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ORIGINAL RESEARCH

Clinicial profile of migraine patients in a tertiary care centre in Karnataka: A descriptive study

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ABSTRACT

Background: Migraine is one of most common neurological disorders worldwide. Data regarding its prevalence, clinical subtypes are relatively sparse in India. **Objectives:** The primary objective of the present study is to study characteristics of migraine headaches, including its subtypes, presence of auras and its trigger factors.**Materials and Methods:** This was an observational study where 300 migraine patients attending Neurology OPD were consecutively recruited in a tertiary care medical college in Karnataka over a period of two years and were asked to complete a questionnaire regarding migraine, its triggers, presence of auras, family history of migraines.**Results:** Out of 300 patients females constituted 243 patients(81%) and males 57 patients(19%).Mean age of onset of migraine was 25.5+- 8.7 yrs. Throbbing nature of headache was the most common reported pain seen in 83.7%. Phonophobia was the most common associated symptom seen in 80.35 followed by photophobia(79.7%), nausea(68.7%), vomiting(41%) and giddiness(21%). stress was the most common trigger(83%) followed by sleep deprivation(73%), skipping meals(45%), excess sunlight(38.3%), travelling(10.75). 18 patients(6%) reported head bathing as triggering factor.Aura was seen in 99 patients(33%) with headache and visual aura was the commonest aura seen (27.3%).**Conclusion:**Migraine is a very common neurological disorder affecting predominantly females. This study enumerates various clinical features of migraine patients.

Key words: Headache, throbbing pain, unilateral headache, aura,photophobia

INTRODUCTION

Headaches are a common problem encountered by neurologists in the outpatient departments in India as well as in the world. Of the various types of headaches, migraine is one of the most common neurological disorders in the world.Headache is a common complaint of visitors coming to Neurology outpatient department in India as well as in the world. Migraine is the most common neurological disorder in the world among patients presenting with headache.

Migraine attacks are recurrent and complex neurological events characterized by episodes of moderate-to-severe headaches, typically unilateral and frequently accompanied by nausea and heightened sensitivity to light and sound. These episodes, known as migraine attacks, can last hours to days and significantly impact daily activities and the quality of life of individuals[1].Migraine is considered the second major cause of disability after back pain in terms of years lived with disability[2].

Migraines can be classified into the following subtypes according to the Headache Classification Committee of the International Headache Society[3].

- Migraine without aura
- Migraine with aura
- Chronic migraine
- Probable migraine

Migraine affects approximately 12% of the population, with yearly rates rising up to 17% among

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women and 6% among men[4].Migraine attacks vary not only in severity but also in frequency. Women have more severe and frequent attacks when compared with men[5].

Many of these patients during initial evaluation are misdiagnosed or are mistreated for other common conditions like sinusitis and refractive errors.

In developing countries like India, before approaching a neurologist, patients would have either consulted general physicians or many at times even end up using over the counter analgesics for prolonged period of time.

Prevalence of migraine varies in different countries. The Indian data suggests thatincidence of migraine with aura is lower when compared with other parts of the world. [6] It had been also noticed that in Indian patients some unusual headache triggers like hair wash and head bath exist, which are not seen in the West[7].

Considering the varied presentation of migraine in clinical settings, the present study was plannedto facilitate the diagnosis of migraine, with following objectives-

OBJECTIVES OF THE STUDY

1. To study the clinical profile of patients with migraine.
2. Tocharacterizethe migraineurswith respect tosub types of migraine, associatedaura and triggering factors.

MATERIALS AND METHODS

A prospective observational study was conducted on migraine patients attending the Neurology outpatient clinic,over a period of 2 years, in a tertiary care center in Karnataka after obtaining ethical clearance from institutional ethics committee.

Diagnosis of migraine was based on the criteria laid down by International Headache Society in 2018.All the patients with migraine attending Neurology OPD formed our study population.We included 300 consecutive patients fulfilling the diagnostic criteria of migraine [8].

