

The Trigger Factors and Consecutive Events of Migraine Headaches Among Yemeni Patients Attending the Neurological Outpatients Department During July to December 2011

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Abstract

Background: Migraine headache is a common cerebrovascular disorder ranked as the third most prevalent disorder in the world. **Objective:** To determine the triggering factors and consecutive events of migraine headaches among Yemeni patients.

Methods: This study was conducted from July to December 2011 for Yemeni migraine headache patients attending the neurological center in Sana'a City. It was a sectional study. All consecutive patients with a chief complaint of migraine headache were included in this study. Data collection and examination of cases were performed using a structured and pre-tested questionnaire. The diagnoses were made according to the International Headache Society.

Results: One hundred and forty-two patients who fulfilled the diagnostic criteria of migraine were included in this study. Of 142 cases the majority (84.5%) were females and only (15.5%) were males the mean age of the patient was 33.06(+12.4). The triggering factors presented in (50.7%) of the patients in the form of stress, sound, light, smell, tiredness, sleep changes, and menses. Pulsating or throbbing migraine headaches were more frequent accounting for (99.3%), unilateral migraine headaches for (70.40%), were moderate to severe attacks of headache intensity, relieved by using drugs in (85.9%), sleeping in (45.8%), and darkness (52.5%). The frequently associated symptoms were photophobia, Phonophobia, nausea, and vomiting accounted for (78.9%, 79.6%, 83.8%, and 40%) respectively.

Conclusion: Migraine headaches were more frequent among women. Trigger factors were frequent among both sexes, and hormonal changes were more common in females, some of them can be avoided.

Keywords: Migraine, Trigger Factors, Associated Symptoms, Yemeni Patients

1. Introduction

Headaches are extremely common and can be defined as a disabling condition that may result in a lower quality of life and disturbed job performance, ultimately creating a significant economic burden on societies [1]. Globally, approximately 15% of people are affected by migraine [2]. In the Global Burden of Disease Study of 2010, it was ranked as the third most prevalent disorder in the world [3]. Migraine is a primary headache disorder characterized by recurrent headaches that are moderate to severe.[4] Typically, episodes affect one side of the head, are pulsating in nature, and last from a few hours to three days [4]. Associated symptoms may include nausea, vomiting, and sensitivity to light, sound, or smell [5]. Therefore, factors related to lifestyle can significantly increase

the chances of developing migraine with its consequences on productivity and life quality [6]. Up to one-third of people affected have aura: typically a short period of visual disturbance that signals that the headache will soon occur [7]. Occasionally, aura symptom can occur with little or no headache following, but not everyone has this symptoms [8]. The underlying causes of migraines are unknown [9]. However, they are believed to be related to a mix of environmental and genetic factors [10]. They run in families in about two-thirds of cases [11], so it is recognized to have a strong genetic substrate [2].

The diagnosis of a migraine is based on signs and symptoms [11]. Neuroimaging tests are not necessary to diagnose migraine, but

may be used to find other causes of headaches in those whose examination and history do not confirm a migraine diagnosis [12]. It is believed that a substantial number of people with the condition remain undiagnosed [11].

General objective:

The main objective of this study was to determine the pattern and clinical manifestation of migraine headache among Yemeni patients attended Neurological Center in Sana'a City

Specific objectives:

To identify trigger factors prodromal, associated symptoms, and postdromal events of migraine headache

Patients and methods:

This study was conducted from July to December 2011 at the neurological center in Sana'a City. The center is a referral center in northern part of Yemen. All patients presented into neurological center complaining of headache suggested migraine headache were included in this study.

All patients were subjected to clinical examination, history, investigations include CBC, Biochemistry, EEG, and some of patients did skull CAT, or MRI.

The diagnosis of migraine, according to the International Headache Society [13].

-Migraine without aura:

- A. At least five attacks fulfilling criteria B-D
- B. Headache attacks lasting 4-72 hours. (untreated or unsuccessfully treated)
- C. Headache has at least two of the following four characteristics:
 - 1. Unilateral location
 - 2. Pulsating quality.
 - 3. Moderate or severe pain intensity
 - 4. Worsened by or causing avoidance of routine physical activity
- D. During headache at least one of the following:
 - 1. Nausea and/or vomiting;
 - 2. Photophobia and phonophobia.

