

Original Research Article

A cross-sectional study of pain severity in patients suffering from different types of primary headache in the hospital setting

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ABSTRACT

Background: Primary headache disorders including migraine and tension-type headache (TTH) are of great importance to global public health due to its high prevalence, but very few studies have been conducted to know its prevalence and pain severity of different types of primary headache. Aim of this study was to investigate the subtypes and pain severity of different types of primary headache in hospital setting.

Methods: This study is a cross-sectional study with 200 sample size. Includes patients with Primary headache in department of Psychiatry, MGMMC, Indore. Patient aged between 18-65 years, both gender. Diagnosis of headache was done clinically in accordance with International Classification of Headache disorders (ICHD- 3). Semi-structured headache questionnaire, Comparative pain scale were used for assessment of samples.

Results: Among 200 patients, Tension type headache was 73.5%, Migraine was 22%, Mixed headache was in 4.5% patients. Majority of migraine and mixed headache cases had severe pain at 93.2% & 55.6% respectively. Majority of TTH cases had moderate pain in 42.2% patients.

Conclusions: Study has shown assessments of severity of pain, can be used to assess the impact of Primary headache on patient's quality of life.

Keywords: Migraine, Severity of pain, Tension type headache

INTRODUCTION

Headache define as pain located in the head, above the orbitomeatal line and/or nuchal ridge.¹ It may manifest as migraine, tension type headache, or cluster headache. Headache may affect the social, functional and occupational-related works.²

Migraine mostly affects those aged between 3rd and 4th decade. It is caused by the activation of a mechanism deep in the brain that leads to release of pain-producing inflammatory substances around the nerves particularly the trigeminal nerve distribution and blood vessels of the head. Recently CGRP (Calcitonin Gene Related Peptide)

has been implicated in the pathogenesis of migraine. Migraine is recurrent, often life-long, and characterized by recurring attacks.³

Tension type headache (TTH) often starts during the teenage years. Its mechanism although not completely understood but may be stress-related or associated with musculoskeletal problems in the neck. The quality of the headache is often described as pressure or tightness, often like a band around the head, sometimes spreading into or from the neck.

Along with being painful headache is highly disabling and leads to severe productivity loss. As per the Global

Burden of Disease Study, updated in 2013, headache disorders collectively constituted to be third highest.³

In the present study, we analysed the prevalence of primary headaches and severity of pain of different types of headache.

METHODS

The present study was conducted at outpatient department (OPD) of Psychiatry, M.G.M Medical College, Indore. After obtaining the Institutional Review Board (scientific and ethical) approval, 200 subjects were included for study of prevalence and pain severity of different types of headache. Written informed consent was obtained from all participants after complete description of the study to the subjects. A detailed physical examination was done to rule out major medical or neurological illness. Evaluation of the samples was done as per procedure of methodology.

Inclusion criteria

Patients with headache in outpatient department of psychiatry, MGM, medical college, Indore, aged between 18-65 years, both gender, cooperative for interview and willing to give written, informed consent.

Exclusion criteria

Patient aged below 18 years and above 65 years, Patients not willing to give consent, uncooperative for interview, Secondary Headache, Any medical co-morbidity, Hypertension, hypothyroidism, hyperthyroidism, Cushing syndrome, diabetes mellitus, Presence of neoplasm, Pregnancy and lactation, patient taking anti-hypertensive drugs, steroid hormones, anabolic steroids, growth hormone, retinoid, antipsychotics, immunosuppressants and immunomodulatory agents, haemodialysis were excluded.

Subjects not meeting inclusion criteria were excluded from the study. A detailed assessment of the patients complaint was done on the basis of headache questionnaire and diagnosis was formulated clinically in accordance with International classification of headache disorders (ICHD – 3).¹ Afterwards Comparative pain scale (CPS) was used for assessment of severity of pain. Results were analysed using SPSS 23.

RESULTS

Primary headache had 33.3 years as mean age of onset. And had more females, married, Hindu religion, Illiterates, housewife, urban based samples (Table 1).

Majority of cases were suffering from Tension type headache (73.5%) while only 22.0% and 4.5% cases met the diagnosis of migraine and mixed headache respectively.

Table 1: Sociodemographic variables of the patients suffering from primary headache.

Patients with primary headache (n=200)	
Age(mean) in years	33.3 years
F : M	1.73
Marital status in %	
Married	75.5%
Unmarried	24.0%
Divorced	0.5%
Religion in %	
Hindu	68.5%
Muslim	31.5%
Education in %	
Illiterate	24.0%
Primary (5th)	13.0%
Middle (8th)	15.0%
High school	14.0%
Inter	14.5%
Diploma/Graduate/Post graduate	19.5%
Occupation	
Housewife	56.0%
Private job	29.0%
Labour	15.0%
Community	
Urban	64.5%
Semi urban	24.5%
Rural	11.0%

The cases had a mean of CPS score 6.14 ± 2.46 . The maximum score was 10 respectively while minimum score was 1.

The TTH cases had a mean of CPS score 5.53 ± 2.50 . The Migraine cases had a mean of CPS score 8.04 ± 1.18 . The Mixed headache had a mean of CPS score 6.77 ± 1.39 .

Majority of cases had Severe pain (48.5%) with only 34.5% and 17.0% cases had Moderate pain and Mild pain respectively.

Majority of TTH cases had moderate pain at 42.2% while 34.7% and 23.1% cases had severe pain and mild pain respectively.

Majority of Migraine cases had severe pain at 93.2% while 6.8% cases had moderate pain.

Majority of Mixed headache cases had severe pain in 55.6% cases while 44.4% cases had moderate pain.

