



MIGRAINE CHARACTERISTICS AND ASSOCIATION WITH METABOLIC SYNDROME-AN OBSERVATIONAL STUDY

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INTRODUCTION

Headache is one of the commonest medical complaints and accounts for 25% of general neurologist outpatient practice. Migraine contributes to 16% to the headache patients and it is the 2nd most common cause of headache affecting 15% of women and 6% of men.² Historically, research on headache was conducted on an ad hoc basis, with no common diagnostic criteria used. This makes it difficult to apply studies conducted before 1990 to the present day. Year zero for headache was 1988, the year of publication of the International Headache Society (IHS) classification criteria for headache subtypes.³ Since its inception, it has become possible to diagnose patients accurately and consistently. The criteria have since been revised, and new classification criteria were published in 2004.⁴

Due to commercial considerations and clinical importance, most recent headache research is concentrated on migraine. Most often, Migraine diagnosis is easy and treatment is straightforward but, in small number, it can be complex and debilitating. Although there are many unanswered questions, much more is now known about the 2 pathophysiologies of migraine, there are newer drug options and newer treatment strategies.

The present study is planned to characterize the migraineurs with respect to their demographic, clinical, biochemical characteristics and understand their precipitating factor, treatment modality and possible modes of inheritance by clinical evaluation of family pedigree.

METHODOLOGY:

The present study was conducted on patients suffering from Headache presenting to the Medicine OPD and wards of Maharaja Yashwantrao Hospital, Indore. This was a questionnaire-based prospective study conducted at a tertiary referral centre in India. All patients fulfilling the diagnostic criteria for migraine were enrolled and the criteria for inclusion and exclusion of patients were laid down.

All patients or legally acceptable representative provided written informed consent for participation. The research protocol and informed consent form (ICF) was approved by the scientific review committee.

All patients who has moderate to severe headache and who met the ICHD criteria for migraine with aura or without aura were included.

All patients below 18 years or above 60 years, with a recent history of trauma, suspected secondary headache (thunderclap headache, fever, meningismus, altered mental status, focal neurological symptom), headache due to other etiologies like a tumor, vascular disease (SLE, APLA Syndrome) and epilepsy patients were excluded from the study.

Data was collected in the form of demographic characteristic, characteristics of migraine headache, precipitating factor, clinical and laboratory characteristic, prevalence of migraine in family members and current therapy.

RESULTS AND DISCUSSION:

Patients selection

A total of 200 patients, meeting with the criteria were selected for the study. The demographic distribution of the patients was observed.

Table 1: Distribution of patients in different age groups

Age Groups (Years)	No. of Patients n=200	Percentage
18-20	32	16
21-30	92	46
31-40	38	19
41-50	22	11
51-60	16	8
Total	200	100

Among the selected patients maximum no. of patients, 46% lies in the group of age 21-30 years and the least no. of patients 8% were reported in the age group of 51-60 years. There was significant difference found between the no. of male and female patients enrolled in the studies. Among the selected population 69% female and 31% male were found to be affected by a migraine.

Table 2: Genderwise distribution of the patients

Gender	No. of Patients n=200	Percentage
Male	62	31
Female	138	69
Total	200	100

$p > 0.05$, not significant

The mean age of the onset of a migraine was also reported in different age groups and both the genders. The data is represented in table 3.

Table 3: Age of onset of migraine symptoms

Age Groups (Years)	No. of Patients n=200	Percentage
<20	52	26
21-30	78	39
31-40	34	17
>40	36	18
Total	200	100

The mean age reported for the onset of the disease is 29.51 ± 11.29 . Whereas the mean age for the onset of disease in male patients was 31.29 ± 11.15 years ($N=62$) and 28.71 ± 11.34 years ($N=138$), for female patients.

Clinical and Laboratory parameters:

The clinical parameters of all the patients were recorded as per the standard procedure. The mean value of each clinical parameter and laboratory parameter are shown in table 4 and table 5 respectively.

Table 4: Value of Clinical Parameters

Age Groups (Years)	Value (Mean \pm SD)
Systolic Blood Pressure (mm Hg)	119.74 ± 14.19
Diastolic Blood Pressure (mm Hg)	77.32 ± 10.15
Random Blood Sugar (mg/dl)	105.41 ± 34.11
Body Mass Index (kg/m ²)	22.30 ± 4.53
Waist Circumference (cm)	79.86 ± 13.09

Table 5: Value of Laboratory Parameters

Parameters	Value (Mean ± SD)
Total Cholesterol	159.46 ± 43.45
Triglycerides	139.74 ± 70.08
LDL	76.86 ± 40.70
HDL	54.81 ± 11.18

Table 5: Characteristics of a Migraine Headache

Characteristics	No. of Patients n=200	Percentage
Location of headache		
Unilateral	138	69
Bilateral	62	31
Quality		
Pulsatile	144	72
Constructing	56	28
Severity of pain		
Severe	104	52
Moderate	56	28
Photophobia	178	89
Phonophobia	154	77
Nausea	148	74
Vomiting	92	46
Aggravated by or causing Routine physical activity		
Aura	22	11
Vertigo	16	8
Transient diminution of vision	20	10
Gastrointestinal symptoms	6	3
Sensory deficit	10	5
Motor deficit	0	0
Difficulty in speaking	6	3
Sweating	26	13
Transient diplopia	6	3

