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Variations in Symptomatology of Migraine Among Local Population of Pakistan

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ABSTRACT

Introduction: Migraine is considered one of the most disabling neurological disorders worldwide. Migraine has recently been shown to effect population with a severe cascade of symptoms. With still a huge gap in understanding of pathogenesis of migraine, knowledge regarding migraine symptomatology is mandatory for effective diagnosis and treatment.
Aims & Objectives: To compare symptoms of migraine between two groups migraineurs (M) and migraineurs with high blood pressure (MBP).
Place and duration of study: The study was conducted at Shaikh Zayed Postgraduate Medical Institute, Department of Physiology and Lahore General Hospital, from January 2015 to June 2015.
Material & Methods: It was a cross-sectional comparative study. The study population was 35 diagnosed migraine patients (M) and 29 migraine patients with high blood pressure (MBP). Patients were questioned about various migraine symptoms based on the standard criteria for diagnosing migraine and the responses were recorded in written on a predesigned proforma. Collected data was studied and interpreted by using SPSS 23 , p value ≤ 0.05 was taken as significant.
Results: Symptoms of migraine were compared between two groups, migraineurs (M) and migraineurs with high blood pressure (MBP). The mean age of the patients was 25±7years in migraineurs (M) and 38±6 years in migraineurs with high blood pressure (MBP). The incidence of vomiting was significantly higher in patients who had both migraine and high BP, (p-value = 0.008). Collected data was studied and interpreted by using SPSS 23. The difference in the rest of the symptoms was nonsignificant between the two groups studied by using One Way Anova and T-test frequency and percentages. Chi-square test was applied using cross-tabulation to check the association of family history of migraine which was statistically non-significant.
Conclusion: Migraine is a female dominant disorder mostly affecting people in their 30's. There was no significant difference in major diagnostic migraine symptoms in both groups. However, among minor diagnostic symptoms, the frequency of vomiting was higher in patients with migraine with high BP.

Key words: Migraine, nausea, vomiting, photophobia, phonophobia

INTRODUCTION

Migraine is categorized as one of the most common and disabling diseases in the world interfering with the daily routine of the patient. It is known to be a primary neurovascular disorder with unclear Pathophysiology.[1,2] In the western world, 8% of the males and 25-30% of the females are migraine sufferers.[3]The principal nervous system structures that are proposed to play an important role in activating migraine pain are cranial blood vessels and trigeminovascular system and its connections with the parasympathetic outflow. The most common sites for pain in migraine are frontal and temporal regions but sometimes it presents as a referred pain as well in parietal, occipital, and upper cervical regions.[1]Migraine is currently diagnosed clinically as still no specific blood or radiological biomarker has been identified. A strong genetic component has been linked with a migraine that involves several gene-related contributing factors.[4] The mechanism and pathophysiology behind migraine are still unclear despite three proposed theories; 1: vascular, 2: neurological and 3: neurogenic theories. So migraine headache still largely remains underdiagnosed and misunderstood.[5]

Standard criteria used to diagnose migraine worldwide is the one defined by the International Headache Society, according to which migraine includes, an episodic attack of headache lasting 4-72 hours with two of the following major criteria; Unilateral headache, Throbbing headache, headache Aggravation by movements, Moderate/severe

intensity of pain, and with one of the following minor criteria; associated Nausea and/ or vomiting, photophobia and phonophobia.[6]

Migraine has emerged as a potentially severe headache in recent times, affecting masses of the general population. As its pathophysiology still has a number of loopholes, it remains underdiagnosed and no definite treatment is known for migraine.[7]

In this study, variations in the symptoms of migraine were compared between two groups; Migraineurs (M) and Migraineurs with high blood pressure (MBP) in a local population of Pakistan. The aim of the study was a better understanding of migraine symptoms in this part of the world that might be helpful in future diagnosis and treatment options for migraine.

