

Effect of Muscle Energy Technique in Cervicogenic Headache over Conventional Treatment

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Abstract: Cervicogenic headache (CH) is one of the common types of headache originating from the cervical spine, with a high preponderance of 66% of men and 57% of women in normal healthy adults. Cervicogenic headache is one of the broadly acceptable upper neck and headache problems arising from upper cervical spine C0-C1- C2. Where the patient present with typical symptoms like migraine like headache. The subjects were randomly allocated in to two groups where Group A received muscle Energy Technique and Conventional Treatment the Group B received conservative treatment for both the groups. The subject was randomly allocated into two groups by means of lottery method. Group A received Muscle Energy Technique along with Conventional Physiotherapy program and Group B received Conventional Physiotherapy only for a period of 3 weeks. Pre and Post Data were collected and analyzed. The results showed that both the technique is showing significant improvement

Keywords: Cervicogenic headache (CH, CGH), Myofascial release (MFR), Atlanto occipital junction (AOJ), Muscle Energy Technique (MET), visual analogue scale (VAS), Neck Disability Index (NDI)

1. Introduction

Cervicogenic headache (CH) is one of the common types of headache originating from the cervical spine, with a high preponderance of 66% of men and 57% of women in normal healthy adults. The prevalence of Cervicogenic headache is high in persons involved in sitting job, computer operators, students, and as occupational hazards. The Cervicogenic headache is one of the major types of headache apart from migraine, some authors terms it as tension type headache. The keycause of pain is from atlantooccipital joint, but sometimes there may be involvement of C1-C2, C2-C3 vertebral joints. Definition and classification of Cervicogenic headache was difficult due lack of literature and diagnostic criteria in 1983 Sjasstad and co-researchers come up with the philosophy of cervicogenic headache. Bogduk suggested the Pathomechanics of Cervicogenic headache arising from soft tissue and spinal vertebrae; A sensory input from trigeminal spinal nucleus stimulates the Great Occipital Nerve. The International Headache Society suggested the theory of primary and secondary type headache in international classification of headache disorders second edition. The incidence of Cervicogenic headache on gender wise is 1:4 in male and female worldwide¹⁵.

Hypothesis

- **Null Hypothesis:** There will be no significant difference in Control Group A treated with Muscle Energy technique as compare to Group B in Cervicogenic headache.
- **Alternate Hypothesis:** There will be significant improvement in Group A treated with Muscle Energy technique as compare to Group B in Cervicogenic headache.

2. Literature Review

Various physiotherapy treatment techniques are in use for treatment of asthma. There are some of Literature Review are given below.

[Gwendoleon Jull (2010)] manipulative therapy and exercise therapy can reduce pain and improve function in cervicogenic headache and effects are maintained for a longer duration. He conducted a randomized controlled trial of exercise therapy and manipulative therapy for cervicogenic headache. The study included 200 subjects with outcome measures of Northwich Park pain Index, frequency of medication and patient satisfaction²⁷.

[AntonionCuccia(2009)]conducted a meta-analysis on the relationship between the stomatognathic system and body posture, the results advocate painful trigeminal stimulation can trigger or modulate auditory and vestibular symptoms such as spontaneous nystagmus in patients with cervicogenic headache. The correction of body posture especially cervical spine can influence CGH³³.

[C. Kisano Lopez (2013)]did a systematic review on efficacy of manual therapy in treatment of tension type headache 14 different articles were obtained from various data base. The study shows the positive result which includes reduction in headache intensity or frequency and less use of medication along with quality of life. The study shows significant improvement in experimental group when compared to placebo group²⁸.

[Gehan M. Ahmed and Mohamed A. Samir (2018)] conducted a study on fourth five subjects to discover out the effect of the result of cervical Mulligan mobilization and MET all the clusters showed important improvement in cervicogenic headache, the results were detected on outcome basis of pain and neck movement the study also found that the result portion was same for all age clusters on pain

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priority. There was no significant difference in between groups¹.

[*Kroeling Peter (2011)*] searched data a period of 2 years to find out the effect of electrotherapy in mechanical neck disorder he conducted Cochrane review. Total 14 research included on the basis of pain outcome and the functional outcome using pulsed electromagnetic field therapy PEMF, Ultrasound therapy (Phonophoresis), TENS and Galvanic current for treatment of tension type headache cervicogenic headache.

[*Manpreet Kaur (2019)*] conducted experimental study on 20 patients, founded that cervicogenic headache is reported to range from 15 to 20% among the all other type of headache.

3. Research Methodology

After the screening of patients on the basis of inclusion and exclusion criteria, they were included in the study, and a pool of participants was created. Selected patients were included in the study and were informed about the benefits, risks and procedure of the study.

Exclusion Criteria

- 1) Headache not fulfilling criteria of cervicogenic headache international study group.
- 2) Cervical Spine Hyper mobility
- 3) Patient with recent head injury.
- 4) Congenital spinal anomalies.
- 5) Any active infective conditions.
- 6) Any indication of vertebrobasilar insufficiency
- 7) Patients with Seizures.
- 8) Patient with ENT problems

30 patients will be select for the study on the basis of inclusive and exclusive criteria.

