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Characteristics of Adults with Migraine, Al Ain, United Arab Emirates

Yaser M. Al Msalmeh[1*]

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ABSTRACT

Migraine Is a common neurological disease affects millions of individuals worldwide, categorized into episodic migraine (EM) and chronic migraine (CM). The aim of this study is to evaluate the characteristics of migraine, EM and CM treatments, and associated comorbidities, in Alain city adults' population. A retrospective study was conducted on adult people at Mediclinic Al Ain Hospital, from 1 January 2022 to 31 October 2022. descriptive statistics were done on data collected from medical records. Out of 343 patients 212 met the inclusion and exclusion criteria and included in the study, The mean age of patients was 37.94(SD 9.784) AND 95%CI (36.61-39.26). Fifty patients (23.6%) have chronic migraine and 162 patients (76.4%) have episodic migraine, 44 females have CM (26.8%) and 120 females have EM (73.2%). The most common comorbidities, (>10% of individuals) in both migraine groups were vitamin D-deficiency in 62 (29.2%), gastroesophageal reflux 47 patients (22.2 %) and hypertension in 26 patients (12.3 %). most of the patients used acute and preventative therapies. Patients of both groups displayed characteristics and medication use patterns consistent with other reports. screening vitamin D and esophageal reflux should be encouraged for adults presented with migraine headache.

INTRODUCTION

Migraine is a widespread disease, worldwide, affects millions of people in their active and reproductive age (Vos *et al.*, 2017; Ashina, 2020). it happens on recurrent episodes, and accounts 3% of emergency visits, especially of acute attacks (Headache Classification Committee of the International Headache Society [IHS], 2018). The over world prevalence rate is 15%, highest in south Asia and lowest in China (Saylor & Steiner, 2018; Stovner *et al.*, 2018).

While the incidence rate in Danish study was 8.1 per 1000 person – year in patients without previous attacks of migraineurs headache (Lyngberg *et al.*, 2005). the incidence is more in females comparing to males, and young people were affected more than older ones, and the incidence has declined with age. American study founded the peak incidence rates are in young women of 20-40 years age (Stewart *et al.*, 2008).

Both acute and chronic migraine headaches are associated with many comorbidities, like depression and anxiety, with tendency to transform from acute to chronic migraine in depressed patients (Saylor & Steiner, 2018; Jette *et al.*, 2008; Buse *et al.*, 2020). In addition, there is association between migraine as a disease and many other medical diseases, like, mood disorders, chronic renal failure, drugs overuse, and heart diseases especially heart failure. On the other hand, migraineurs should be studied for risk factors for heart failure and stroke, especially patient diagnosed with migraine with aura.

A higher prevalence rate found in US population-based study, in people with low income in comparison with patients of high income (Lipton *et al.*, 2007; Buse *et al.*, 2012).

The International Classification of Headache Disorders 3rd edition classified migraine into migraine without aura, migraine with aura and chronic migraine (Headache Classification Committee of the International Headache Society [IHS], 2018).

The cost of diagnosis, treatment and follow-up of migraine patients is high, and different from country to country, in Europe it is estimated about 1222 euro per person in 2011 (Linde *et al.*, 2012). While in United State of America and Canada it was 383$ over 3 months for episodic migraine and 1036$ for chronic migraine (Stokes *et al.*, 2011).

The management of patients with migraine has two arms, first arm, is to treat the acute attack and the second arm, is to prevent the coming attack. Some patients with high frequency episodes need to use both treatment arms and to have measures to reduce headache triggers. the acute treatment goal, is to kill the pain or reverse it, or at least to stop its progression. while preventive therapy which

[1] Mediclinic Al Ain Hospital, Al Ain, United Arab Emirates
[*] Corresponding author's e-mail: yaseralmsalmeh@yahoo.com

given during and outside the attacks targets the severity and frequency of headache episodes, and to improve patients' quality of life.

The current study will describe the demographics and clinical characteristics, including the number and type of acute and preventative migraine medications used among patients with episodic and chronic migraine in Al Ain. It will also study the comorbidities associated with the migraine in Al Ain population.

MATERIALS AND METHODS:

Since this is a retrospective study, it has been conducted In Mediclinic Al Ain Hospital for patients diagnosed with migraine headache. The data was collected from Medical Records Database. No consent was needed.

Subject Selection:

-Age of patients was between 18 years to 65 years.

-Inclusion period: between 1 January 2022 to 31 October 2022.

Exclusion criteria: Children below 18 years and elderly above 65 years.

Patients with headache but do not fulfil the ICHD-3 criteria for migraine.

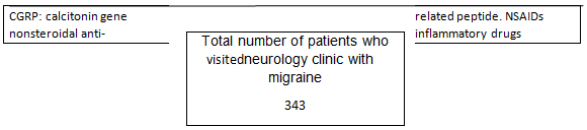
In this study, a cohort of individuals was selected who were 18 to 65 years of age with at least one physician visit containing a record diagnosis of migraine, and used acute or preventative therapy.