MATERIAL AND METHODS

The study was conducted in Shaikh Zayed Post Graduate Medical Institute, Lahore and Lahore General Hospital, Neurosciences department from January 2015 to June 2015 (IRB approval letter # F.39/NHRC/Admn/IRB/136). It was a cross-sectional comparative study. A convenient, non-probability sampling technique was used to conduct the study. The study was conducted after taking approval from the Ethical Review Committee. Diagnosed patients of migraine (M) and migraine with high blood pressure (MBP) presenting in the outpatient department and hospital admission were included in the study after taking written informed consent. The study population included 35 diagnosed migraine patients (M) and 29 migraine patients with diagnosed Hypertension (MBP) on antihypertensive medication. The patient's blood pressure was measured by a mercury sphygmomanometer manually and recorded in millimeters of mercury. The study included both genders between the ages of 20 to 45 years. Patients with acute pulmonary embolism, pulmonary hypertension, sepsis, chronic obstructive pulmonary disease, hyperthyroidism, or renal failure were excluded. Detailed history and examination were done. The questioned parameters included marital status, employment status, and education Questions on migraine symptoms and family history of migraine were based on criteria for diagnosing migraine.[8] All the data was documented on a proforma.

Statistical analysis:

Collected data was studied and interpreted by using SPSS 23. Data for quantitative variables i.e., age, height, weight and BMI was described by using Mean ± Standard Deviation. Frequencies and percentages were calculated for qualitative variables like gender, nausea, vomiting, photophobia, and phonophobia. Comparison between groups was studied by using One Way Anova and T-test. Linear correlation was studied to compare the symptomatology of migraine in 2 groups. Chi-square test was applied using cross-tabulation to check the association of family history of migraine. P-value ≤ 0.05 was taken as significant.

RESULTS

The current study included 35 diagnosed migraine patients (M) and 29 migraine patients with diagnosed Hypertension (MBP). It was a cross-sectional comparative study in which symptoms of migraine were compared between two groups, migraineurs (M) and migraineurs with high blood pressure (MBP). The mean age of the patients was 25±7years in migraineurs (M) and 38±6 years in migraineurs with high blood pressure (MBP). The mean weight in the M group was 61±10 kg and 67±10 kg in the MBP group. The mean height of patients was 164±6 cm and 169±3 cm in M and MBP groups, respectively. The mean BMI of migraineurs (M) was 22±3 and 24±4 in migraineurs with high blood pressure (MBP). (Table-1, Fig-1)

Groups	Migraineurs(M) (Mean ± SD)	Migraineurs with Blood Pressure (MBP) (Mean ± SD)
Age(years)	24.88±6.90	38.27±6.25
Weight (kg)	61.31 ± 10.46	67.52 ± 10.53
Height (cm)	164.17 ± 6.10	169.02 ± 3.37
BMI	22.59 ± 3.56	23.63 ± 3.67

Table-1: Quantitative Variables (Mean ± SD)

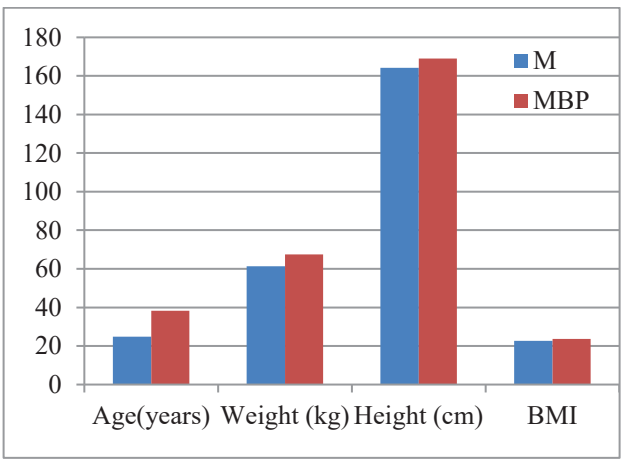

Fig-1: Graphical Representation of Quantitative Variables

The highest percentage of patients in the M group was up to 30 years (80%), while it was 31 years and above in the MBP group (41%). In the M group, most

of the patients were females (69%) and the same was true for the MBP group, with females being 70%. The majority of the patients in both M and MBP groups were married (77% and 97% respectively) and unemployed (71% and 76% respectively). The majority of the patients in the M group had done their graduation while the same percentage of patients was found to be illiterate in the MBP group (48%). (Table-2)

