International Journal of Pharmacological Research
ISSN: 2277-3312 (Online)
Journal DOI: https://doi.org/10.7439/ijpr **Research Article**

Migraine – An epidemiological and pharmacological study

Amudavalli K[*1] and Amudhan Arvind E[2]

[1]*Professor & HOD, Department of Pharmacology, Government Dharmapuri Medical College, Dharmapuri, India*
[2]*Assistant Professor, Department Of Pharmacology, Government Dharmapuri Medical College, Dharmapuri, India*

QR Code

***Correspondence Info:**
Dr. Amudavalli K
Professor & HOD,
Department of Pharmacology,
Government Dharmapuri Medical College, Dharmapuri, India

***Article History:**
Received: 07/06/2018
Revised: 28/06/2018
Accepted: 28/06/2018
DOI: https://doi.org/10.7439/ijpr.v8i6.4796

Abstract

Introduction: Migraine is one of the frequent causes of headache presenting to physicians and neurologists. There is wide variation in presentation of the problem and factors influencing it. This also influences the pharmacotherapy of the disease.
Aims & objective: There is deficit in date in regarding with clinical symptomatology & anti migraine drugs used in India. Our study has aimed to focus on the epidemiological pattern of presentation and also the pharmacotherapy of migraine.
Materials & Methods: This was a cross-sectional observational study done in Government Dharmapuri medical college for one year from Jan 2017 to Dec 2017. Clinico-epidemiological data &drug usage pattern were obtained from patients.
Observations & Results: Migraine was primarily seen in female patient's population with frequent onset in 2nd to 4th decade. Unilateral headache was common seen in our study with no patients with bilateral type. Calcium Channel blockers is commonly used in our patients followed by beta blockers. There were lots of limitations to the use of NSAID due to GI side effects.
Conclusion: Further large clinical as well as epidemiological studies must be conducted try to confirm and further enlighten our observations.
Keywords: Migraine, headache, clinico- epidemiology, pharmacotherapy.

1. Introduction

Headache is one of the common neurological disorders associated with a significant disease burden. It affects day to day activities which has a substantial impact on a suffering person's quality of life.[1] Migraine is a common headache faced globally including India.[2] It is an episodic headache, become chronic if not treated properly & effectively. Most often it is poorly diagnosed & managed in developing countries. It is characterized by unilateral severe pulsating headache accompanied by typical autonomic symptoms such as nausea, vomiting, photo- and phono phobia. Prophylactic therapy is an important mode of management for patients with frequent or chronic migraine headache [3]. There are many studies about drug utilization for the prevention & management of migraine. Rational prescriptions should be the aim of neurologists and physicians in the prophylaxis & management of migraine to increase proper control of headache. Disease control may be achieved by pharmacotherapy in most of the patients. In those who fail to respond to drugs other treatment modalities may be considered like behaviour modification or major invasive medical techniques. Our study has aimed to focus on the epidemiological pattern of presentation and also the drug utilisation pattern for migraine.

2. Materials & Methods

This study was carried out over one year period from Jan to Dec 2017 by the department of Pharmacology, Government Dharmapuri Medical College. This was a cross-sectional observational study. All the prescriptions issued during this period were recorded on case record forms. Our study was conducted in 50 patients who were selected based on inclusion and exclusion criteria. Diagnosis was made on the basis of medical history and physical examination, and, if necessary, tests to rule out

other diseases or conditions causing the headache were done.

A diagnosis of migraine is usually made on the basis of repeated attacks (at least 5) that meet the following criteria: [4] (ICHD-2)

- Attacks of headache last for 4 - 72 hours
- Headache having at least 2 of the following characteristics: Location on one side of the head; throbbing pain; moderate or severe pain intensity; pain worsened by normal physical activity (such as walking or climbing stairs)
- During the headache, the patient has one or both of the following characteristics: Nausea or vomiting; extreme sensitivity to light or sound
- The headache cannot be attributed to another disorder

The study was approved by the institutional ethics committee and informed consent was obtained from all the study subjects.

2.1 Exclusion criteria's:

Subjects with major neurological disorders like space occupying lesion, seizure, head injury, on any other drugs, those with chronic daily headache and pregnant women were excluded

Information was also collected regarding headache of the patient. All the information was recorded on a proforma. Demographic profiles of the patient (age & gender), type, aetiology of headache, drug data were recorded.