There were statistically significant differences between the mean of cps score of different types of headache P-value < 0.05 , migraine cases had severe pain, while TTH cases had moderate pain and Mixed headache cases also had severe pain, but less severe than migraine cases.

DISCUSSION

In this study prevalence rate of tension-type headache was 73.5%, Migraine was 22% and Mixed headache was 4.5%. (Table 2).

Table 2: Description of different types of headache.

Types of headache	No.	Percent
TTH	147	73.5%
Migraine	44	22.0%
TTH with migraine	9	4.5%
Total	200	100.0%

Table 3: Description of comparative pain scale score.

No.	200
Minimum	1
Maximum	10
Mean	6.14
Std. Deviation	2.46

Table 4: Description of comparative pain scale score in different types of headache.

Types of headache		Statistic	
Comparative pain scale score	TTH	Mean	5.5306
		Std. Deviation	2.50563
		Minimum	1.00
		Maximum	10.00
Migraine	Mean	8.0455	
	Std. Deviation	1.18035	
	Minimum	5.00	
	Maximum	10.00	
TTH with Migraine	Mean	6.7778	
	Std. Deviation	1.39443	
	Minimum	4.00	
	Maximum	8.00	

This finding is similar to the 78% and 86% reported by Rasmussen and Russell, respectively for TTH.^{4,5} However, the distribution for TTH in our study was much higher than the 47.7% documented by Quesada and Rodriguez et al, in Zimbabwe, 25.5% by Quesada-Vazquez et al.⁶ In Cuba, and 11.2% reported in Oman by D. Deleu et al.^{7,8} It there has been wide variations and differences in the epidemiology of tension-type headache and migraine and mixed headache across different cultures.

These variations may result from differences in study population, inclusion or exclusion of cases of infrequent episodic TTH, study design, overlap with probable migraine, cultural and environmental differences, or even genetic factors. This variation can be also link between the restriction of sample size to the hospital only and it might be possible that the subjects reporting for headache management predominantly from TTH group. These

subjects of the sample may not represent the epidemiological presentation of community. Primary headache may be due to poor self-rated health, inability to relax after work, and sleeping few hours per night Oshinaike et al, Almesned et al, Lampl et al, shows similar distribution. In this study Mixed headache was 4.5% which is lower than previous study by Aich et al, due to small sample size of this study.⁹⁻¹²

In this study the cases had a mean of CPS score 6.14±2.46. (Table 3). The TTH cases had a mean of CPS score 5.53±2.50 while migraine cases had a mean of CPS score 8.04±1.18 and Mixed headache had a mean of CPS score 6.77±1.39. (Table 4).

On comparing the severity of different types of headache on the basis of CPS score, we found most of the cases had Severe pain (48.5%) with only 34.5% and 17.0% cases had Moderate pain ad Mild pain respectively. (Table 5). Most of migraine and mixed headache cases had severe pain at 93.2% and 55.6% respectively, while most of TTH cases had moderate pain at 42.2%. (Table 6), Wei et al, Chowdhury et al, Loder et al, Momayyezi et al, found resembling results in their studies.¹³⁻¹⁶

Table 5: Description of severity of pain.

Severity of pain	N	Percent
Mild pain	34	17.0%
Moderate pain	69	34.5%
Severe pain	97	48.5%
Total	200	100.0%

A distillate of the currently available data does however suggest that pericranial myofascial mechanisms probably are of importance in episodic tension-type headache, whereas sensitization of pain pathways in the central nervous system resulting from prolonged nociceptive stimuli from pericranial myofascial tissues seems to be responsible for the conversion of episodic to chronic tension-type headache.

The model proposed by Bendtsen, Is attractive for its simplicity but needs to be worked upon further. Clearly, source of this peripheral nociception, remains to be identified and ways to prevent the central sensitization may provide the tools to manage these difficult to treat patients. Chowdhury et al.¹⁴

Other cause may be that pain perception and modulation may be influenced by pain frequency. A prior longitudinal population study indicated that the lowered Pain perception threshold in primary headache was the result of the chronic pain condition not the Cause. Ashina et al.¹⁷

The mean of CPS score (Table 7) varied within different categories of primary headache statistically which was significant (p value is <0.05).

Most of migraine and mixed headache cases had severe pain, the mean of CPS score was 8.1 and 7 respectively, while most of TTH cases had moderate pain the mean of

CPS score was 5.5. These findings are similar to the findings of Wei et al, Chowdhury et al, Loder et al, Momayyezi M et al.¹⁴⁻¹⁶

Table 6: Description of severity of pain of different types of headache.

Severity of pain		TTH	Migraine	TTH with migraine	Total
Mild pain	Count	34	0	0	34
	% within types of headache	23.1%	0.0%	0.0%	17.0%
Moderate pain	Count	62	3	4	69
	% within types of headache	42.2%	6.8%	44.4%	34.5%
Severe pain	Count	51	41	5	97
	% within types of headache	34.7%	93.2%	55.6%	48.5%
Total	Count	147	44	9	200
	% within types of headache	100.0%	100.0%	100.0%	100.0%

Table 7: Comparison of mean of CPS score of different types of headache.

CPS score	Mean	F	Sig.
Between different types of headache	78.343	16.443	0.000

CONCLUSION

In conclusion, this study has demonstrated that out of all three types of primary headache, there was a very high prevalence of tension-type headache. The present study reaffirms that majority of patients with migraine and mixed headache had severe pain, while majority of patients with tension type headache had moderate pain. Screening the severity of pain of the patients of primary headache and the well-timed intervention will improve the quality of life of patients.

Limitations are small sample size and samples were recruited only from an outpatient department of psychiatry, of MGM, medical college which could increase the bias. Future studies with larger sample size, longitudinal design are warranted as per our conclusions which would shed further light on the severity of pain of different types of primary headaches.

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