Patients and their accompanying persons were explained about the purpose of the present study and informed verbal consent was taken from the participants.

Information was collected using a pre tested questionnaire consisting socio demographic details, characteristics of migraine headache, presenceand type of auras, triggering factors, the aggravating and relieving factors, history of migraine in family members, past and current therapy details, an enquiry was made regarding past history of epilepsy, stroke,head injury and associated neurological and systemic symptoms.

A family pedigree chart was drawn in all patients and family history of similar headaches was enquired.Thorough clinical examination including fundus examination was conducted to rule out secondary causes of headache. Wherever indicated Neuroimaging and electroencephalography (EEG) were done[8].

Data was entered in excel and was analyzed using SPSS version 17. Descriptive data was analysed andpercentages and means were derived.

RESULTS

The present study enrolled 300 consecutive patients of migraine, of which243 were females(81%) and 57 were males(19%). The mean age of the patients was 30.5 years with a standard deviation of 9 years.Youngest being 12 year old and oldest being 55 years old. The age at onset for majority of patients was between 21 to 30 years(45.3%).

Table 1: Distribution of patients according to age of onset of symptoms

Age of onset(Years)	MaleNo.	FemaleNo.	TotalNo.(%)
0-10	1	6	7(2.3%)
11-20	16	67	83(27.7%)
21-30	28	108	136(45.3%)
31-40	10	53	63(21.0%)
41-50	2	8	10(3.3%)
51-60	Nil	1	1(0.3%)

Unilateral and bilateral sites for onset of headache was almost equally reported in the study population. Majority of patients reported a throbbing sensation(83.7%), followed by a pressure sensation over the head(10.7%).

The sites of pain reported by most of the patients were frontal(55.7%), followed by temporal, occipital and parietal. Multiple sites of pain was reported by 26% of patients out of which the commonest location was fronto-temporal region. Seven patients(2.3%) reported minor trauma prior to the onset of headaches.

The presence of aura preceding the headache was reportedby 1/3rd(33%) of the study population. The commonest type of aura recorded was visual (27.3%) which included flashes of light, excessive lacrimation, blurring of vision, sense of burning. One patient reported hemianopic field defects. Nausea and neck pain was seen in two patients each; a combination of visual symptoms associated with a sense of numbness in the head was seen in two patients.

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Table 2: Characteristics of migraine headache among the study participants

	No. of patients (%)
Location of headache	
Unilateral	149(49.7)
Bilateral	151(50.3)
Type of pain	
Throbbing	251(83.7)
Pressure sensation	32 (10.7)
Dull-aching	7 (2.3)
Sharp/stabbing	5 (1.7)
Band-like	5 (1.7)
Jabbing pain	2 (0.7)
Site of pain	
Frontal	167 (55.7)
Temporal	36 (12)
Occipital	16 (5.3)
Parietal	5 (1.7)
More than one site	78 (26)
Trauma	7 (2.3)
Aura	99 (33)
Type of aura	
Visual	82 (27.3)
Nausea	2 (0.7)
Neck pain	2 (0.7)
Heaviness of head	1 (0.3)
Visual+numbness	2 (0.7)

Phonophobia was the commonest factor associated with migraine headaches seen in 80.3% of patients. This was followed by photophobia(79.7%), nausea(68.7%), vomiting(41%) and giddiness(21%). Few patients also reported agitation, tearing of the eyes. Running nose, diarrhoea and stomach discomfort was reported by one patient each.

Table3: Symptoms associated with migraine headache in study population

Symptoms	No. of Patients(%)
Nausea	206(68.7)
Vomiting	123 (41)
Photophobia	**239 (79.7)**
Phonophobia	**241 (80.3)**
Giddiness	63 (21)
Agitation	7 (2.3)
Smell	6 (2)
Tearing	3 (1)
Running nose	1 (0.3)
Diarrhoea	1(0.3)
Stomach discomfort	1 (0.3)

Among the various triggering factors reported by patients the commonest were increased level of stress (83%),sleep deprivation(73%), skipping meals(45%), exposure to excessive sunlight(38.3%) and travelling(10.7%).

