

A descriptive study on chronic migraine characteristics

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Abstract

Objectives: The aim of this study is to highlight the prevalence of chronic migraine and describe chronic migraine headache characteristics observed in patients attending the ENT outpatient department at Madha medical college hospital and research institute, Chennai. **Study design:** A prospective descriptive study of one year including 312 patients with chronic migraine attending the ENT outpatient department. **Results:** Among 312 patients with chronic migraine, 73.71% were women and 26.28% were men. The mean age of the female and male patients was 31.87 years and 34.17 years respectively. 66.02% of patients with chronic migraine were married and 33.97% were unmarried. Majority (74.03%) had migraine without aura and 25.96% had migraine with aura. 91% of the patients included in our study were first time attendants in our hospital outpatient department. The pain characteristics were predominantly unilateral either left or right side. Throbbing headache (70.51%) was the most common characteristic of headache. The most consistent autonomic feature observed was nausea, followed by phonophobia (88.78%) and photophobia (68.26%). The other most common associated autonomic feature was sweating followed by lacrimation. Headache was aggravated by activity in 94.23% of our patients. In this study stress, hunger and sleep disturbance were the common trigger factors. On comparison, diagnosis of migraine with and without aura, headache duration, onset of headache, headache features of photophobia and phonophobia and trigger factors like hunger, exercise, sleep disturbance and odor had statistical gender difference. ($P < 0.05$). **Conclusion:** This study adds to the descriptive data relating to the incidence, patterns, trigger factors and associated features of chronic migraine, thus consolidating the observations of previous studies on the chronic migraine headache characteristics. The findings of this study would aid in better diagnosis of chronic migraine at an early stage thereby improving patient compliance and better response to treatment.

Key Words: Migraine, aura, chronic migraine, headache and vomiting.

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INTRODUCTION

Migraine is among the commonest primary headache disorders with significant disability potential. It is highly prevalent and its wide-ranging impacts socially as well physically have been studied to some extent. In the

Global Burden of Disease 2015 studies, migraine ranked third among the most prevalent disorders under the age of 50 and ranked seventh among specific disability causes worldwide.¹ Chronic migraine is described as headache occurring on 15 or more days per month for more than 3 months with the features of migraine headache on at least 8 days per month.² Apart from the history of migraine, patients experience worsening of attacks over long term with less response to treatment. The following are the diagnostic criteria for chronic migraine based on the guidelines of the ICHD-3 beta.²

Chronic migraine diagnostic criteria:

- Headache (tension-type-like and/or migraine-like) on ≥ 15 days per month for >3 months and fulfilling criteria B and C
- Occurring in a patient who has had at least five attacks fulfilling criteria B-D for Migraine

without aura and/or criteria B and C for Migraine with aura

- C. On ≥ 8 days per month for >3 months, fulfilling any of the following:
 1. Criteria C and D for Migraine without aura
 2. Criteria B and C for Migraine with aura
 3. Believed by the patient to be migraine at onset and relieved by a triptan or ergot derivative
- D. Not better accounted for by another ICHD-3 beta diagnosis.

Migraine without aura diagnostic criteria

- A. At least five attacks fulfilling criteria B–D
- B. Headache attacks lasting 4-72 hours (untreated or successfully treated)
- C. Headache has at least two of the following four characteristics:
 1. Unilateral location
 2. Pulsating quality
 3. Moderate or severe pain intensity
 4. Aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs)
- D. During headache at least one of the following:
 1. Nausea and/or vomiting
 2. Photophobia and phonophobia
- E. Not better accounted for by another ICHD-3 beta diagnosis.

Migraine with aura diagnostic criteria

- A. At least two attacks fulfilling criteria B and C
- B. One or more of the following fully reversible aura symptoms:
 1. Visual
 2. Sensory
 3. Speech and/or language
 4. Motor
 5. Brainstem
 6. Retinal
- C. At least two of the following four characteristics:
 1. At least one aura symptom spreads gradually over ≥ 5 minutes, and/or two or more symptoms occur in succession
 2. Each individual aura symptom lasts 5-60 minutes
 3. At least one aura symptom is unilateral
 4. The aura is accompanied, or followed within 60 minutes, by headache
- D. Not better accounted for by another ICHD-3 beta diagnosis, and transient ischaemic attack has been excluded.

Chronic migraine has distinct clinical characteristics, yet it is one of the most under diagnosed and inadequately

treated headache condition. There are very few clinical descriptive studies on chronic migraine that deal with its characteristic clinical features and treatment options. Ours is a prospective descriptive study dealing with the clinical and demographic characteristics in chronic migraine patients attending our outpatient department. The aim of this study is to highlight the prevalence of chronic migraine and chronic migraine related disability in the community and contribute new resource data towards its clinical characteristics to facilitate awareness, disease recognition and help develop effective treatment strategies.