E. Not better accounted for by another ICHD-3 diagnosis.

-Migraine with aura:

- A. At least two attacks fulfilling criteria B-and C
- B. One or more of the following fully reversible aura symptoms:
 - 1. Visual 2. Sensory 3. Speech and/or language 4. Motor 5. Brainstem 6. Retina.
- C. At least three of the following six characteristics:
 - 1. At least one aura symptom spreads gradually over ≥ 5 minutes.
 - 2. Two or more aura symptoms occur in succession
 - 3. Each individual aura symptom lasting 5-60 minutes
 - 4. At least one aura symptom is unilateral
 - 5. At least one aura symptom is positive
 - 6. The aura is accompanied, or followed within 60 minutes by headache
- D. Not better accounted for by another ICHD-3 diagnosis.

2. Results

This study included 142 patients presented to neurological center in Sana'a Yemen with migraine headache. Of them 22 patients (15.5 %) were males and 120 patients (84.5%) were females with significant difference between them p-value 0.000 Table 1.

sex of patient	No.	%	Chi-square	P-value
Male	22	15.5%	67.634	0.000
Female	120	84.5%		
Total	142	100.0%		

Table 1: The Distribution of Migraine Headache According to Sex

The age of patients was ranged between 5-65 years with a mean age 33.06(+12.4) years. However, the mean age for males was less than the mean age of females (29.6 versus 33.7) without any statistical differences P Value was (0.201). The age group (18-39) were the most affected by migraine headache represented of 57.1 (%), while the youngest and eldest groups were less affected by migraine each of them constitute of 12% of the total cases Table 2.

Age group	sex of patient						Chi-square	P-value
	Male		Female		Total			
	No.	%	No.	%	No.	%		
< 18	6	27.3%	11	9.2%	17	12.0%	6.691	0.153
18 – 29	6	27.3%	33	27.5%	39	27.5%		
30 – 39	4	18.2%	38	31.7%	42	29.6%		
40 – 49	3	13.6%	24	20.0%	27	19.0%		
50+	3	13.6%	14	11.7%	17	12.0%		
Total	22	100.0%	120	100.0%	142	100.0%		
	29.55±14.67		33.70±11.87		33.06±12.38			

Table 2: Distribution of The Patients According to Gender and Age Group

Regard the demographic characters, two third of patients (70.4%) were married and only 29.6% were single. Male patient represent 54.5%, and female patients represent 73.3% without significant difference. Majority of patients 89 represent 62.7% were living at urban area, and 53 patients represent 37.3% were living in rural area.

The majority of patients (121patients) not employment represent 85.2% with significant difference between males and females Table 3

Var.	sex of patient						Chi-square	P-value
	Male		Female		Total			
	No.	%	No.	%	No.	%		
.Marital state of patient								
Yes	12	54.50%	88	73.30%	100	70.40%	3.151	0.076
No	10	45.50%	32	26.70%	42	29.60%		
Total	22	100%	120	100%	142	100%		
.Address of patient								
Urban	14	63.60%	75	62.50%	89	62.70%	0.01	0.919
Rural	8	36.40%	45	37.50%	53	37.30%		
Total	22	100%	120	100%	142	100%		
.Employment of patient								
Yes	13	59.10%	8	6.70%	21	14.80%	40.546	<.001*
No	9	40.90%	112	93.30%	121	85.20%		
Total	22	100%	120	100%	142	100%		

*. The Chi-square statistic is significant at the 0.05 level.

Table 3: Demographic Characters of The Patients Presented with Migraine Headache

Trigger Factors of Migraine Headache

Seventytwo of our patients of migraine headache represent (50.7%) had trigger factors, of them 63 patients (52.5%) were females and 9 patients (40.9%) were males. Theses trigger factors included stress& anxiety, sound, light, smell, tiredness, sleep change, hormonal changes and hunger occurred in (66.7%, 63.9%, 61.1%, 41.7%, 47.2%, 44.4%, 54.2%, and 9.7%) respectively. There were no statistical differences between males and females except in two trigger factors; Tiredness and hormonal changes (P Value 0.007* and <0.001*) respectively Table 4.