Among less common causes,head bath as a trigger was reported in 18 patients(6%),loud noise triggered headaches in 13 patients (4.3%) and in 2 participantsheadache was triggered during menstrual cycles.

Miscellaneous causes were seen in 19 patients(6.3%) which included crying, talking, reading, watching TV, excess use of mobile phones/computers, AC/dust exposure, oily/cold/non-vegetarian foods, drinking tea and exposure to smoke/dust.

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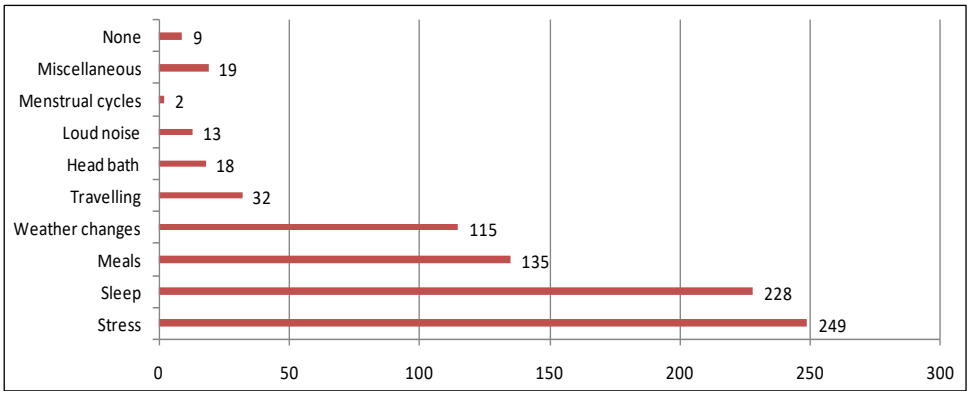
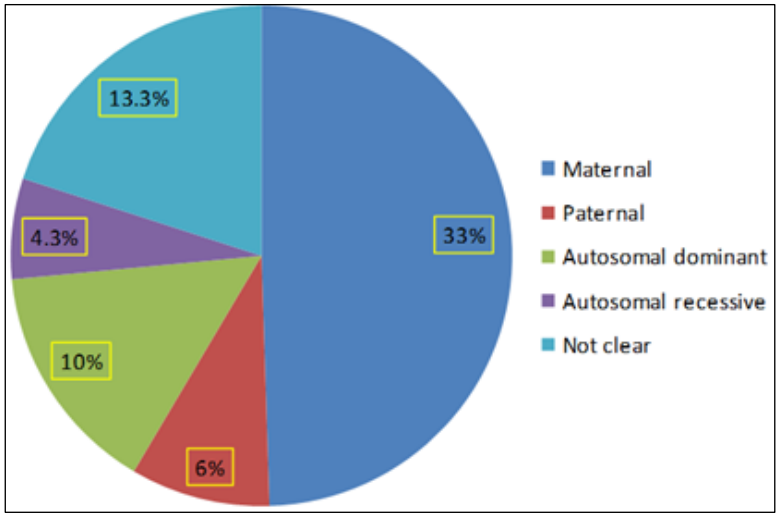


Graph 1: Distribution of triggering factors for migraine among study population

A positive family history of headache was seen in 161 patients(53.7%). Maternal inheritance of headaches was the commonest type of pattern seen in 99 patients(33%). Paternal inheritance was observed in 18 patients(6%). Mother was the only other affected member in 68 families(22.6%)and father was the only other affected member in 7 families(2.3%). Only siblings/offsprings reported headaches in 44 families(14.6%). Autosomal dominant inheritance was seen in 30 patients(10%), autosomal recessive in 13(4.3%) and inheritance pattern was not clear historically in 40 patients(13.3%).