MATERIALS AND METHODS

The prospective study included both new and follow up patients attending the outpatient in our institute between 2014 and 2015. Those patients who matched the diagnostic criteria for chronic migraine as per the guidelines of the ICHD-3 beta² (code 1.3) formed the study group. Patients underwent a comprehensive headache assessment with the findings entered into a database. The headache assessment included detailed history taking with comprehensive ENT, ophthalmological and neurological clinical examinations. Exclusion of hypertension, ocular diseases, intracranial lesions, and paranasal sinus diseases was done by control of hypertension, eye examination and MRI study of brain. Patients objective headache assessment was done with a headache questionnaire at the initial visit. The following headache characteristics were obtained:

- a. Side of headache: 1 = strictly left side; 2 = strictly right side; 3 = either side; 4 = both sides and/or generalized
- b. Headache character: throbbing, aching, pressure, stabbing and others
- c. Headache intensity: Intensity was rated on a visual analog scale of 0 to 10 in the absence of treatment.
- d. Usual time of occurrence of headache: morning, afternoon, evening, during night or "any time"
- e. Headache waking from sleep or present on waking: rated on scaled grade 0 to 3; 0 = never; 1 = occasionally; 2 = frequently; 3 = very frequently
- f. Headache duration (hours)
- g. Headache aggravated by activity
- h. Associated factors: 0 = never; 1 = nausea and/or vomiting; 2 = photophobia; 3 = phonophobia; 4 = others
- i. Headache triggers (stress, menstruation, hunger, sleep disturbance, hormone drugs, lights, weather, exercise, food, alcohol, diet, heat, perfume, odor, or others)

Hospital approval for the study was obtained from the ethics committee. Descriptive statistics were computed using online social statistical calculators. P value of <0.05 was considered to be significant.

RESULTS

A total of 312 patients with chronic migraine from our outpatient clinic were included for the study spanning over a period of 1 year. 73.71% were women and 26.28% were men. The mean age of the female patients was 31.87 years and men was 34.17 years, the youngest case studied

being 8 years and the oldest 80 years. With increase in age the migraine incidence was found to be increased. Among the subjects 66.02% were married and 33.97% were unmarried. Most patients (74.03%) had migraine without aura and 25.96% had migraine with aura. There was a statistically significant difference in the migraine types of with and without aura between female and male patients (P = 0.00059) (Table 1). 87% of patients with CM had a family history of some type of migraine. 91% of the patients included in our study were first time attendants in our hospital outpatient department.

Table 1: Chronic Migraine Characteristics

	Total (N=312)	Women (N=230)	Men (N=82)	P Value
Diagnosis				
M Without A	74.03	79.13	59.75	.000591*
M With A	25.96	20.87	40.24	
Side Of Pain				
Right Sided	19.23	21.73	12.19	.294913
Left Sided	16.34	16.08	17.07	
Either Sided	50.96	49.57	54.87	
Both Sided	13.46	12.60	15.85	
Headache Character				
Throbbing	70.51	70.00	71.95	.242329
Aching	12.50	12.17	13.41	
Pressure	11.21	13.04	6.09	
Stabbing	5.76	4.78	8.53	
Headache Onset				
Morning	13.14	10.86	19.51	.000672*
Afternoon	29.61	32.17	20.73	
Evening	17.30	17.39	17.07	
Night	15.38	11.30	26.82	
Anytime	25	28.26	15.85	
Headache Duration				
5 – 10 Hours	64.24	69.13	51.21	.0136*
10 – 15 Hours	26.92	23.04	37.80	
> 15 Hours	8.65	7.82	10.97	
Associated Features				
Nausea/Vomitting	91.66	92.17	90.24	0.587
Photophobia	68.26	66.08	74.39	0.000002*
Phonophobia	88.78	96.08	68.29	<0.0001*
Others	25.96	20	42.68	0.002664*
Headache Triggers				
Stress	95.51	100	100	1.00
Hunger	91.66	99.13	70.73	0.02325*
Exercise	61.53	53.91	82.92	0.000586*
Sleep Disturbance	98.07	100	92.68	0.000748*
Odour	18.26	20.86	10.97	<0.0001*

*Indicates a difference for women vs. men P ≤ 0.05. Values are in %.

Clinical Characteristics: Side of Pain: Majority of the patients had either side attacks. Right sided pain was more commonly seen than the left sided pain. Incidence of both sided or generalized headache was observed in 13.46%. No statistically significant difference was seen in the side of pain between female and male patients (Table 1).

Headache Character: In 70.51% of patients the pain was of throbbing character. Only 5.76% of patients had a stabbing character, while 12.50% and 11.21% of patients had characters of aching and pressure type respectively (Table 1). No statistically significant difference was seen in the character of headache between female and male patients (Table 1).