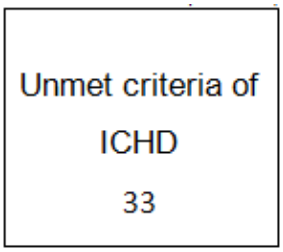
Migraine acute medications considered included paracetamol, nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, and triptans; the preventative migraine medications considered were B-blockers, antidepressants, antiepileptic and anti-calcitonin gene related peptides (CGRPs). A list of preventative and acute migraine treatments is provided in (Table 1).

Table 1: Summary of prophylactic and acute migraine treatments.

Treatment Type	Drug Name
Preventative Treatment	Beta Blockers
	Anticonvulsants
	Antidepressants
	Anti CGRP Receptor
Acute Treatment	Paracetamol
	NSAIDs
	Opiates
	Triptans

CGRP: calcitonin Gene Related Peptide. NSAIDs Nonsteroidal Anti-inflammatory Drugs





Study Measures:

Study measures included age, sex and nationality. Specific comorbidities of interest were determined for, diabetes mellitus, hypertension, ischemic heart disease, anxiety, depression, asthma, gastroesophageal reflux and vitamin D deficiency. Individuals were considered to have specific comorbidity if they had at least one physician visit with associated diagnostic code for the comorbidity. Treatment patterns, number and type of acute and preventative medication received by the patient were measured

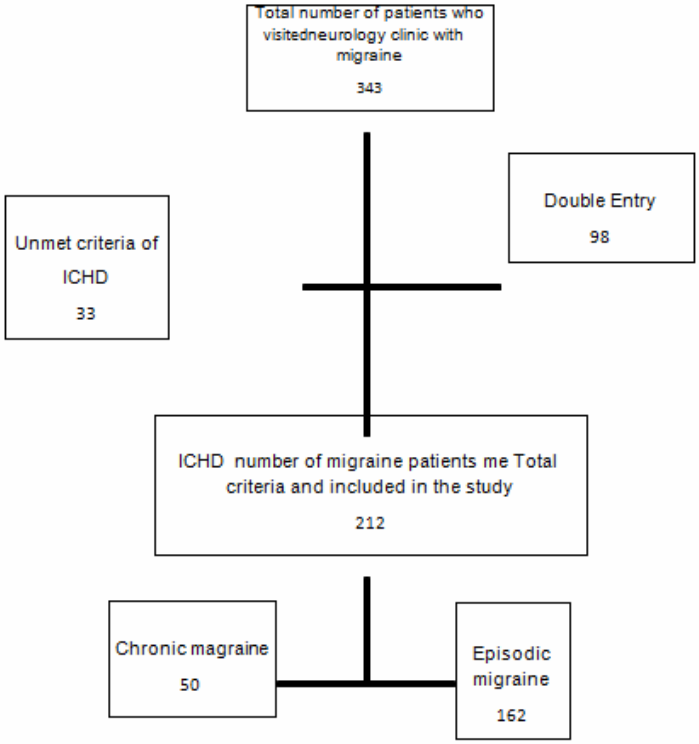
Statistical Analyses:

Descriptive statistics are reported as counts and percentages for categorical variables and means and standard deviation or 95% confidence interval (Cl) for continuous variables.

RESULTS AND DISCUSSION

Results:

During the study period 343 patients with migraine headache visited neurology clinic. Of those 33 cases were excluded because they did not meet the criteria of ICHD-3, and 98 patients were excluded because it was follow-up visits, leaving 212 met the inclusion and exclusion criteria and included in the study. (Figer 1).



Figer 1: Flow diagram of subject selection.

Clinical Characteristics and Demographics:

The mean age of patients was 37.94 years (SD 9.784) AND 95%CI (36.61-39.26), And the mean age at diagnosis for chronic migraineurs was 29.48 years (SD 9.708) and 95% CI (26.72-32.24) and for episodic migraineurs 31.81 years (SD 9.580) and 95% CI (30.33-33.30); of them 164 were females (77.4%) and 48 males (22.6%). 50 patients (23.6%) have chronic migraine and 162 patients (76.4%) have episodic migraine, 44 females have CM (26.8%) and 120 females have EM (73.2%). (Table 2).

The individuals were of 24 nationalities, majority of them were Emirati patients 86 patients (40.6%), 28 Syrian (13.2%), 22 Egyptian (10.4%), 12 Philippine (5.7%), 10 Jordanian (4.7%) and 8 Sudanese (3.8%).

Treatment Patterns:

Most of the patients used two acute attack medications 102 patient (48.1%) and three medications 72 patients (34.0%), while who used four acute attack medications were 7 patients (3.3%). And most of the patients used one prophylactic medication 83 (39.2%), and two medications 52 (24.5%), three separate medications 16 (7.5%) and 6 patients used four separate medications (2.8%).

For acute attack treatment the patients used NSAIDs 196 patients (92.5 %), as first line therapy, followed by triptans 156 patients (73.6 %) and paracetamol 115 patients (54.2%). while patients who used opioid were 9 patients (4.2%).