All the patients underwent 3 weeks treatment program for 5 days in a week. Group A with 15 patients was treated with Muscle Energy Techniques and conventional physiotherapy and group B with 15 patients was treated with conventional physiotherapy alone.

Pain and functional disability level were assessed at the beginning of treatment, during the treatment and after treatment using visual analogue scale (VAS) and Neck Disability index NDI.

Control group- Subjects received moist pack for 10 minutes followed by stretching of the upper trapezius, levator scapulae, scalenes, suboccipitals, pectoralis minor and pectoralis major and strengthening of deep cervical flexors. postural correction exercises were advised to the patients. Experimental group-Patients treated with conventional therapy and MET for a duration of 3 min.

Hydrocollator Heat Packs (HCP)

Patient positioned in lying position with face up HCP applied for duration of ten min.



Figure 1: Hydrocollator Heat Pack

Scapular Retraction

Patient is placed in sitting and instructed do bring both the shoulder blades together for retraction and asked to squeeze the muscle in between the scapula. The patient should do other movements of shoulder and scapula, the hold was for ten seconds and five reparations



Figure 2: Scapular Retraction Exercise

Stretching Exercises

Combination of muscles group was stretched

Lateral flexors: Patient was placed in sitting position and head is pulled passively in opposite direction with other hand stabilized the thorax.

Lateral flexion and rotation combined stretch: Patient positioned in sitting, therapist standing behind the patient and places one hand over upper cervical spine and stabilizes thorax with other hand and rotation to the same side is performed.



Figure 3: Lateral Flexion and Rotation Combined Stretch

Cranio-Cervical Flexion

Patient is placed in supine position and a towel roll is placed under the neck to support lordotic curvature, patient is instructed to perform nodding movement with chin tuck-in. All stretching was performed with 10 second hold and 5-6 repetitions



Figure 4: Cranio Cervical Flexion

Muscle Energy Techniques

Patient was positioned in supine position and post isometric relaxation technique was used, following steps were performed:

Step 1: Stretch the muscle up to the resistance barrier or as tolerated by patient.

Step 2: Active isometric contraction by patient and resistance by therapist

Step 3: Cessation of active contraction while therapist maintains the stretch muscle is allowed to rest.

Step 4: therapist performs passive stretching to new barrier level

Step 5: Process is repeated for several times.



Figure 5: Muscle Energy Techniques

4. Data Analysis and Result

In the study, data analysis was done using SPSS v.25. Total 30 patients were included in the study that are randomly divided into 2 groups i.e., Group A and Group B; each comprising of 15 patients. The subjects were assessed using Neck Disability Index and VAS, pre and post treatment readings were taken. As the number of samples in one group was (<50), Shapiro-Wilk test was used in the study.

Normality test was done to determine the significance of data of Group A and Group B which showed significant values i.e., more than 0.05. Therefore, both the groups were analysed using parametric test. (Table 1 & 2)

Again, the normality was done to determine the significant value of data of Group A and Group B that showed the significant value i.e., more than 0.05. Therefore, the mean value comparison of Group A and Group B was determined by parametric test. (Table 3)

Table 1: Comparison of Mean Values of Pre & Post data of Group A

Scale	N	Mean	SD	t-value	p- value
Pre-VAS	15	7.07	0.80	16.877	0.01
Post-VAS	15	2.47	0.83		
Post- NDI	15	49.73	12.56	8.887	0.01
Post- NDI	15	17.07	3.99		

Table 2: Comparison of Mean Values of Pre & Post data of Group B

Scale	N	Mean	SD	t-value	p- value
Pre-VAS	15	7.33	0.21	9.46	0.01
Post-VAS	15	4.53	0.27		
Post- NDI	15	51.33	2.90	8.69	0.01
Post- NDI	15	24.53	1.68		

Table 3: Comparison of Mean Values between Pre & Post data of Group A and Group B

Scale	N	Mean	SD	t-value	Sig. (2 tailed)
Pre-VAS	30	7.20	0.81	-9.04	.374
Post-VAS	30	3.50	0.94	-5.935	.001
Post- NDI	30	50.53	11.9	-.368	.716
Post- NDI	30	20.70	5.26	-3.782	.001

5. Discussion

The common types of headache originating from the cervical spine, with a high preponderance of 4.1% in male and 1.7% in female normal healthy adults. The prevalence of CH is high in persons involved in sitting job, computer operators, students, and as occupational hazards. The CH is one of the major types of headache apart from migraine, some authors terms it as tension type headache. The main source of pain originates from atlantooccipital joint, but sometimes there may be involvement of C1-C2, C2-C3 vertebral joints.

6. Conclusion

The present study was conducted for a period of three weeks on 30 patients from OPD of Peoples college of Paramedical Sciences, BHOPAL. The subject was randomly allocated into two groups by means of lottery method. Group A received MET along with Conventional Physiotherapy program and Group B received Conventional Physiotherapy only for a period of 3 weeks. Pre and Post Data were collected and analyzed. The results showed that both the technique is showing significant improvement in CH symptoms but MET along with Conventional physiotherapy has more significant results. Hence, Alternate Hypothesis was accepted.

• Conflicts of interest:- nill

- Source of funding:- self

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