



## COMPAIRING IMPROVEMENT IN INTENSITY AND FREQUENCY OF MIGRAINE BY THE USE OF TOPIRAMATE AND PROPRANOLOL

Dr. Ankur Singla\*<sup>1</sup>, Dr. Manish Bathla<sup>2</sup>, Dr. Shazia Anjum<sup>3</sup> and Dr. Shaminder Panchal<sup>4</sup>

<sup>1</sup>3rd Year Junior Resident, Department of Psychiatry, Maharishi Markandeshwar Institute of Medical Science and Research, Maharishi Markandeshwar University, Mullana, Ambala.

<sup>2</sup>Head and Professor, Department of Psychiatry, Maharishi Markandeshwar Institute of Medical Science and Research, Maharishi Markandeshwar University, Mullana, Ambala.

<sup>3</sup>Assistant Professor, Department of Psychiatry Maharishi Markandeshwar Institute of Medical Science and Research, Maharishi Markandeshwar University, Mullana, Ambala.

<sup>4</sup>Senior Resident, Department of Psychiatry, Maharishi Markandeshwar Institute of Medical Science and Research, Maharishi Markandeshwar University, Mullana, Ambala.

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### \*Corresponding Author

**Dr. Ankur Singla**

3rd Year Junior Resident,  
Department of Psychiatry,  
Maharishi Markandeshwar  
Institute of Medical Science  
and Research, Maharishi  
Markandeshwar University,  
Mullana, Ambala.

### ABSTRACT

**Background:** Migraine headache is a paroxysmal disorder characterized by recurrent unilateral headaches with or without visual and gastrointestinal disturbance. **Aim:** To compare improvement in the frequency and intensity of migranous headache with the use of Topiramate and Propranolol. **Type of Study:** Follow up/ longitudinal study with assessment at baseline; 2 weeks and 6 weeks. **Material used:** 1. Headache intake questionnaires (HIQ) was used to check the frequency and intensity of headache. 2. Headache management questionnaires (HMQ) was used to record the response to treatment. **Methodology:** Thirty consecutive patients of either sex were evaluated. Odd number of recruitments were prescribed Topiramate and even number of recruitments were prescribed Propranolol. Out of 30 patients recruited, 6 patients dropped out due to various reasons and

the remaining 24 patients completed the study. **Statistics:** Software used for statistics was SPSS 20 version. Stats used were descriptive; Independent paired t-test and Unpaired t-test.

**Results:** Maximum number of sample belong to 25-35 age group and 33.3% of them were

males and 66.6% of them were females. After 2 weeks, a significant change was seen with the effect of Topiramate medication. medicines. After 6 weeks, a tremendous changes can be observed in the effect of Topiramate medicine. **Conclusion:** Topiramate and Propranolol are effective in Migraine but Topiramate is more efficacious.

**KEYWORDS:** Migraine, Propranolol, Topiramate.

## INTRODUCTION

Migraine headache is a paroxysmal disorder characterized by recurrent unilateral headaches. It is a common disabling brain disorder.

Migraine is a burden for many people and it is not more than an inconvenience for them. Due to this it has caused it to be ranked in the top 40 in global burden of health figures by the World Health Organization's 2012.<sup>[1]</sup>

Migraine is the commonest cause of recurrent, severe headache. The tendency to suffer from Migraine has a genetic basis, but individually it is triggered by internal and external influences.

The name 'migraine' originally comes from the Greek word hemicrania, meaning 'half of the head', representing one of the most striking feature of Migraine. The pain is generally throbbing in nature and typically made worse by any form of movement or even modest exertion. The majority of migraine attacks are severe or at least moderate.

The International Headache Society criteria are very helpful in the diagnosis of migraine, which divides migraine into: migraine with aura and migraine without aura.<sup>[2]</sup>

In Migraine with aura (MA), formerly called focal or classical migraine, the aura evolves over time, usually many minutes, one aspect of the aura improves while another is deteriorating. Visual aura usually leads to easy diagnosis. Auras affecting sensation, movement, cognition, vestibular function or consciousness may be difficult to distinguish from thrombo embolism, or from epilepsy (especially occipital seizures). People presenting with recent onset MA often give a longer history of Migraine without aura, mistakenly diagnosed as bilious attacks, sinusitis or normal headaches. Visual symptoms are positive binocular while patients insist that visual aura is monocular, raising the possibility of retinal origin. Aura typically precedes migraine headache, though can occur at any time in relation to

pain. Aura is not always contra lateral to pain. Migraine headache without aura is common, especially in middle age: a flurry of MA episodes without headache often triggers referral fearing transient ischaemic attacks (TIA). Thrombo embolism may be accompanied by headache but is distinguished from Migraine with aura by abrupt, non-evolving associated impairment, confined to a single vascular territory. MA is much more common than TIA at all ages around 40 years of age.<sup>[2]</sup>