Trigger factors		Sex of patients						P-value
		Male		Female		Total		
		No.	%	No.	%	No.	%	
Trigger factors(total)	Yes	9	40.9	63	52.5%	72	50.7	0.317
	No	13	59.1	57	47.5%	70	49.3	
Stress ,anxiety	Yes	8	88.9	40	63.5%	48	66.7	0.131
	No	1	11.1	23	36.5	24	33.3	
Sound	Yes	7	77.8	39	61.9	46	63.9	0.354
	No	2	22.2	24	38.1	26	36.1	
Light	Yes	7	77.8	37	58.7	44	61.1	0.273
	No	2	22.2	26	41.3	28	38.9	
Smell	Yes	5	55.6	25	39.7	30	41.7	0.366
	No	4	44.4	38	60.3	42	58.3	
Tiredness	Yes	8	88.9	26	41.3	34	47.2	0.007*
	No	1	11.1	37	58.7	38	52.8	
Sleep change	Yes	4	44.4	28	44.4	32	44.4	1.00
	No	5	55.6	35	55.6	40	55.6	
Hormonal changes (Menses)	Yes	0	0.0	39	61.9	39	54.2	<0.001*
	No	9	100.0	24	38.1	33	45.8	
Hunger	Yes	1	11.1	6	9.5	7	9.7	0.880
	No	8	88.9	57	90.5	65	90.3	

Table 4: Trigger Factors of Migraine Headache Among Study Population

Prodromal phase		Sex						P value
		Male		Female		Total		
		No.	%	NO	%	No.	%	
Mood change	Yes	7	58.3	51	76.1	58	73.4	0.199
	No	5	41.7	16	23.9	21	26.6	
	Total	12	100.0	67	100.0	79	100.0	
Fatigue	Yes	4	33.3	13	19.4	17	21.5	0.280
	No	8	66.7	54	80.6	62	78.5	
	Total	12	100.0	67	100.0	79	100.0	
Light, sound, smell	Yes	7	58.3	39	58.2	46	58.2	0.994
	No	5	41.7	28	41.8	33	41.8	
	Total	12	100.0	67	100.0	79	100.0	
Craving or ↓ appetite	Yes	4	33.3	24	35.8	28	35.4	0.868
	No	8	66.7	43	64.2	51	64.6	
	Total	12	100.0	67	100.0	79	100.0	

Table 5: Symptoms of Prodromal Phase Among Patients Presented with Migraine Headache

The Prodromal Phase of Migraine Headache

Seventy patients (49.3%) Presented with prodromal phase including mood changes occurred in 58 (73.4%), 51 of them were females and 7 were males. The other cases were presented with, fatigue, light sound smell, decreased appetite or craving accounted for (21.5%, 58.2%, 35.4%) respectively. There were no differences between males and females Table 5.

Migraine Headache (phase of pain):

The majority of the patients 84 (59.1%) had migraine without aura, and 58 patients (40.9%) had migraine with aura Table 6. The type of aura preceded migraine headache; Visual aura occurred in 39(73.6%) of the patients ,33 of them were females .Thirteen patients (24.5%) had sensory/ pain aura, while 6 patients (11.3%)had motor aura Table 7.

var.	Sex						P-value
	Male		Female		Total		
	No.	%	No.	%	No.	%	
Type of migraine:							
.with aura	7	31.80%	46	38.30%	53	37.30%	0.561
.without aura	15	68.20%	74	61.70%	89	62.70%	
.Total	22	100%	120	100%	142	100%	
Migraine headache characters							
.Pressure	0	0.00%	1	0.80%	1	0.70%	0.509
.Throbbing, or Pulsating	22	100%	119	99.20%	141	99.30%	
.Total	22	100%	120	100%	142	100%	
Site of migraine							
.Bilateral	11	50.00%	31	25.80%	42	29.60%	0.022
.Unilateral	11	50.00%	89	74.20%	100	70.40%	
.Total	22	100%	120	100%	142	100%	

*. The Chi-square statistic is significant at the .05 level

Table 6: Types of Migraine Headache and Site of Migraine Headache Among Yemeni

Type of Aura		Sex						P-value
		Male		Female		Total		
		No.	%	No.	%	No.	%	
Visual	Yes	6	85.7%	33	71.7%	39	73.6	0.435
	No	1	14.3%	13	28.3%	14	26.4	
	Total	7	100.0	46	100.0	53	100.0	
sensory/pain	Yes	2	28.6%	11	23.9%	13	24.5	0.790
	No	5	71.4%	35	76.1%	40	75.5	
	Total	7	100.0	46	100.0	53	100.0	
Motor	Yes	1	14.3%	5	10.9%	6	11.3	0.790
	No	6	85.7%	41	89.1%	47	88.7	
	Total	7	100.0	46	100.0	53	100.0	

