side rotation (goniometer), statistically significant (0.000) for Cervical left side rotation, statistically significant (0.001) for Cervical right side flexion, statistically significant (0.01) for Cervical left side flexion. Values are mentioned in the Table-2.

Table-1: Paired t test for VAS.

Pre Treatment Mean	Post Treatment Mean	P - Value
5.80±0.76	2.20±0.76	0.005

Table-2: Paired t test for Cervical ROM.

Variables	Pre Treatment Mean	Post Treatment Mean	P- Value
Flexion	20.75±11.03	38.25±6.5	0.000
Extension	25.75±12.90	47.50±7.34	0.000
Rt Rotation	33.50±13.28	58.50±9.61	0.000
Lt Rotation	34.25±16.95	58.50±12.57	0.000
Rt side Bending	24.0±13.13	39.75±8.50	0.001
Lt side Bending	26.75±10.16	42.00±5.47	0.01

Discussion

The findings of our study regarding Muscle energy technique in increasing ROM and reducing pain are supported by the studies of Mahajan R et al. Fryer G et al, and Kawal Deep Kaur et al as they have reported improvement in the cervical range of motion and neck pain.[13-15]

Conclusion

It is concluded that Muscles energy technique, post facilitation stretch is effective in the treatment of restricted cervical range of motion and cervical pain.

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