



Study of types of headache and its characteristics: A study from single centre of central India

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Abstract

Background: Each type of headache has a different pathogenesis. Incorrect diagnosis and therefore inappropriate treatment can mean poor outcomes for the headache sufferer.

Aims and Objectives: To study the prevalence of different types of headache and its characteristics.

Materials and Methods: Four hundred and ninety seven patients with history of headache presented in Neurology Department of Gandhi Medical College and affiliated Hamidia Hospital were studied. For each patient a routine clinic questionnaire was completed. Demographic variable, frequency, onset, duration, precipitating and relieving factor in all the patients were recorded. Whenever required we also did CT /MRI head and fundus examination of eye.

Results: Primary headache was more prevalent (n=471), of which IEH (40.33%) was more common. Most common secondary type of headache was TBM (50%). Migraine was most common among patients with age group of 21-40 years (n=72), in female ((n=74), who belong to urban area (n=80) and were from the nuclear family (n=82) similarly tension type headache was most common among 21-40 years (n=192) age group, in females (n=156), who belong to urban area (n=238) and who were from the nuclear family (n=212). Majority of the patients with migraine (n=101) were unilateral whereas majority of TTH (n=280) were bilateral. Majority of MWA (n=42) patients had fever duration between 3-6 days whereas MA (n=16) had fever duration of >6 days. Mean age of occurrence of CVT, FEH, ICSOL, IEH, MA, MEN, MWA and TBM was 26.63±5.60, 20.69±12.37, 18.25±0.5, 30.24±11.94, 29.19±9.9, 14.00, 30.80±13.64, 27.31±8.42 and 29.84±12.31 respectively. Most common trigger in migraine was emotional stress (20.52%) followed by physical stress (16.70%) and fast (13.48%).

Conclusion: Most common was primary headache such as migraine and TTH affecting young age group subjects (21-40 years), nuclear family and urban population. Unilateral headache was most common in young population. TTH was found as the most common headache disorder followed by migraine.

Keywords: tension type headache, neurology, unilateral headache

Introduction

The World Health Organization (WHO) rates headache as a common disorder of the nervous system that is underestimated, under-recognized and under-treated. Headache is listed as one of the ten most disabling conditions world-wide. Headache is the fourth most common presentation at emergency departments with between 1.4 - 3.3 million visits per year [1].

Despite this, it has been identified that up to 50% of headache sufferers do not seek medical advice for headache and when they do many are wrongly diagnosed and wrongly treated [2].

Headaches are classified in the ICHD into primary and secondary headache. Each type of headache has a different pathogenesis and logically each respond to treatment specifically targeted to that headache type [3].

Incorrect diagnosis and therefore inappropriate treatment can mean poor outcomes for the headache sufferer. To complicate diagnosis and treatment even further some people will experience more than one headache type [4]. The purpose of this research is to determine the prevalence and characteristics of headache.

Materials and Methods

Four hundred and ninety seven patients with history of headache presented in Neurology Department of Gandhi Medical College and affiliated Hamidia Hospital were studied for a period of 12 months from October 2016 to September 2017.

For each patient a routine clinic questionnaire was completed by a qualified and experienced specialist in headache neurology during the initial consultation.

Patients having age more than 12 years presented with headache in Neurology Department were included whereas traumatic patients were excluded from the present study.

The detailed history of patients using clinical questionnaire including demographic variable, frequency, onset, duration, precipitating and relieving factor in all the patients were recorded. Whenever required we also did CT /MRI head and fundus examination of eye.

The patients were classified into primary and secondary group. In primary group, headache patients were further classified in to migraine with aura, migraine without aura, frequent tension type headache, infrequent tension type

headache, and chronic headache on the basis of International Classification of Headache version 2.

In secondary group of headache patients were classified into various type of headache according to etiology in to tubercular meningitis, cerebral venous thrombosis, and intracranial space occupying lesions.

All the data were analyzed using IBM SPSS ver. 20 software. Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups.

Results

Table 1: Comparing sociodemographic parameters between types of headache

Parameters	Headache type		Total	P value	
	Primary	Secondary			
Age	12-20	119	10	129	0.084
	21-40	264	16	280	
	41-60	85	0	85	
	>60	3	0	3	
Sex	Female	267	13	280	0.503
	Male	204	13	217	
SES	LC	72	6	78	0.008
	LMC	129	7	136	
	UC	56	1	57	
	ULC	110	8	118	
	UMC	104	4	108	
Residence	Rural	49	2	51	0.906
	Semi Urban	104	6	110	
	Urban	318	18	336	
Family type	JF	177	12	189	0.381
	NF	294	14	308	

SES; socioeconomic status, LC; lower class, LMC; lower middle class, UC; upper class, ULC; upper lower class, UMC; upper middle class, JF; joint family, NF; nuclear family

Out of 471 primary headache patients, IEH (40.33%) was more common followed by FEH (33.75%). Migraine with aura was present in 6.58% whereas migraine without aura was present in 18.32% patients. Most common secondary type of headache was TBM (50%) followed by CVT (30.76%).