Graph 1: Pattern of inheritance of migraine head a he in study population

When asked about treatment history,majority of patients in present study were on NSAIDs at the time of presentation, only 56 (18.6%) patients were on polypharmacy treatment which included drugs like flunarizine, amitriptyline etc. There were 56(18.6%) patients who were not on any drugs i.e. drug naive patients.

Sixteen patients (5.3%) had done a CT scan at the time of presentation, of which 2 patientsshowed mild sinusitis, one patient had a lacunar infarct in the internal capsule and anotherpatient had incidental gliosis in right basifrontal region.MRI was done in 7 patients. MRI wasnormal in 3 patients; 2 had bilateral lacunar infarcts, one patient had right occipitalgranuloma, one had left parietal gliosis.4 out of 16 who underwent ctscan were showing some pathology in scan3 out of 7 mri normal,4 were abnormal.

DISCUSSION

Migraine is one of the most common neurological disorders throughout the world and contributes significantly to health-care costs in terms of its diagnosis, imaging and treatment expenditure especially in resource-poor countries including India. The present study was undertaken to characterize the clinical profile of migraine patients,presence of auras, gender distribution, presence of family history and document any other peculiar features.

The demographic characteristics in our study matched all other previous studies with a predominant female incidence (of more than 3:1) [9]which may be explained by hormonal differences and specific psycho-social stressors in females.

Typically, migraine headaches have been described as unilateral, throbbing headaches of moderate to severe intensity which increases on activity. Majority of patients fall into this category, but there are quite a few variations to this pattern.In our study we reported

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predominant throbbing sensation in 83.7% and pressure symptoms in 10.7% of patients.

In a study by Kelman *et al*. [10], where 1283 migraineurs were studied, it was reported that 91% had throbbing headaches, 90% pressure symptoms, 87%aching, 71% stabbing.

Migraine headaches when unilateral, both sides are involved with equal frequency but almost one fourth to two-thirds of patients report pain bilaterally. In our study also patients reported unilateral(49.75)and bilateral sites of pain (50.3%) almost equally[11].

Various locations of pain distribution in migraine headaches have been described. As reported by Kelman *et al*. [10], pain can be behind eyes(67.1%), temporal(58%), frontal(55.9%), occipital(39.8%), neck(39.7%),vertex(24.1%), diffuse(17.5%). in our study pain was predominantly frontal(55.7%), temporal(12%), occipital(5.3%), parietal(1.7%), in more than one site(26%). Frontal predominance of pain may be because patients report pain better especially since it may be more discomforting and may induce fear among patients regarding underlying serious pathology.

Phonophobia is a relatively common symptom present in 52-82% patients during an attack [12]. In the present study, phonophobia was reported in 80.3% of patients which was comparable with other studies. Migraine headaches increases sensitivity to both normal volume auditory stimuli and to loud noises. Exposure to sound causes generalized discomfort and increased pain.

Similarly, photophobia has been estimated to occur in 49-92% patients of migraine [13]. Exposure to light and various visual patterns cause generalized discomfort and increased intensity of headaches. Sensitivity may be due to exposure to normal lights, bright lights or flickering lights[14].In our study photophobia was observed in 79.7% of patients which was comparable to other studies.

More than three fourth of patients report nausea during attack of headache, with estimates ranging from 74.2-85.8%vomiting is less common, seen in about one-third to two-third of patients, with estimate ranging from 33.5-67.3% of patients[13]vomiting can add significantly to discomfort due to physical activity of vomiting,increased pain and subsequent dehydration. In our study nausea was seen in 68.7% and vomiting in 41% of patients.Many patients of migraine have gastric stasis during and between the attacks which can lead to abnormal absorption of medications. but there have been no direct link between gastric stasis and presence of nausea and vomiting, which may suggest that nausea and vomiting seen in migraine may be caused by a central process [15].

