

CLINICAL PROFILE OF MIGRAINE IN A RURAL POPULATION PRESENTING TO TERTIARY CARE HOSPITAL IN SOUTH INDIA

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Abstract

Background: Migraine is one of the major headache disorders. Epidemiological studies have shown its high prevalence and negative impact on the personal and socio-economic aspect. It is currently ranked 19th by the “World Health Organization” amongst all diseases leading to disability worldwide. **Methods:** This was a hospital-based observational study in which 60 men and women suffering from migraine were recruited at a tertiary care hospital (Vijayanagar Institute of medical sciences) and were asked to complete a questionnaire related to migraine, its triggers, comorbidities, and disability. **Results:** Out of 60 cases, forty-six (76%) were females and fourteen (24%) were males. Forty-two (70 %) out of the sixty patients with migraine had Episodic Migraine and the rest had Chronic Migraine (30%). Migraine with aura has been diagnosed in 4 (6%) of the patients. There was no significant difference in gender, age and BMI among both groups. The mean age of cases was 35±11 years and controls was 36±11 years. Mean BMI among cases was 24±3 and among controls was 25±3. The mean NPRS score in the Ictal state among the cases was 6.6±1.3, which reduced to 2.7±1.49 (p<0.001) 60 minutes following treatment with Naproxen sodium. **Conclusion:** The migraine-related disability is high; therefore we conducted a study to understand its triggers and clinical profile. This was the first observational study conducted in a tertiary care hospital on migraine in South India catering to a sizeable rural population however, larger population studies are required to understand migraine more exhaustively.

INTRODUCTION

WHO lists headache disorders among the 10 most incapacitating diseases for both genders. But even after being so common, the approaches for headache disorders are not well established globally and their burden is underestimated. Migraine ranks as one of the most common headache disorders i.e. not caused by a structural lesion of head and neck. Occurrence is maximum between ages 25 to 55 years, and more specifically between the ages of 35 to 45 years, which corresponds to the prime working years and hence adds to the economic burden.^{1,2}

For several years, migraine has been hypothesized to be a “vascular” disorder. The traditional view of the pathophysiology of migraine has been that of arterial spasm within the internal Carotid territory resulting in the aura, followed by dilatation in the distribution of the external carotid artery, resulting in the headache. Cortical spreading depression was

postulated to result in a distribution of wide array of chemicals which when released into the meninges, were thought to activate the trigeminal nociceptors leading to the consequent development of headache.³ These agents consists of CGRP (calcitonin gene-related peptide), potassium, excitatory amino acids, substance P, arachidonic acid, nitric oxide, and neurokinin A. ⁴ Obesity has also been related to a higher migraine risk, worse migraine prognosis including frequent attacks of greater magnitude. Adipose tissue secretes numerous inflammatory cytokines like Interleukin (IL)-6, TNF (Tumor necrosis factor), and Adipokines (Adiponectin (ADP) and Leptin) which are contributory to obesity and have been incriminated in migraine pathophysiology. ⁵ New and emerging information shows active involvement of adiponectin in pathological and physiological processes related to immunity, inflammation and insulin sensitivity. ⁶⁻⁸ Studies have shown that total

and high molecular weight adiponectin levels are increased and low molecular weight adiponectin levels are decreased in Migraineurs, especially during acute attacks.⁹

Migraine pathophysiology is complex and no adequate theory yet exists till date to encompass all of the observations and, no doubt, many further molecular candidates will be proposed. There is no specific investigation to confirm the diagnosis of Migraine or to assess the outcome of treatment. However, studying adiponectin levels in migraineurs may answer these questions by throwing light on the pathophysiological mechanisms underlying migraine episodes, possibly serving as a possible biomarker for migraine. This in turn may throw open doors for more therapeutic strategies in migraine.

MATERIALS AND METHODS

This was a hospital-based observational study in which 60 men and women suffering from migraine were recruited at a tertiary care hospital (Vijayanagar Institute of medical sciences) and were asked to complete a questionnaire related to migraine, its triggers, comorbidities, and disability. The migraine patients have been registered from the outpatient headache clinic of the department of neurology, Vijayanagar institute of medical sciences, Bellary. Every migraine diagnosis has been made according to the "International classification of headache disorders-beta 3 edition".¹⁰ Patients willing to participate in this study were recruited after informed consent.