Migraine was most common among patients with age group of 21-40 years (n=72), in female (n=74), who belong to urban area (n=80) and were from the nuclear family (n=82) similarly tension type headache was most common among 21-40 years (n=192) age group, in females (n=156), who belong to urban area (n=238) and who were from the nuclear family (n=212). Majority of the patients with migraine (n=101) were unilateral whereas majority of TTH (n=280) were bilateral.

Table 2: Comparing parameters between types of primary headache

Parameters		Primary Headache			
		Migraine		TTH	
		MWA	MA	IEH	FEH
Duration of fever	1-3	10	1	30	26
	3-6	42	14	70	62
	>6	39	16	90	71
Frequency of headache	1-3	54	18	181	76
	4-6	36	11	8	60
	>6	1	2	1	23

MWA; migraine without aura, MA; migraine with aura, TTH; tension type headache, IEH, FEH

Majority of the female patients were diagnosed with IEH (n=103) followed by FEH (n=90), that means tension type headache was more common among female patients. Among males majority of them were diagnosed with IEH (n=87) followed by FEH (n=69), in male also TTH was more common (p=0.244).

CVT (6 out of 8), FEH (85 out of 159), IEH (107 out of 190), MA (22 out of 31), MWA (50 out of 91) and TBM (10 out of 13) was more common in 21-40 years of age (P=0.292).

Table 3: Mean age of presentation in headache

Diagnosis	N	Mean	Std. Deviation
CVT	8	26.63	5.630
FEH	159	29.69	12.378
ICSOL	4	18.25	0.50
IEH	190	30.24	11.948
MA	31	29.19	9.901
MEN	1	14.00	
MWA	91	30.80	13.641
TBM	13	27.31	8.420
Total	497	29.84	12.134

MWA; migraine without aura, MA; migraine with aura, TTH; tension type headache, FEH, frequent tension type headache, IEH, infrequent tension type headache, TBM, tubercular meningitis, CVT; cerebral venous thrombosis, ICSOL; intracranial space occupying lesions.

Photophobia was more common among the patients of MWA (n=78) followed by MA (n=30) that means migraine was mainly associated with photophobia in present study (p<0.001). Nausea/vomiting was more common among patients of MWA (n=88) followed by FEH (n=33) (= <0.001).

Fever was mainly associated with TBM patients (10 out of 13) (p<0.001). However maximum patients with other diagnosis did not have fever in present study. Aura was mainly present in patients with MA (26 out of 31) (P<.001). Majority of the CVT patients had seizure (7 out of 8) similarly majority of the TBM patients had seizure (7 out of 13).

Table 4: Distribution of Triggers in Migraine

Triggers	Frequency	Percentage
Alcohol	2	0.40
Cold	3	0.60
Emotional stress	102	20.52
Fast	67	13.48
Menstrual irregularity	24	4.83
Physical stress	83	16.70
Sleep	56	11.27
Sound	32	6.44
Sunlight	52	10.46
Nil	76	15.29
Total	497	100

Abnormal CT/MRI was most common among the patients of ISCOL (3 out of 4), CVT (all 8 patients), TBM (11 out of 13) and MEN (n=1) ($p < 0.001$). Papilledema was present in all patients of ISCOL (n=4), 8 patients of TBM, 2 patients of CVT and 1 patients of MEN ($P < 0.001$),

Discussion

Head ache is one of the most common maladies to affect the humans. Availability of latest drugs and cost factors are most relevant to management of headache in a developing country. Though population-based analysis is a true indicator of the prevalence and characteristics of headache, hospital-based studies which are able to include only those patients who feel the necessity of seeking medical help reflect the state of affairs of moderate-to severe headaches of long duration.

A study from Varanasi including 2043 patients presenting with chief complaints of headache or facial pain reported that migraine was the commonest headache type followed by tension type headache. In the migraine group migraine without aura was the commonest followed by chronic migraine and migraine with aura. Chronic tension type headache followed by frequent episodic tension type headache was seen in the tension type headache group. Females were affected more in migraine and tension type headache group while in cluster headache and trigeminal neuralgias males were affected more.⁵ Almost similar results were reported in present study.

Mehta *et al.* did a cross-sectional school-based study on 500 school children (aged 7–14 years) at Indore and reported that the prevalence of recurrent headache was found to be 25.5%. Of the studied population, 15.5% had migraine, 5% had tension-type headache migraine, and 5% had mixed-type headache symptoms suggesting both of above. Overall headaches were found to be more common among girls, but tension-type was more common in boys⁶. Results of Mehta *et al.* are consistency with the present study data where 87.8% had primary headache and only 5.4% had secondary headache, similar to Mehta *et al.* headache was more common among female subjects. In nuclear family most common headache was migraine compared to tension, similarly in joint family also most common was migraine compared to tension.

