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# Chronic tension-type headache as a risk factor of myofascial trigger points in upper trapezius muscle fibers in neck pain patients

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## ABSTRACT

**Background:** Chronic tension type headache (CTTH) is one of the very common neurological conditions which have striking impact on daily functional activities. In tension type headaches the myofascial TrP's are frequently examined. It is observed that myofascial pain syndrome is frequent determinant of chronic nonspecific neck pain.

**OBJECTIVE:** To determine tension type headache as a risk factor of myofascial trigger points in upper trapezius muscle fibers in neck pain patients. **MATERIAL AND METHODS:** It was a case control study. The study was conducted from January 2016 to July 2016 and data was collected from four hospitals of Lahore. Convenient sampling technique was used. Sample size of 130 patients was taken which were equally divided into case and control group. An international headache criterion was used for diagnosis of tension headache and Travell & Simon criterion was used for diagnosis of trigger points. **RESULTS:** Total 130 subjects were recruited in the study. 65 (50%) were having trigger points (case group) and 65 (50%) were without trigger points (Control group). Mean age of case group was 27.80±9.177 and control group was 30.11±8.839 (P=0.15). In case group, 48 (74%) participant were having tension type headache whereas 17 (26%) were without headache and out of 65 controls 26 (40%) were having tension type headache and 39 (60%) were without headache (OR=4.24, 95% CI=2.01-8.91, p<0.001).

**CONCLUSION:** Tension headache is the factor that could increase the probability of having myofascial trigger points in upper trapezius muscle fibers in patients of neck pain

**KEYWORDS:** Myofascial trigger points, upper trapezius, and tension type headache.

## INTRODUCTION:

Headache is one of the very common neurological conditions which have striking impact on daily functional activities. Recurrent headache is a commonly experienced problem with compelling effect on public health and it is most common neurological syndrome presented by patients to general practitioners and neurologists. According to World Health Organization ranks of the causes of disability, the headache problem is included in the top ten utmost debilitating conditions for both genders equally. The percentage of adult population in twenty first century being distressed from headache is 46%. It has also been found out that in the general population the migraine contributes 11%, tension headache contributes 42% and chronic headache contributes 3% of the total of 46% of headache. As result of this disabling syndrome, psychosocial functioning in various areas including family time, friends, relaxation time, peer groups, working potential, and yielding at work may be undermined. Tension-type headaches are more common in females than males.

Recurrence of episodic tension headache in men increases at the age of 39 years after which it descends, whereas in women the recurrence of episodic tension headache increases from 12 years of age to 40 years on average and after that it is relapsed. Concurrently, preponderance of tension headache is increased in both genders until the age thirty nine after which it is declined.

It is observed that frequent determinant of chronic non specific neck pain is myofascial pain syndrome. Active trigger points are prevailing in patients who are exposed to non specific chronic neck pain. Scientific researchers have supported the fact that in musculoskeletal disorders involving head and neck, there is a role of trigger points. In tension headaches the myofascial TrP's are frequently examined. Myofascial TrPs are defined as the stretched band of a skeletal muscle. These are the hyperirritable spots that evoke referred isolated pain, when manual examination is performed on them<sup>1</sup>. Latest studies have proposed that trigger points (TrPs) contribute to tension headache when these points are active in

neck and shoulder muscles .

In the economy of any country the health sector has an important role to play. Frequency of headache in Pakistan is about 92.4% .In Pakistan there is a significant prevalence of clinical cases of migraine and tension headaches. .The International Headache Society have investigated and also assorted the headache disorders in Pakistan according to its criteria. Majority of the patients of the productive age, about 80% who were referred for treatment were women aged between 15 and 49 years. Probably the headache is the most common disorder observed by health care experts in clinical practice centers, in most common presenting forms as cervicogenic headache, migraine and tension type headaches which are linked with high noticeable strain of social and economic expenses .

Pakistan is just few steps away from being labeled as a 'psychological pressure cooker' due to increased poverty, terrorism, high criminal activities and social stresses as well as fragile security. Psychiatrists of Pakistan believe that majority of people are suffering from condition called post-traumatic stress disorder and no steps are being taken to deal with them. World Health Organization has estimated that in Pakistan there are only 320 psychiatrists available for 176 million psychiatric patients. .

Posttraumatic stress disorder (PTSD) is often comorbid with chronic tension-type headache Health care professionals have observed that the importance of brain health has not been accentuated and there is no policy in developing countries like Pakistan for the prohibition and control of neurological diseases . Stress is the major cause of tension headache and it is very common in our country due to many reasons . No previous research work regarding headache disorders and its consequences has been conducted in Pakistan . Although the researches related to tension type headache and myofascial trigger points formation has been conducted in western societies. But no such attempt has been conducted to validate this fact regarding TrP's and headache disorders in Pakistan. Therefore this study will help to fill the knowledge gap in Pakistan.

#### **OBJECTIVE OF STUDY:**

The objective of this study is determine tension headache as a risk factor of myofascial trigger points in upper trapezius muscle fibers in neck pain patients.

#### **OPERATIONAL DEFINITION:**

Tension headache criteria by "The International

#### **Classification of Headache Disorders in 2<sup>nd</sup> edition"**

was employed for diagnosis of chronic tension-type headache and Travell and Simons diagnostic criteria was used for palpation of myofascial trigger points by manual examination method "" .