Migraine without aura (MWA) formerly called common migraine, is suggested by a history of episodic disabling headache lasting between a few hours and a few days, accompanied by gastrointestinal symptoms or by heightened special senses. It is unusual to be able to distract oneself from Migraine without aura with exercise or hard work, in contrast to Tension type headache (TTH). The frequency and periodicity of migraine is important: migraine-like headache more than twice every week is unlikely to be MWA alone, but it may be MWA complicated by TTH. This is common in patients referred with intractable migraine or status migrainus.<sup>[2]</sup>

## **MATERIALS AND METHODS**

### **Design**

It was a Follow up/Longitudinal study.

### **Sampling**

A consecutive sampling method was adopted.

### **Sample size**

Thirty (30) consecutive patients of either gender were included in the study.

### **Inclusion criteria**

1. Both male and female patients having diagnosis of Migraine headache according to International Classification of Headache Disorders (ICHD) were included.
2. Patients who know Hindi, Punjabi or English language.

### **Exclusion criteria**

1. Patients having past history of organic disorders, epilepsy or any neurological condition.
2. Patients with co-morbid psychiatric diagnosis.
3. Patients having co-existing alcohol/substance abuse disorder.

### Method of data collection

The study was conducted in the psychiatry OPD at MMIMSR, Mullana. A patient was first seen by Dr. Ankur Singla (primary researcher) under the supervision of a consultant. Thereafter, the patient was reviewed by consultant in-charge.

### Materials used

**1. Headache intake questionnaire(HIQ)** was used to check the frequency and intensity of headache and the quality of life of the patients at the baseline. Scoring

0 to 14 – Good quality of life

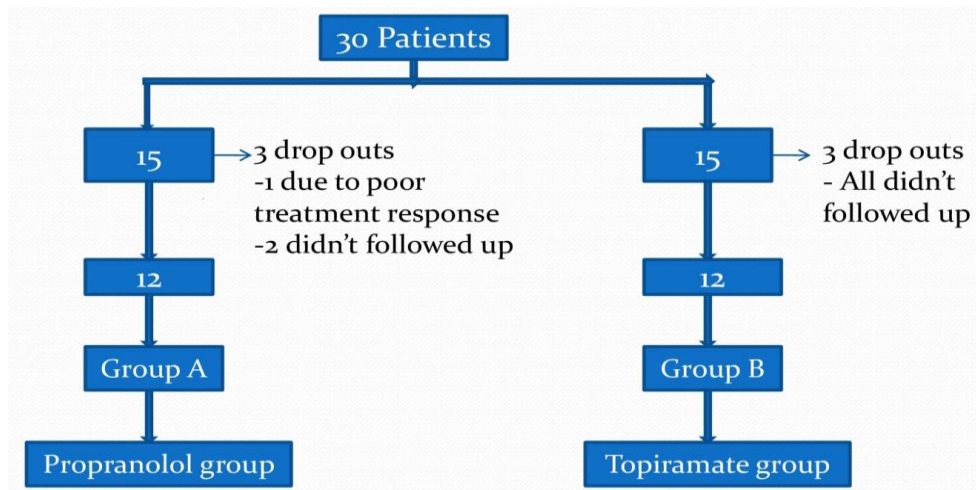
15 to 28 – Worse quality of life

29 to 42 – Worst quality of life

**2. Headache management questionnaire (HMQ)** was used to record the response to treatment.

Sealed envelope technique was used.

Patients were divided into 2 Groups



### STATISTICAL ANALYSIS

1. Frequency and percentage tables were used for presentation of qualitative data.

2. Mean, median and standard deviation were used for quantitative data.

3. Comparison of various quantitative parameters amongst study groups was done using unpaired-t test.

p value < 0.05 was taken as level of significance.

## RESULTS

**Table 1: Frequency and percentage distribution of demographic variable.**

	Demographic variable	Frequency (n)	Percentage (%)
Age	Below 25	2	8
	25-35	13	54
	36-45	6	25
	46-55	2	8
	56-65	1	4
Gender	Male	8	33.3
	Female	16	66.6

Table 1 shows that maximum number of sample belong to 25-35 age group and 33.3% of them were males and 66.6% of them were females.