3. Observations & Results

In our study we screened 320 patients among which 50 were selected after scrutinising them with inclusion and exclusion criteria. Among the patients included in our study 36 (72%) were females and rest were males. (Table 1). The ranges of age among our patients were from 15 to 65 years. There is also wide range seen in duration of headache from less than 1 year to more than five years with most of patients having complaints for 1-3 years.

Table 1: Demographic profile of the study population with percentage (n=50)

Features	Male (%)	Female (%)	Total
Gender	36 (72%)	14 (28%)	(n=50)
Age distribution			
15-24	1	5	6
25-44	8	26	34
45-64	5	4	9
More than 65	0	1	1
Duration of disease			
Less than 1 year	1	0	1
1-3 years	6	20	26
4-5 years	4	10	14
More than 5 years	3	6	9

Headache was seen unilaterally in all of our patients, no patients presented with bilateral headache. Similarly among our study group patient presented with right sided headache (n=29, 58%) commonly. Frontal headache was seen in 23 patients followed by parietal headache in 13 patients. Onset was acute mostly (n=43) and was associated with aura commonly (n=45). Scalp tenderness was severe in almost all cases except one, whereas the symptoms were more commonly encountered in night time (n=30) (Table 2).

Table 2: Clinical scenario among patients

Parameter	Male	Female	Total
Laterality			
Unilateral	14	36	50
Side			
Right	9	20	29
Left	5	16	21
Site			
Frontal	7	16	23
Parietal	3	10	13
Occipital	1	3	4
Temporal	3	5	8
Retro-orbital	0	3	3
Onset			
Acute	11	32	43
Insidious	3	4	7
Headache			
With aura	12	33	45
Without aura	2	3	5
Scalp tenderness			
Mild	0	1	1
Severe	14	35	49
Time of attack			
Day	4	16	20
Night	10	20	30

A number of influencing factors were observed (Table 3). Most of the patients had one or more aggravating factors. Amongst these, commonest were exercise, lack of sleep and hunger. Some patients reported precipitation of attacks by certain foods (fish, cheese, cold drinks), perfumes, petrol, phenyl & cigarette smoke etc.

Table 3: Distribution of different factors influencing headache

Factors	Male	Female	Total
Precipitating factors			
Emotional upset	2	3	5
Exercise	11	13	24
Menstrual periods	0	7	7
Menopause	0	1	1
Studying	2	2	4
Familial migraine	3	10	13
Triggering factors			
Tiredness	1	5	6
Exhaustion	10	12	14
Lack of sleep	9	29	38
Travel	6	9	15
Starvation	10	18	28
External stimuli			
Food	0	10	10
Light	3	5	8
Smell	3	5	8

Further we also studied associated symptoms along with migraine particularly ocular and gastrointestinal factors. Most of the patients had more than one symptom. Almost most of the patients had congestion followed by closing or shrinking eyes due to pain. Nausea is the commonest GIT symptom encountered (Table 4).

Table 4: Associated symptoms

Symptoms	Male	Female	Total
Ocular			
Congestion	14	33	47
Watering	14	21	35
Photophobia	12	28	40
GIT			
Nausea	13	30	43
Vomiting	10	14	24

Finally we analysed the drug intake pattern of our study group. The most common drug used was calcium channel blocker particularly flunarizine followed by propranolol. Triptans were minimally used by patients in our study group with only 8 patients were on triptans. Some patients were using more than one drug for treatment. Sometimes drugs in combinations were also used. NSAIDS commonly used were paracetamol, ibuprofen, diclofenac sodium, mefenamic acid & aspirin (Table 5).

Table 5: Pharmacotherapy in our study patients

Drugs	No of Patients	Percentage
CCB : Flunarizine	44	88%
Beta blockers:Propranolol	28	56%
Triptans	8	16%
Anti-anxiety: Alprazolam	5	10%
Anti convulsant: Sodium Valproate	2	4%
NSAIDs	5	10%
Supportive measures	5	10%

4. Discussion

In our hospital, one of the commonest complaint with which patient comes to the general physician was headache. The study population had female preponderance (72%). The Female to male ratio is 2.57: 1. Most of previous studies done in western countries also shows similar female preponderance[5] The mean age of onset of migraine was around 25-44 years in our study group [34(68%)]. There was decrease in number of patients as age advances irrespective of the gender. Also it was seen in different studies on Indian population that migraine is a disease of the young. The majority of the patients in our study sample suffered from migraine with aura with a prevalence of 90%. This is contradictory to previous studies where migraine without aura is the commonest presentation.[6]

Unilateral type of headache was seen in all the patients in our study group with right side being common and frontal headache was commonest presentation. Some previous studies from India showed strictly unilateral pain in 40.5% patients and 1/5th of them were suffered from true hemicranial headache (oculo-fronto-temporoparietal or fronto- temporoparietal) similar to our study [7]. Our study showed nausea, and vomiting as the most common accompanying symptoms as seen in previous studies.[8] along with congestion of eyes and photophobia.