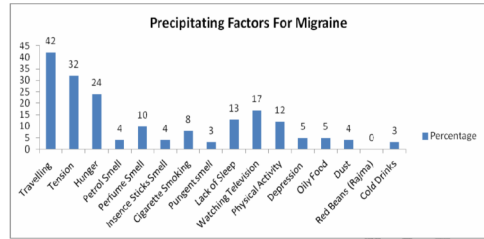


Fig 2: Participating factor in a migraine

The family history of Migraine

Total 46 Patients among 200 patients were having a family history of a migraine sufferer. The relation and prevalence of it are shown in table 6

Table 6: Prevalence of a migraine in family

Relation Prevalent	No. of Patients	Percentage
Mother	19	41.30
Father	5	10.87
Female Sibling	13	28.26
Male Sibling	7	15.22
Maternal aunt	1	2.17
maternal Uncle	0	0.00
Paternal aunt	0	0.00
Paternal Uncle	1	2.17
Total	46	100.0

Mother inherited a migraine is a most prevalent that affected 41.30% patients. A total of 23% of total patients were reported to have a family history of a migraine.

Treatment took by the patients during an acute attack of a migraine headache:

Patients chosen for the study was enquired for the treatment taken for the acute attack of a migraine headache. Maximum no. of patients 97% were reported to take NSAID for the treatment.

Table 6: Treatment taken by patients

Treatment	No. of Patients n=200	Percentage
NSAID	194	97
TRIPTANS	6	3
Total	200	100

Prevalence of the Metabolic syndrome and Prophylactic shock :

Among the total patients, 69% of patients were reported of having a prophylactic shock. 40 patients were reported of having metabolic syndrome and 160 patients were free from metabolic syndrome.

DISCUSSION

In the present study of 200 patients, prevalence of metabolic syndrome in migraine patients was 20%, with 22% in female patients and 18% in male patients. On the basis of the results of this study, it seems that metabolic syndrome cannot be considered as an etiologic factor for migraine headache. Some components of metabolic syndrome such as high BMI and a high WC were significantly more frequent in migraine headache, but no correlation was found with metabolic syndrome and migraine. Majority of patient suffered from migraine without aura (89%) and 11% patient has migraine with aura. These findings were also supported by the study done by Samhita et al., which reported that 51.83.8% patient has migraine without aura.

Migraine without aura was the commonest presentation. Migraine headache was unilateral in 69% of patients and 31% of patients have bilateral. It was severe in 72% of patients and 28% of patients have moderate pain. Through their study, K Ravishankar et al also found that migraine headache was unilateral in 60% of patients.

Almost all patients took NSAID's for an acute attack of a migraine and only three percent patient took Triptans. NSAID's were effective in aborting pain in almost all the patients. Most of the patient got relief from headache in 1-2 hours after taking the medication. In our study maximum patient took prophylactic medication (69%) and 31% patients did not take any prophylactic medications.

CONCLUSION:

The prevalence of metabolic syndrome in migraine patient is 26%. It

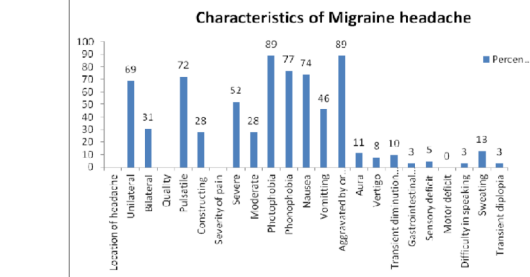


Fig 1: Characteristics of Migraine Headache Participating factor of a Migraine

Table 6: Participating factor to

Factors	No. of Patients n=200	Percentage
Travelling	84	42
Tension	64	32
Hunger	48	24
Petrol Smell	8	4
Perfume smell	20	10
Incense Sticks Smell	8	4
Cigarette Smoking	16	8
Pungent Smell	6	3
Lack of Sleep	26	13
Watching Television	34	17
Physical Activity	24	12
Depression	10	5
Oily Food	10	5
Dust	8	4
Red Beans (Rajma)	0	0
Cold Drinks	6	3

Travelling found to be a most contributing factor in the onset of a migraine headache, which affected 42% of patients, after that Tension and Hunger which affected to 32% and 24% of patients.

revealed that a migraine is more common in females (69%) with an average age of onset in 2nd and the 3rd decade with a mean age of onset of 28.7 years in female and 31.2 years in the male. M migraine without aura (89%) is more common than migraine with aura (11%). It is unilateral in 69% of cases and severe in 72% of cases. Photophobia (89%), phonophobia (77%), nausea (74%) and vomiting (46%) are most common symptoms. Travel (42%), tension (32%) and hunger (24%) is the most common precipitating factor. NSAID's (97%) is the most commonly prescribed medication for an acute attack of migraine and beta blocker (76.8%) is the most common prophylactic medication. There is the relatively low frequency of family history of headache. 21% of patients have a positive family history. Mother (41.3%) and female sibling (28.3%) are the most common family members who have migraine. Though a definite pattern of inheritance can't be commented on, the majority with a positive family history of headache had a trend to possible maternal inheritance. Further large clinical, as well as epidemiological studies, must be conducted in our country to confirm and further elaborate on our observations. Specific biochemical analyses and genomic studies have to be done to elucidate the possible genetic defect and its biochemical effects in migraineurs.

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