The minimum age for the patient and control to be included was 18 years. Demographic data (sex, age, marital status), headache characteristics (frequency in a month, Duration of each attack, Duration of headache), and BMI (body mass index) have been recorded. "Headache impact test" (HIT-6)¹¹ has been recorded for every patient with Migraine. Numeric pain rating scales (NPRS)¹² were calculated and recorded for patients with Acute episode – Pre and post-treatment with Naproxen. For our study, cases who demonstrated a reduction of two points, or $\geq 30\%$ on NPRS scores sixty minutes after treatment with Naproxen sodium, were considered as Responders and the rest were considered as non-responders.¹²

SPSS version 15.0 for windows was used for the testing of data. The confidence interval and significance level for this study as considered 95% and $p < 0.05$ respectively. Verification of data's normal distribution had been conducted utilizing the "Kolmogorov-Smirnov test". Comparison of means of continuous data was done by Mann-Whitney test. Demographic aspects have been compared utilizing chi-square tests. The correlation assessment between ADP levels and the other continuous variables were executed with the Spearman correlation test.

RESULTS

Out of 60 cases, forty-six (76%) were females and fourteen (24%) were males. Forty-two (70%) out of the sixty patients with migraine had Episodic Migraine and the rest had Chronic Migraine (30%). Migraine with aura has been diagnosed in 4 (6%) of the patients. There was no significant difference in gender, age and BMI among both groups. The mean age of cases was 35 ± 11 years and controls was 36 ± 11 years. Mean BMI among cases was 24 ± 3 and among controls was 25 ± 3 . The mean NPRS score in the Ictal state among the cases was 6.6 ± 1.3 , which reduced to 2.7 ± 1.49 ($p < 0.001$) 60 minutes following treatment with Naproxen sodium.

Table 1: These observations are depicted in the table below

Clinical And Demographic Characteristics (Table 1)	
FREQUENCY/MONTH	10.8±6.1
DURATION OF EACH HEADACHE (HOURS)	6.5±3.3
DURATION OF DISEASE (YEARS)	4.7±4.5
HIT SCORE-6	62.8±4.2
NPRS SCORE (ICTAL)	6.6±1.3
NPRS SCORE (POST ICTAL)	2.7±4
BMI- BODY MASS INDEX, HIT-6: HEADACHE IMPACT TEST, NPRS: Numeric pain rating score.	

After treatment with Naproxen sodium, there were 5 responders and 15 non-responders.

Table 2: The various accompanying features of migraine besides headache

Accompanying Features Of Migraine (Table 2)	
PHOTOPHOBIA	6%
BLIND PATCHES	6.75%
DOUBLE VISION	9.72%
FEELING WEAK	53.69%
TINGLING	10.57%
NUMBNESS	28.19%
DIZZINESS	20.80%
RINGING EARS	18.15%
NAUSEA / VOMITING	42.73%
SENSITIVITY TO NOISE	33.57%

Table 3: Various trigger factors precipitating migraine

Migraine triggers (Table 3)	
Hormonal factors	10%
stress	40%
Noise	10%
Exertion	10%
sleep disturbances	15%
smells	10%
visual stimuli	5%

Table 4: MIDAS- Disability Scale in patients with Migraine in our study

MIDAS- disability scale (Table 4)		
MIDAS Grade	Types of grades	Percentages
I	Little or No Disability	30.20%
II	Mild Disability	9.56
III	Moderate Disability	19.28%
IV	Severe Disability	41.90%

DISCUSSION

Migraine, a chronic disabling disease is one of the leading neurological disorders for seeking medical care. Migraine significantly impacts the quality of life of sufferers compared to that of non-migraineurs. Earlier studies have reported 1.6 times the frequency of migraines in female students compared to that of male counterparts. Our social fabric usually puts the needs of males ahead of females. Based on this observation, we can presume that a similar trend is observed in migraine treatment for females. Though migraine has a major impact on health and the healthcare system, as per a study done on medical students, only a fourth of them approached health services for treatment. A previous study demonstrated that only 4.6% sought medical assistance with a substantial number (68.2%) taking simple analgesics for pain relief.¹⁶ In the current study, only 25.5% of patients visited a neurologist and a significant number (36.8%) did not go to any doctor and were taking over the counter pain killers to relieve their headaches. Moreover, it was their first visit to the hospital for a headache. One possible explanation could be that the study population mainly belongs to rural areas and the people were unaware of the specialist help available to cure this disease. None of the patients was on migraine-specific treatment or its prophylaxis. Whether these people had analgesic abuse or not, could not be ascertained from the questionnaire, though about one-third of them were consuming over the counter medications.

CONCLUSION

The migraine-related disability is high; therefore we conducted a study to understand its triggers and clinical profile. This was the first observational study conducted in a tertiary care hospital on migraine in South India catering to a sizeable rural population however, larger population studies are required to understand migraine more exhaustively.

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