Trigger factors are vital for migraine as they may be helpful to treat the cause & know the severity of migraine attack. The most common precipitants in our study were exercise, lack of sleep and starvation. Some interesting but unrelated stress factors also were observed during our study period such foods like fish, vegetables, etc and changing weather. Certain other factors associated with migraine include travel, exhaustionetc[9]. It was observed that migraine was under diagnosed & management was insufficient affecting quality of life. Avoidance of trigger factors is important in management of migraine.

In our study, Calcium channel blockers were commonly prescribed in 88% of cases and followed by propranolol in 56% of cases. Some cases required more than one drugs. In a large European study, by order of frequency, the prophylactic treatments administered were topiramate (43%), β-blockers (18%), flunarizine (17%), amitriptyline (14%). β-blockers and flunarizine were used much more frequently in men and antidepressants were more in women[10]. This finding was different from our study results. But these may varies depending upon drug availability and prescribing physicians. There are no much studies about the management of migraine in relation to various drugs from India. Studies have shown Beta blockers were effective in reducing attack frequency by more than 50%[11]. Although propranolol is the most commonly prescribed drug in this class, there is no evidence of difference in efficacy between propranolol & other ß-blockers [12]. Higher use of CCBs in this study could be due to easy availability and less cost.

5. Conclusion

The management modalities for migraine are wide-ranging and depend upon the individual patient. Treating physicians should be well aware of the different groups of drugs, efficacy and side effect profile of the drugs they choose. Patient education is one another prime modality for effective management of migraine. Further large clinical as well as epidemiological studies must be conducted try to confirm and further enlighten our observations.

References

[1]. Linde M. & Dahlof C. Attitudes & burden of disease among self-considered migraineurs: a nation-wide population-based survey in Sweden. *Cephalalgia* 2004; 24: 455–465.

[2]. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton RB, Scher AI, Steiner TJ, Zwart J-A The global burden of headache: a documentation of headache prevalence and disability worldwide. *Cephalalgia*, 2007; 27:193–210

[3]. Silberstein SD, Winner PK, Chmiel JJ: Migraine preventive medication reduces resource utilization. *Headache* 2003, 43:171-178.

[4]. Headache Classification Committee of the International Headache Society, The international classification of headache disorders. *Cephalgia* 2nd 9–160.

[5]. Stewart W F, Lipton R B, Celentano D D& Reed M L. Prevalence of migraine headache in the US. Relation to age, income, race & other sociodemographic factors. *JAMA*, 1992; 267: 64–69.

[6]. Panda S &Tripathi M. Clinical profile of migraineurs in a referral centre in India. *J Assoc Physicians India*, 2005; 53, 111–115.

[7]. Chakravarty A, Mukherjee A & Roy D. Migraine pain location in adult patients from eastern India. *Ann Indian Acad Neurol*, 2008; 11: 98–102.

[8]. Bokhari F A, Sami W, Shakoori T A, Ali S A& Qureshi G A. Clinical characteristics of 226 college-going female migraineurs in Lahore, Pakistan - putting ICHD-2 to the road test. *Neuro Endocrinol. Lett.* 2008; 29: 965–970.

[9]. Bener A *et al*. Genetic & environmental factors associated with migraine in schoolchildren. *Headache*, 2000; 40: 152–157.

[10]. López Hernández N, Morera Guitart J, Medrano Martínez V, Fernández Izquierdo S & Pérez Sempere A. Prevention of migraine: a pharmacoepidemiological study. *Neurologia*, 2009; 24: 98–101.

[11]. Silberstein SD, Goadsby P. Migraine: Preventative treatment. *Cephalalgia* 2002; 22: 491-512.

[12]. Rapoport A. Acute and prophylactic treatments for migraine: Present and future. *Neurol Sci* 2008; 29: S110-22.