Groups		Migraineurs (M) n = 35 n (%)	Migraineurs with Blood Pressure (MBP) n = 29 n (%)
Age (years)	0-30	80%	17.2%
	31-40	17.1%	41.4%
	41 & above	2.9%	41.4%
Gender	Males	11 (31.4%)	7 (24.1%)
	Females	24 (68.6%)	22 (75.9)
Marital status	Married	27 (77.1%)	28(96.6%)
	Unmarried	8(22.9%)	1(3.4%)
Employment status	Employed	10(28.6%)	7(24.1%)
	Unemployed	25(71.4%)	22(75.9%)
Education	Illiterate	4(11.4%)	14(48.3%)
	Metric	2(5.7%)	4(13.8%)
	Intermediate	1(2.9%)	4(13.8%)
	Graduation	17(48.6%)	0(0.00%)
	Masters	6(17.1%)	5(17.2%)
	MBBS	5(14.3%)	2(6.9%)

Table-2: Stratification of Age, Gender, Marital Status, Employment Status, Education in both groups

Unilateral headache, a major diagnostic criterion for migraine according to modified International Headache Society criteria (IHS), was seen in 89% of the patients in the M group and 100% of the patients in MBP group. Throbbing headache, another major diagnostic criterion for migraine (modified IHS criteria), was a symptom found in 97% of the patients in both groups. Headache aggravation by the movement was seen in 76% and 72% of the patients in the M group and MBP group, respectively. Nausea was an accompanying minor symptom of migraine in 54% of the patients in the M group and 48% of the patients in the MBP group. The percentage of vomiting, another minor symptom of migraine, was 26% and 59% in the M group and MBP group, respectively. Photophobia and phonophobia, both minor symptoms of migraine, affected 83% and 80% of the patients respectively in the M group, and 69% and 93% of the patients respectively in the MBP group[6]. The frequency of migraine was observed to be more than 1 attack/month in 94% of the patients in the M group and 97% of the patients in the MBP group.

In the present study, the incidence of vomiting was significantly higher in patients who had both migraine and high BP, (p-value = 0.008). The difference in the rest of the symptoms was insignificant between the two groups. The frequency of migraine attack was found to be ≥1attack/month in both groups. Family history of migraine was statistically non-significant in both M and MBP groups. (P value=0.40) (Table-3)

Frequency of Migraine Symptomatology		Migraineurs (M) n = 35 n (%)	Migraineurs with Blood Pressure (MBP) n=29 n (%)	P-value (Chi-square)
Unilateral headache		31 (88.6%)	29 (100%)	0.06
Throbbing		34 (97.1%)	28 (96.6%)	0.89
Headache aggravation by movements		26 (76.5%)	21 (72.4%)	0.71
Nausea		19 (54.3%)	14 (48.3%)	0.63
Vomiting		9 (25.7%)	17 (58.6%)	0.008*
Photophobia		29 (82.9%)	20 (69.0%)	0.19
Phonophobia		28 (80%)	27 (93.1%)	0.13
F/H of Migraine		22 (62.9%)	23 (79.3%)	0.40
Frequency of migraine (attack/month)	<1	2 (5.7%)	1 (3.4%)	0.67
	≥1	33 (94.3%)	28 (96.6%)	

P-value ≤ 0.05

Table-3: Migraine Symptomatology in both groups

DISCUSSION

The current study aimed at finding out variations in symptoms of migraine in 2 groups of migraine patients, migraineurs (M group) fulfilling the diagnostic criteria for migraine according to modified IHS criteria and migraineurs with high BP (MBP group).