#### **MATERIAL & METHODS**

##### **STUDY DESIGN:**

Case Control Study

##### **SETTING:**

Data was collected from following hospitals of Lahore, Pakistan

Ch.Muhammad Akram teaching and research hospital, Raiwind road, Lahore

Social security hospital, Manga road, Lahore

Rasheed hospital, DHA, Lahore

Mid city hospital, Jail road, Lahore

##### **DURATION:**

This study was conducted from January 2016 to July 2016

##### **SAMPLE SIZE:**

The sample size 130 was taken by using G\*power software using following parameters.

Anticipated odds ratio=2.3

Power of study = 80%

Level of significance = 0.05

130 subjects were equally divided into cases and controls

##### **SAMPLING TECHNIQUE:**

Convenient sampling

##### **SAMPLE SELECTION:**

##### **INCLUSION CRITERIA:**

##### **CASES:**

20-50 years of age

Both genders were equally inclusive

Neck pain patients

Patients with trigger points in upper trapezius muscle

##### **CONTROLS:**

20-50 years of age

Both genders

Neck pain patients

Patients without trigger points in upper trapezius muscle

##### **EXCLUSION CRITERIA:**

Other primary headaches

All types of secondary headaches.

Headache due to medications overuse

Diagnosed neurological disease

##### **DATA COLLECTION PROCEDURE:**

Case control study was conducted in four hospitals of Lahore. An informed consent was taken from patients by telling the aims and objectives of this study. The

were selected through convenient sampling technique. Patients of both genders with neck pain were included. Then manual examination was performed to assess the myofascial trigger points in trapezius upper fibers and tension headache was confirmed by the international tension headache criteria.

SPSS version 20 software was used for collected data analysis. Frequencies and percentages were calculated for categorical variables while means and standard deviations are calculated for continuous variables. Odd ratio was calculated to find the probability of having trigger points in upper trapezius in patients with tension headache

Ethical consideration:

An informed consent was taken from patients as well as hospital administration. Personal information of the respondents remained confidential and was entirely for research purpose. This study didn't cause any physical, social or psychological harm to patients. All medical ethics were considered

## RESULTS:

**Table 1: Socio-demographic profile of groups**

Variables		Trigger point Case Group	Without Trigger point Control Group	P value
Age		27.80±9.177	30.11±8.839	0.15
Gender	Male	23	28	0.37
	Female	42	37	
	Total	65	65	
Socio-economic Status	Upper class	6	9	0.45
	Middle class	36	39	
	Lower class	23	17	
	Total	65	65	

The socio-demographic characteristics of observations are summarized in Table-I. Total 130 subjects were recruited in the study. 65 (50%) were having trigger points (case group) and 65 (50%) were without trigger points (Control group). Mean age of case group was 27.80±9.177 and control group was 30.11±8.839 (P=0.15).

**Table 2: Results showing frequencies and odds ration**

Headache		Trigger points		Total	OR(95%CI)	P value
		Yes (Cases)	No (Controls)			
Headache	Yes	48	26	74	4.235(2.014-8.905)	<0.001*
	No	17	39			
<b>Total</b>	<b>Total</b>	65	65	130		

of total 65 cases, 23 (35%) were males and 42 (75%) were females whereas out of 65 controls 28 (43%) were males and 37 (57%) were female (p=0.37). In case group, 48 (74%) participant were having tension type headache whereas 17 (26%) were without headache and out of 65 controls 26 (40%) were having tension type headache and 39 (60%) were without headache (OR=4.24, 95% CI=2.01-8.91, p<0.001).

## DISCUSSION:

The study provided the evidence that myofascial trigger points in neck muscles are common in subjects found with tension headache and not in controls. These findings are similar as reported by Fernandez-de-las-Penas et al for the sub-occipital muscles. Although there is clear evidence of close connection between trigger points in specific neck and head muscles and tension headache, the extent of data does not state the relationship of cause and effect between trigger points and tension type headache. This is well known fact that central sensitization is also one of the cause of headache pain from TrPs. Some studies reported the correlation between the area of the referred pain and the intensity of muscle pain in patients facing sensitization of specific central pathways. It has been reported that pain referred in areas of deep somatic, secondary hyper-algesia, resembles the characteristic pain seen in secondary hyper-algesic areas at the following skin. In this way, referred muscle pain can also relate with the mechanism of tenderness and secondary hyper-algesia observed in patients with tension headache. Since active trigger points may be found in many chronic conditions that cause sensitization of central pathways, the question arises: are trigger points the result of central sensitization? If this central sensitization were producing active trigger points, they would not be likely in patients experiencing episodic tension type headache (ETTH), in which the mechanism of central sensitization has not been established. As there is lesser level of central sensitization in ETTH, because of the repeated nature of the condition, we could expect lesser active and more latent in episodic tension type than in CTTH. It has been demonstrated that active trigger points in the upper trapezius, sub-occipital, sternocleidomastoid and temporalis muscles are also present in episodic tension type headache, to a similar degree as in CTTH. However, active trigger points were not associated with headache clinical characteristics in episodic tension type headache, endorsing the hypothesis that there was no temporal accumulation of peripheral nociceptive signals in patients with episodic tension type headache, due the episodic nature of the condition. These findings depict that active trigger points are not the consequences of central sensitization, as they are also present in ETTH.

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Critical revision of the article for important intellectual content: Umer Maqsood

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