Majority of migraineurs can identify atleast one trigger for their headaches. Most common triggers are stress, hormones(women), not eating, weather, sleep disturbance, odour, neck pain, light, alcohol, smoke, sleeping late, heat, foods, exercise and sexual activity. Mean number of triggers per patient is 6.7, and atleast two thirds of patients identify 4-9 triggers[16].in our study we noted stress(83%), sleep(73%), skipping meals(45%), sun exposure(38.3%), travel(10.7%), headbathing(6%), noises(4.3%), miscellaneous(6.3%) as the most common triggers.

Stress is a very common triggering factor.Attacks are triggeredwhenever stress levels change fom high stress levels to low, for example during weekends or vacations. Stress levels occuring concurrent to headache rather than stress level 3 days prior to headache onset[17].

Fluctuation in female ovarian hormones are a common trigger the risk is highest on the day of menstruation onset and the following day with a slightly lower risk 2 days prior to onset of mensesapproximately one third to half of women are thought to have menstrual related migraine[18].Etiology is debated, it is believed to be due to low estrogen levels which typically occurs just before menstruation.in our study 2 patients reported migraine related to menstruation.

Specific weatherconditions act as triggers in more than 50% of patients conditions include temperature, changes in barometric pressure, humidity, precipitation, wind, geomagnetic activity [18,19].

Sleep disturbances are a common trigger. In a study of 1283 patients, 50% patients reported sleep disturbance(27% show frequent to very frequent triggers, 37% report oversleeping/sleeping late). Headaches re best predicted by sleep on preceding night[17].Inour study sleep was identified as a trigger in 73% of patients.

Numerous dietary triggers have been identified in migraine. Triggers like certain foods, beverages, skipping meals or fasting can cause headaches in as many as 50% of patients [18,19]. When these are identified, avoidance of these dietary triggers can lead to reduced frequency of headaches. Most common triggers are skipped meals, foods with monosodium glutamate, foods with nitrates or nitrites, cheese, artificial sweeteners.

Approximately 4% of general population and one third of all migraine patients have migraine with aura[20]. Approximately one fifth of patients have aura with every migraine attack and most patients have aura with some attacks which are interspersed with migraine without aura attacks[21].Typically as aura symptoms resolve, headache begins.Rarely aura symptoms can occur after the onset of migraine headache, sometimes in the absence of headache(acephalgic migraine).A study of 163 patients with aura in Denmark, showed 62 had attacks of both aura with headache and aura without headache[22]. considering patients having aura associated with headache, 92.6% had aura preceding headache, 4.7% had aura during headache and 2.7% had aura following headache. In our study 99 patients(33%) had aura preceding headache; visual aura was the most common aura noted in 82 patients(27.3%), one patient reported hemianopic field

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defect.Negative visual phenomena has been reported in one half of patients with migraine and aura [21,22].Visual auras are the most common during migraine headaches, followed by sensory symptoms, aphasic symptoms and motor symptoms [22-25]. In our study 2 patients reported neck pain and 2 patients reported a combination of visual symptoms and numbness in the head.

Visual aura is seen in more than 80% of patients of migraine with aura. Sensory symptoms are seen in one third to one half of patients, aphasic symptoms are seen in one fifth to one third of patients. Motor symptoms are rare, seen in aroun 55 of patients [22]. while visual symtoms coomonly occur in isolation, other symtoms like sensory, aphasic and motor symptoms occur almost always in association with visual symptoms [22-25].

LIMITATIONS OF OUR STUDY

In the present study we did not do a detailed study of auras associated with migraine.

Another limitation being co morbidities associated with migraine were not assessed.

CONCLUSION

Migraine is a very common disorder that affects predominantly women in third to sixth decades of life resulting in considerable pain, workplace and social disability and costs to individual and society at large. The present study tries to provide information regarding the pattern of presentation in patients suffering from migraine which will be useful for early identification so that majority will be directed towards appropriate management of migraine and thereby reducing the suffering and health care expenditure largely due to misdiagnosis and treatment.

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