The mean prevalence age for migraine in the current study was found to be 30 years and above. A study conducted by Straube et al., in 2019 showed that the peak age for migraine was between 30-39 years.[9] Zahid et al, in 2014 studied the prevalence of migraine among students and patients in Khyber Pakhtunkhwa.[10] He found out the most of the migraine patients were above 30 years. A study by Takeskima et al, in 2019 also reported the mean age for migraineurs to be 30 years and above.[11] All these studies coincide with the results of the present study. However, a study by Ozge et al., in 2017[12] described the peak age for migraine in girls to be teens (14-17 years) and 10-12 years in boys, which is in contrast to the current study.[12]

A preponderance of female migraineurs in both the groups in the current study indicating that migraine is

a female dominant disorder. A study carried out by Buse et al, in 2013 showed a sex difference in the prevalence of migraine with a female to male ratio of 2:1 to 3:1.[13] Gul et al, conducted a study in January 2014 according to which 1 in 5 women and 1 in 16 men suffering from migraines.[14] Another study by Boley et al, in August 2015 indicated that migraine was three times more prevalent in females than in males.[15] Similar results regarding gender distribution were also documented by Gordon in 2015, according to which migraine is a neurovascular disorder affecting 17% of women and 6% of men.[16] A recent study by Guo et al, in 2019 also, demarcated migraine as predominantly a female disorder, and it was suggested that females probably being more anxious, develop migraine symptoms more frequently than males.[17] All these studies potentiate the findings of the present study indicating migraine as a female dominant disorder.

In our study majority of the patients in both groups (M and MBP) were married, 77% and 97% respectively. A study conducted by Buse et al, in 2019 documented that married couples suffered a lot of negative marital impacts that aggravated their migraine attacks. These included common and frequent arguments with spouses and also adverse behavior with children owing to severe migraine symptoms.[18] Another study by Buse et al, in 2016 highlighted the negative effects of migraine on family activities and relationships. The most severe adverse effects were seen in couples with chronic migraines.[19] These studies correlate with the results of the current study that indicates the majority of the patients are married suggesting that probably marriage adds to the stress of migraineurs.

Most of the patients in the present study in both the groups were unemployed, the percentage was 71% in the Migraine group (M) and 76% in Migraine with blood pressure group (MBP). A study conducted by Sullivan in 2014 had similar findings. According to the study, the risk of migraine was significantly evident in unemployed subjects and it was owed to the negative effects of migraine. Increased risk of migraine was seen with a lower level of schooling and education.[20] The majority of migraineurs in the current study had a low educational status, graduation in Migraine group (M) and illiterate in Migraine with blood pressure group (MBP), coinciding with the results of Sullivan.

In the present study, the incidence of vomiting was significantly higher in patients who had both migraine and high BP, (p-value 0.008). The difference in the rest of the symptoms of migraine was insignificant between the 2 groups. According to a study by Almohammadawi et al, in 2018, the most common symptoms of migraine included vomiting, nausea, and photophobia which helped in the diagnosis of migraine.[21] The results were similar to the current study which also showed vomiting as the most common symptom. A contrasting study by Laurell et al, in 2016 showed the highest co-occurrence of phonophobia and photophobia among the migraine sufferers.[22] According to a study conducted by Syed et al, in 2020, the most commonly associated symptoms of migraine included vertigo in 74.4% of the patients followed by nausea (67.9%).[23] Again, the results were in contrast to the present study.

In this study, the frequency of migraine attack was 1 attack/month. A study conducted by Shahzadi et al, in 2017 on the frequency of migraine in students of the University of Lahore, Lahore, indicated that the mean frequency of migraine attacks in a month ranged from 1-8 episodes.[24] The results were similar to the present study. According to Almohammadawi et al,[21] the mean frequency of migraine attack was 2 ± 4.63 days/month. The results were a bit different from the current study.

Family history of migraine was statistically non-significant in both groups in the present study, (p-value=0.40). A study by Frederich et al, in 2013, showed that migraine headaches were associated with a family history of migraine or headache.[25] In a study conducted by Peres et al, the most frequently reported family member who had a history of migraine or headache was the mother.[26] The results of both these studies contradict the present study that showed no positive correlation of family history of migraine in both groups.

CONCLUSION

This study concludes that migraine is a female dominant disorder with most of the affectees in their 30's. There was no significant difference in major diagnostic migraine symptoms in both groups. However, among minor diagnostic symptoms, the frequency of vomiting was higher in patients with migraines with high BP. Migraine is a medical condition that severely affects various daily activities and the quality of life of the patient exhibiting these symptoms. Therefore, the Pakistani population suffering from migraines should be encouraged to visit a physician for correct diagnosis and effective treatment to help improve their quality of life during the debilitating attacks.

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