And for abortive therapy, 87 patients (41.0%) used B-blockers mostly propranolol, and 74 patients (34.9%) anti-CGRP, of them 29 patients (13.7%) used erenumab, 16 patients (7.5%) galcanezumab and 29 patients used more than one anti-CGRP separately, 52 patients (24.5%) used antiepileptic and 46 patients (21.8%) used antidepressant.

Clinical Features and Associated Conditions:

Most bothersome symptoms were photophobia 150 (70.8%), 120 (73.2%) female, phonophobia 149 (70.3%) 119 (72.6%) female, nausea 136 (64.2 %), 109 (66.5%) females, and vomiting in 62 (29.2%), 52 (31.7%) females. Family history of migraine was positive in 28 patients (13.2 %).

Several comorbidities were found to be more common among individuals with migraine than other comorbidities. The most common comorbidities, (>10% of individuals) in both migraine groups were vitamin d-deficiency in 62 (29.2%), gastroesophageal reflux 47 patients (22.2 %) and hypertension in 26 patients (12.3 %). And (< 10% of individuals) were anxiety 14 patients (6.6%), depression in 13 patients (6.1 %), asthma 7 patients (3.3 %), and ischemic heart disease 2 patients (0.9 %).

Table2: Demographics and Clinical Characteristics

	Chronic Migraine	Episodic
Age Overall		
Mean (SD)	37.66 (10.74)	38.02 (9.40)
Age at Diagnosis		
Mean (SD)	29.8 (9.70)	31.81 (9.85)
Sex % (count)		
Female	20.8% (4.4)	56.6% (120)
Male	2.8% (6)	19.8% (42)
Nationality		
Emirati	8.5% (18)	32.1% (68)
Non-Emirati	15.1% (32)	44.3% (94)
Severity of pain		
Median (Interquartile range)	4 (1)	4 (2)
Comorbidities % (count)		
Diabetes Mellitus	Diabetes Mellitus	5.2% (11)
Hypertension	1.9% (4)	10.4% (22)
Ischemic heart disease	0.0% (0)	0/9% (2)
Anxiety	2.4% (5)	4.2% (9)
Depression	2.4% (5)	3.8% (8)
Asthma	1.4% (3)	1.9% (4)
Gastroesophageal reflux	4.7% (10)	17.5% (37)
Vitamin D deficiency	6.6% (14)	22.6% (48)

Discussion:

In this study, among the 212 patients who met the inclusion and exclusion criteria and fulfill the ICHD-3 criteria. 50 patients (23 %) were considered to have CM and remaining 162 (76.4%) had EM.

The profile of these migraineurs, and the demographics and clinical characteristics of individuals with CM and EM. was similar between the studies, But the prevalence of migraine was higher in middle aged; the majority were females, which consistent with epidemiological patterns in previous studies.

The most common comorbidities were, vitamin D deficiency, and gastroesophageal reflux, which is different from other studies which showed high association with depression and anxiety disorders, and this discrepancy may be related to population specific habits to hide psychiatric diseases, or underdiagnosed psychiatric conditions in this study.

The average age was higher in comparing with other studies, and female preponderance was compatible with previous reports, these findings reinforce the well-known understanding that migraine affects females more than males.

Several comorbidities have been found to be more common among individuals with migraine, such as vitamin d deficiency and GERD, the association between migraine and these comorbidities needs further investigation, and the linking between them still incompletely understood.

The guidelines recommend simple analgesics like, ibuprofen, naproxen sodium and acetaminophen as first line treatment as acute migraine medications and recommend triptans as second line treatment. First line preventative migraine medication recommendations include antidepressant and antihypertension, while recommend antiseizures as second line therapy.

Anti- calcitonin gene-related peptide (Anti-CGRP) medications were recommended after failure of two first or second line preventive therapies, allergy to these treatments, or severe unresponsive episodes.

Nonsteroidal anti-inflammatory drugs were the most used first line acute attack treatment 196 (92.5%), followed by triptans 156 (56%). While the opioid were used in few patients, which is not consistent with the world studies when suggest not to use it routinely, to avoid dependency risk and medication over use headache.

Limitations:

As all retrospective studies, and since all the collected data are from medical records there will be number of limitations should have attention during results explanation. patients were identified according to available information in the files, so there is a potential for difference in classification of the study groups or measures.

The study may miss patients with migraine who use over-the-counter medications, prescription medication provided in other care settings.

CONCLUSION

This is a retrospective study targeted Al Ain population of different nationalities. Pharmacologic therapy was found to be in concordance with recommended treatment. There is increase in association of migraine with gastroesophageal reflux and vitamin d deficiency. A consideration for future research may be to better understand the characteristics of migraineurs using acute and preventative therapies and over the counter medication and other management techniques.

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The author states there is no conflict of interest.

This study was approved by the Institute Review Board (IBR) of Mediclinic Middle Esat (MCME) United Arab Emirates. Reference number MCME CR 295 MAIN 2023.

The author confirms the data supporting the findings of this study are available within the article.

Yaser Al Msalmeh is the principle investigator of this manuscript, He did the design, analysis interpretation, literature review, drafted and edited the manuscript.

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