Jain *et al.* included patients more than 12 years age and with complaints of headache for more than 3 months attending the out-patients department or indoor at Kasturba hospital, Sewagram, Wardha. Majority of patients (n = 202) had primary headache (92.5%) which included tension type (47%), and migraine (44%). Secondary headaches constituted 7.5% of the total patients, and these include

post-traumatic headache, refractive error, central nervous system lesions, cervical spondylosis, trigeminal neuralgia, and hypertension, in the order of descending frequency⁷. Similar results were revealed in present study.

Migraine is a ubiquitous familial disorder characterized by periodic, often unilateral, pulsatile headache, which begins in childhood, adolescence or early adult life and recurs with diminishing frequency during advancing years. Migraine with aura (classic or neurologic migraine) is ushered in by an evident disturbance of nervous function, most often visual, followed in a few minutes by hemicranial or in about 1/3rd of the cases, by bilateral headache, nausea, and sometimes vomiting, all of which last for 4–72 h. Migraine without aura (common migraine) is characterized by a sudden onset of hemicranial or less often by global headache with or without nausea and vomiting, which then follows the same temporal pattern as the migraine with aura. Photophobia and phonophobia accompany both types of migraine⁸. Migraine and TTH have been considered distinct entities by the International Headache Society⁹.

Cluster headache (CH), also known as histamine headache, is a primary neurovascular headache disorder, the pathophysiology and etiology of which are not well understood. As the name suggests, CH involves a grouping of headaches, usually over a period of several weeks. According to the diagnostic criteria developed by the International Headache Society (IHS)¹⁰. In present study cluster (100%) headache was the most common primary headache, median age of such type of headache was 52 years usually accompanied by Seizure and headache.

Stark *et al.* performed a systematic review and reported that two studies from Taiwan reported the population prevalence of CM (1.0% and 1.7%), whereas in present study females were mostly affected by CM (85.29%) compared to male population.¹¹ Epidemiologic studies in Europe and America estimate that 6% to 8% of men and 15% to 18% of women experience migraine each year¹¹. Recent prevalence data from the US population-based AMPP study reported the 1-year gender stratified prevalence for episodic migraine (EM) was 17.1% for women and 5.6% for men¹², and for CM was 1.3% for women and 0.5% for men. CM prevalence rates also varied by age, and were highest for women (1.9%) and men (0.8%) in the age range of 40 to 49 years¹³. In present study CM was most common among female patients with age group 21-40 years.

Jain *et al.* also reported that primary type headaches were common among housewives (40.1%), married persons (69.3%), those belonging to socioeconomic class II (47%), and in nuclear families (75.25%)⁷. In present study, Primary (n=294) and secondary headache (n=14) were more common in nuclear family ($p=0.381$). Majority of the patients with migraine (n=82) and TTH (n=212) belong to nuclear family

Migraines have a considerable associated psychological comorbidity. More number of psychosocial problems is likely to be encountered by married persons as compared to unmarried persons, probably predisposing them to these primary headache disorders¹⁴. Similarly, in primary headache disorders, it has been observed that psychological factors were present in 75% cases, most predominant being anxiety, depression, and psychosexual conflicts¹⁵. Similarly in present study most common trigger in migraine was emotional stress (20.52%) followed by physical stress (16.70%) and fast (13.48%).

Caratozzolo *et al.* studied 2032 consecutive patients assessed at the Headache Center of the Neurological ward of the Spedali Civili, Brescia, the diagnoses founded in patients aged more than 60 years old were: without aura migraine (n=23; 5,3%), with aura migraine (n=2; 11 %) chronic migraine (n=11, 15,7%), tension-type headache (n=1; 5,6%), chronic tension-type headache (n=4,10%), other headache (n=6, 35,3 %). They concluded that without aura migraine is the most frequent form of headache in aging patients, while chronic migraine showed a stable incidence during age. Similar results were obtained in present study ^[16].

This is in contrast with what emerged from the work of Bigal and Kelman which explained how clinical features of migraine in the elderly present some differences from the earlier age, in particular, associated with vegetative symptoms (photo-phono phobi, nausea and vomiting) ^[17, 18]. As well as in the work of Wang of 2000, our data confirm that chronic migraine and chronic tension-type headache do not present peculiar characteristics in elderly than to younger individuals ^[19].

As our study was hospital based, its results cannot be extrapolated to the population. A large clinical trial is needed to strengthen the results.

Conclusion

The present study thus documents the clinical profile of headache in the central part of India according to ICHD-2 classification. Most common was primary headache such as migraine and TTH affecting young age group subjects (21-40 years), nuclear family and urban population. Unilateral headache was most common in young population. TTH was found as the most common headache disorder followed by migraine. Stress has been found to be the most common trigger for migraine. Frequent TTH was found more episode than migraine headache in a month. Most common secondary type of headache was TBM followed by CVT.

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