Table 7: Types of Aura In Patients Presented with Migraine Headache

Character and Site of Migraine Headache:

Regarding character of Migraine headache, 141 patients represent 99.3% had pulsating, or throbbing headache, while only 1 patient presented with pressure migraine headache.

unilateral migraine was reported in 100 patients of them 89 patients were females and 11 patients were males ,while bilateral migraine headache were reported in 42 patient ,31 of them were females .The differences between male and female was significant P-value 0.022 Table 6.

Associated Symptoms of Migraine Headache Patients

The associated symptoms of migraine headache ,all (142) patients presented with more than one symptoms .However, the most frequent symptoms were nausea, Phonophobia and photophobia accounted for (83.8%, 79.6% &78.9%) respectively. The other less frequent symptoms in our patients were; fatigue; vomiting; and movement; accounted for (45%, 40.1% &31.7%) respectively. there was no statistically differences. between both groups.

Most patients (85.9%) with migraine headache used drugs to relieve migraine, 45.8% they got relieve by sleeping and 51.4%of the cases preferred darkness to get rid of migraine headache .

Symptoms		Sex						P-value
		Male		Female		Total		
		No.	%	No.	%	No.	%	
Associated symptoms (all).	Yes	22	100.0%	120	100.0	142	100.0	-
	No	0	0.0%	0	0.0	0	0.0%	
	Total	22	100.0%	120	100.0	142	100.0	
-Photophobia.	Yes	17	77.3%	95	79.2	112	78.9	0.841
	No	5	22.7	25	20.8	30	21.1	
	Total	22	100.0	120	100.0	142	100.0	
-Phonophobia.	Yes	17	77.3	96	80.0	113	79.6	0.771
	No	5	22.7	24	20.0	29	20.4	
	Total	22	100.0	120	100.0	142	100.0	
-Nausea	Yes	19	86.4	100	83.3	119	83.8	0.723
	No	3	13.6	20	16.7	23	16.2	
	Total	22	100.0	120	100.0	142	100.0	
-Vomiting.	Yes	8	36.4	49	40.8	57	40.1	0.694
	No	14	63.6	71	59.2	85	59.9	
	Total	22	100.0	120	100.0	142	100.0	
-Movement.	Yes	7	31.8	38	31.7	45	31.7	0.989
	No	15	68.2	82	68.3	97	68.3	
	Total	22	100.0	120	100.0	142	100.0	
-Fatigue, and irritability.	Yes	10	45.5	55	45.8	65	45.8	0.974
	No	12	54.5	65	54.2	77	54.2	
	Total	22	100.0	120	100.0	142	100.0	

Table 8: Associated Symptoms of Migraine Headache of Yemeni Patients

The Postdromal Symptoms of Migraine Headache Patients

The postdromal symptoms of migraine headache patients were present in 72 patients (13 male, and 59 females) represent 50.7%. 62.5%, and muscles pain in 52 patients (9 male, and 43 females) represent 72.2% Table 9.

		sex of patients				Total	%	P-value
		Male		Female				
		No.	%	No.	%			
Postdromal symptoms (all).	Yes	13	59.1%	59	49.2%	72	50.7%	0.392
	No	9	40.9%	61	50.8%	70	49.3%	
	Total	22	100.0%	120	100.0%	142	100.0%	
Types:								
-malaise, fatigue	Yes	7	53.8%	38	64.4%	45	62.5%	0.476
	No	6	46.2%	21	35.6%	27	37.5%	
	Total	13	100.0%	59	100.0%	72	100.0%	
-muscles pain	Yes	9	69.2%	43	72.9%	52	72.2%	0.790
	No	4	30.8%	16	27.1%	20	27.8%	
	Total	13	100.0%	59	100.0%	72	100.0%	

Table 9: The Postdromal Symptoms Among Yemeni Patients with Migraine Headache

3. Discussion

Despite being one of the most disabling headaches, migraine is still underdiagnosed and undertreated. It is unequally distributed among people and is associated with high rates of unemployment [14]

In our study majority of patients suffering from migraine headache were females represent (84.5%), while male patients with migraine only accounted for (15.5%). This result is going with other studies from regional area, in Saudi Arabia they reported that migraine was more prevalent among females [10, 14]

Similar results were found from Korea Kim et al [15] found that women were three times more prone to migraine than men. In Western countries women were also two to three times more prone to migraine than men [16].