**Table 2: Demographic variables for male and female patient.**

Unpaired T Test	AGE	
	Group A (n=12)	Group B (n=12)
Mean	36.42 ± 12.831	32.67 ± 4.418
Unpaired T Test	0.957	
P value	0.3488	
Result	Not-Significant	

Table 2 shows that Unpaired T test has no significant association with any of the demographic variable.

**Table 3: Mean, Median, Standered deviation and t value at the baseline.**

Unpaired T Test	HA-SQOL	
	Group A (Propranolol) n=12	Group B (Topiramate) n=12
Mean	19.67 ± 4.418	18.67 ± 3.916
Unpaired T Test	0.587	
P value	0.5633	
Result	Not-Significant	

Table 3 depict that there is no significant association at that time. "t" value is 0.58 found to be not statistically significant at 0.05 level of significance.

**Table 4: Mean, median, standered deviation and t value of effect of medicines after 2 weeks follow up.**

Unpaired T Test	HA-MQ 2W	
	Group A (Propranolol) n=12	Group B (Topiramate) n=12
Mean	22.08 ± 6.186	26.75 ± 4.267
Unpaired T Test	2.151	
P value	0.0427	
Result	Significant	

Table 4 reveals the effect of medicines after 2 weeks and a significant change can be seen in the effect of Topiramate medication. There is 4.66 mean difference between both the medications. Medicine Topiramate has a higher mean score than the medicine Propranolol and statistically significant 0.04

**Table 5: Mean, Median, Standard deviation and t value of effect of medicines after 6 weeks follow up.**

Unpaired T Test	HA-MQ 6W	
	Group A (Propranolol) n=12	Group B (Topiramate) n=12
Mean	29.25 ± 2.800	32.92 ± 2.575
Unpaired T Test	3.339	
P value	0.0030	
Result	Significant	

Table 5 shows the effect of medicines after 6 weeks and a tremendous changes can be observed in the effect of Topiramate medicine. T value 3.34 found statistically significant at the level of 0.05 level of significance i.e 0.003

## DISCUSSION

Migraine is more common in the age group 25-35 years (Mean age 32.6 years). This was also found similar to the studies of Biman K Ray *et al*<sup>[4]</sup>, where mean age of the patients suffering from Migraine was 32.2 years and their study included the participants aged between 20 years to 50 years. The idea behind choosing in this age group was the maximal prevalence of the headache in this age group and the same can also be seen in our study. Biman K Ray screened 2400 participants with an aim to study the prevalence of migraine, its disease burden and the associated risk factors.

In our study we found that Migraine is more common in Females(F) than in Males(M) [F:M - 16:8]. Concomitant results were found in the studies of Sulmaz Gharamani *et al*<sup>[5]</sup> and Razieh Fallah *et al*<sup>[6]</sup> Sulmaz Gharamani screened 100 patients with an aim to assess the quality of life in patients with migraine treated with both Propranolol and Topiramate same as in our study. Rajeih Fallah did study on the children and the purpose of the study was to evaluate the efficacy and safety of Topiramate for migraine prophylaxis and no serious side effects were reported.

We also found in our study that mean score of the quality of life was 19.67 in Group A and 18.67 in Group B which denotes that quality of life was worse due to Migranus headache at the baseline. Similar results were found in the studies of Sulmaz Ghramani *et al*<sup>[5]</sup>

Our study shows that Mean value of Topiramate after 2 weeks was 26.75 and mean value of Propranolol was 22.08 which denotes that Topiramate is more efficacious than Propranolol. Results were incoherent with the studies of Ramakant Yadav et al<sup>[7]</sup> and Syed Khan Tonekaboni et al<sup>[8]</sup> after 12 weeks and 4 weeks respectively. Probable reason for this can be our shorter duration of the follow up and difference in the Pharmacodynamics and Pharmacokinetics of the medicine in the children than in adults.

In this study both Propranolol and Topiramate treatments resulted in significant reductions in the frequency and intensity of migraine attacks after 2 and 6 weeks of treatment. With the use of Topiramate reduction in complaints was more significant and similar results were seen in the study of Ramakant Yadav et al.<sup>[7]</sup>

### CONCLUSION

Topiramate and Propranolol are effective in Migraine but Topiramate is more efficacious. With the use of Topiramate, a drastic change was seen in almost all the patients in intensity and frequency of Migraine headache, with maximum dose used upto 100mg in two divided doses upto the follow up of 6 weeks and with the use of Propranolol some of the patients as compared to Topiramate didn't respond with that efficacy and the maximum dose used for Propranolol was 40mg.

### Limitations

1. Sample size was not too large.
2. Duration of the study was less.
3. Medical and surgical conditions like any brain pathology and heart pathology not ruled out.
4. All the side effects were not ruled out.

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