Headache Intensity: In the visual analog scale, the headache intensity readings were 5.3 (mean) and 6.0 (median), minimum 4.0 and maximum 8.0. No differences were seen in headache intensity between female and male patients (Figure 1).

Usual Time of Onset of Headache: Majority of patients had their onset in the afternoon (29.61%), evening (17.30%), night (15.38%), morning (13.14%) and anytime 25%. Statistically significant difference was observed in time of onset of headache between male and females ($P = 0.000672$) (Table 1).

Headache Waking from Sleep or Present on Waking: It occurred very frequently in 23.71%, frequently in 27.88% and occasionally in 48.39% of patients.

Headache Duration: The duration of headache per day was observed to be between 5 to 24 hours. 64.42% of patients had headache lasting 5 to 10 hours. In 26.92% of patients, attacks lasted 10 to 15 hours and in 8.65% of patients the headache lasted for more than 15 hours. There was a significant difference between female and male patients (Table 1).

Headache Aggravated by Activity: 94.23% of patients had their headache aggravated by activity. (frequently in 24.14%, very frequently in 61.22% and occasionally in 14.62% of patients).

Associated Features: The most consistent autonomic feature observed was nausea, followed by phonophobia (88.78%) and photophobia (68.26%). Among other associated features, 43.20% of patients had sweating, 18.51% had hair loss, lacrimation and visual aura was observed in 9.87% of patients and giddiness in 8.64%. Except for nausea, all the other associated features were found to be statistically significant between genders (Table 1).

Triggers: The most common triggers were sleep deprivation /prolonged sleep (98.07%), stress (95.51%), hunger (91.66%), exercise (61.53%) and perfume/odour (18.26%) in all patients. Except for stress no significant difference was found between female and male patients (Table 1).

DISCUSSION

Chronic migraine is a neurovascular condition that disables 2% of the general population. It places a huge burden on patients and affects the society at large through rising medical costs.³ There are population studies which estimate that patients with low or high frequency episodic migraine transform to chronic migraine at the rate of 2.5% per year. There is an increasing suggestion based on data that chronic migraine may be a preventable disorder in at risk population.⁴ Chronic migraine can be more disabling than episodic migraine in the population.⁵ Our study is a clinical prospective study of chronic migraine.

In our study, majority of patients were women, which is the case with other studies on CM.⁶ Most of the female patients in our study had migraine without aura (79.13%), while male patients had a history of migraine without aura (59.75%) and migraine with aura (40.24%). There was a significant difference between male and female patients. Chronic daily headache was more common in women and those of less education and were more likely in married and obese.⁷ In our study, the chronic migraine was seen predominantly in married individuals (66.02%) as compared to unmarried individuals (33.97%). Headache was mostly unilateral (either sided) in our study and throbbing in nature. Throbbing headache was seen in 70% of female patients as compared to male patients (71.95%). Aching headache was seen in 12.17% of female and 13.41% of male patients. Pressure headache was reported in 13.04% female patients and 6.09% male patients. Stabbing type pain occurred in male patients (8.53%) and 4.78% of female patients. In the current study, there was statistically significant difference between headache with or without aura, genders, onset of headache, duration of headache and few of the associated and trigger factors. The pain intensity was reported to be moderate by most of our patients. Our study did not observe any gender difference as reported in other studies.⁸ In this study, the onset of headache was most commonly reported to be in the "afternoon" (29.61%) followed by "anytime" (25%). Headache was aggravated by activity in 94.23% of our patients. Migraine transformation can be observed in three forms. Transformation of episodic migraine into chronic migraine refers to increases in frequency of attacks over time known as clinical transformation. In few patients with migraine, CNS physiologic changes result in allodynia and alterations in pain pathways, known as physiologic transformation. Lastly, anatomical transformation which refers to development of brain lesions like stroke.⁹ Among the headache associated features nausea or vomiting was the most frequent followed by photophobia and phonophobia. Many studies have found stress and sleep disturbance as the most common triggering factors for migraine.^{10,11} There is data supporting observations of a substantial sleep/migraine relationship and implication of sleep disturbance in specific headache patterns and severity. The shorter the sleep the more severe the headache patterns. Sleep complaints occurred with greater frequency among chronic than episodic migraineurs.^{10,11} In this study stress, hunger and sleep disturbance were the common provoking factors. Strong odor was a less common precipitating factor. There was no significant difference between precipitating factors and gender as far as stress was concerned.

CONCLUSION

Our study would contribute to the observational data relating to the incidence, patterns, trigger factors and associated features of chronic migraine. Chronic migraine was studied as per the defining guidelines of international headache society and following these guidelines in future migraine studies will contribute greatly in understanding chronic migraine and develop effective treatment strategies. Our study would aid in better understanding of chronic migraine characteristics in clinical practice to diagnose and appropriately manage this major cause of headache worldwide.

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