The migraine headache more common among urban area patients, associated with high rates of unemployment [10], which is nearly similar to our result.

In this study, The age group (18-49 years) were the most affected by migraine headache represented of (76 %).The female patients affected more than male, more at age above 18 years old. This result is coincide with the result reported BY Ashraf El-Metwally et al). They concluded that young women remain the most vulnerable population for migraines headaches in the Arab countries[14].

Moreover, Bartleson et al [17] in their review found that approximately 15% of the population gets migraine headaches during the formative and productive era of their sslives. Similar result was reported from prior study [10, 15]. It most often starts at puberty and is worst during middle age. [4]

Regarding the onset of migraine our result indicated that most of patients get migraine headache at early age (10-29 year). Study

done in Arab country [14] found the onset of migraine in their patient occurred among patients younger than 30 years, which is in line of our study.

Several trigger factors present in this study that may alter the occurrence of migraine headache in our patients. We found that (54.9%) of patients with migraine tended to have more than one trigger factors. However, Stress, emerged as the most important trigger factors of migraine and occurred with the highest frequency in the sample, followed by sound, light and menses. Our finding is similar to previous studies which found that, the major trigger factors associated with migraines include stress, anxiety, and exposure to sun, sleeping disorders, and hormonal changes [18, 19, and 20].

In our study, 61.9% of females of migraine headache reported headache before or during menstruation. This was similar to studied by Jelena et al, in which 60% of women with migraine reported an association between migraine attack and menses [21]. This may be related to cyclical hormonal changes in women. Other trigger factors such as, missing meals, specific food, drugs and sex activity), which were emphasized in literature, as factors related to migraine attacks, were not recognized in our study. These differences may be related to varieties of geographical regions, race lifestyles and interaction [21, 22].

As regard the prodromal phase, Migraine patients experience symptoms that can warn us that a migraine attack is beginning. These symptoms preceded the headache phase of migraine attack by several hours. It was occurred in (49.3%) of our patients. The symptoms were mood change, fatigue, light, sound, smell, craving and decrease appetite. It was reported by previous studied that the prodromal symptoms occur in (40% to 60%) of migraineurs, which is coincide with our study. However several studies mentioned more symptoms which included; altered mood, irritability, depression or euphoria, fatigue, yawing, excessive sleeping,

craving for certain food (e.g. chocolate)stiff muscles(especially in the neck), constipation or diarrhea, increased urination, and other vegetative symptoms[23.24]. A matter of fact, The Migraine prodrome is often overlooked, many of our patients haven't been told about it and don't know it's even possible (Peter et al) [25]. Regarding types of Migraine headache, we found that most of the patients (62.7%) have migraine without aura, while 37.3% have migraine with aura, and the visual aura was more frequent among women. It was reported that, at all ages, migraine without aura is more common than migraine with aura, with a ratio of between 1.5:1 and 2:1. [19, 20, 26]. Our result was in line with these studies. Regard the character and site of headache, in our study, headache were pulsating, throbbing in character represent 99.2%, the majority of patients had migraine unilaterally in 70.4% of patients, and 29.6% of patients had bilateral migraine and attack last for few hours to days. This result coincide with prior results [26, 27, and 28]. Using drugs, sleeping, and darkening were the relieving factors found in our study, which was nearly similar to other researcher [10].

The associated symptoms of headache, Photophobia, Phonophobia, nausea, and vomiting were the most frequent symptoms accompanying migraine headache in our patients. However, other study reported that Neck pain was found to be a commoner symptom than the vomiting or photophobia. In our cases the pain was musculoskeletal type and was not limited to neck [24, 29]???. In the current study the postdromal symptoms of migraine headache was occurred in 49.3% of patients, in the form of tiredness, muscles pain and exhausted and relieved spontaneously within 24 hours. This phase is sometimes called the migraine hangover and it is obvious in many migraine cases [10, 30].

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