Clinical Profile of Migraine Headache Patients: A Descriptive Study of A Single Tertiary Centre in Malaysia

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Abstract

Background:

Migraine is one of the most common disabling neurological disorder among adult population in Malaysia.

Purpose:

To evaluate demographic characteristics among the migraine patients.

Methods:

A total of 73 patients with the complain of headache, who aged 18 to 65 were recruited prospectively at neurology clinic from December 2017 to April 2019 in Kuala Lumpur Hospital. All new patients were mainly referred by primary care clinics. Demographic characteristics such as age and gender, age of onset, clinical phenotypes, trigger factors, rescue therapy, prophylaxis usage, frequency of headache, psychiatric symptoms, marital status and education level were all evaluated. Migraine headaches were coded according to ICHD-III criteria. Statistical analysis was analysed using SPSS software. Descriptive statistics, mean and standard deviation were used to evaluate for clinical data.

Results:

44 out of 73 patients had migraine (60.3%). The mean age of migraine patients was 30 and mean age of onset was 24.8. Majority of the sample were female (36, 81.8%), single (23.52.3%) and with tertiary education level (31, 70.5%). The most frequent symptoms included unilateral headache (36, 81.8%) with throbbing in quality (39, 88.6%). The main trigger factor was stress (23, 52.3%). The most frequently used rescue therapies are sleeping and paracetamol ingestion (18, 40.9%). Most of the patients experienced acute attack 4-14 days in a month (15, 34.1%). 42(95.5%) patients were prophylaxis naïve.

Conclusion

Characteristics of the migraine patients in Kuala Lumpur Hospital are comparable with previous studies. A registry of headache patients is crucial to determine the prevalence and local impact of the disease in Malaysia.

Objectives:

The purpose of this study is to analyse demographic features of all migraine patients. according to International Classification of Headache Disorders (ICHD-3).

Introduction:

Headache is a common disabling neurological disorder among adults in Malaysia. Migraine is one of the most frequent types of headache in this population. The World Health Organization (WHO) ranked migraine as one of the 20 most disabling medical illnesses in the world. [1] Western studies revealed that headache accounts for 4.4% of all consultations in general practice, approximately 5% of all medical admissions to hospital and about 20% of neurology outpatient consultations while epidemiological studies conducted in Asia reported an overall lifetime prevalence of migraine ranging from 8.4 to 12.7%. [2, 3, 4, 5] However, data on the prevalence, characteristics, comorbidity, and disability associated with migraine in South-East Asia are limited, particularly in the region of Kuala Lumpur. [6]

The healthcare facilities in Malaysia are consisted of tertiary centres, district hospitals and primary care clinics in the government and private settings. Majority of the migraine patients in this country receive treatment from primary care clinics or general practioners in private clinics. Only some portions of the migraine patients are under the care of tertiary centre with neurology service in which most of these patients usually have migraine with increased severity. Kuala Lumpur Hospital is the biggest tertiary referral hospital under the Ministry of Health of Malaysia and is considered to be one of the largest in Asia.

The aim of this study is to analyse the latest clinical profiles of the migraine patients in Kuala Lumpur Hospital according to ICHD-3. Demographic characteristics which include age and gender, age of onset, clinical phenotypes, trigger factors, rescue therapy, prophylaxis usage, frequency of headache, psychiatric symptoms, marital status and education level were all analysed. We believe that this study serves as a good starting point to develop a proper registry for all the migraine patients in Malaysia near future in order to understand the impact of this disease and for better care to the migraine patients.

Material And Methods:

Study design:

This is a descriptive study which was carried out among all the new referrals of migraine patients to outpatient neurology clinic Kuala Lumpur Hospital from the local primary care clinics, district hospitals as well as the tertiary hospital without neurology service and private medical centres between December 2017 and April 2019.

Sample:

The patients were recruited when they attended neurology clinic for the first time with letters referred for headache or migraine from December 2017 to April 2019. A total of 73 patients aged 18 to 65 were recruited prospectively. Written consent was obtained from all the participants after detailed explanation. Study inclusion criteria included being age of 18–65 years, consented to participate in the study and fulfilled the ICHD-3 classification for migraine. The exclusion criterion was headaches that were not fulfilled the ICHD − 3 classifications and secondary causes for headaches.

According to the ICHD-3, the diagnosis of migraine without aura included at least five attacks with the following characteristics: the headache attacks must last 4–72 h (untreated or unsuccessfully treated). The headache must have at least 2 of the following features: i) unilateral, ii) pulsating, iii) moderate to severe and interfere with doing daily routine activities, iv) gets worse or intensified by doing daily routine activities or walking up or down the stairs. During the headache, there should at least be one of the following features: nausea, vomiting and photophobia. As for migraine with aura, there must be at least 2 attacks if other criteria are met.

Measurements

All the new referrals of migraine headache patients' consultation were carried by a qualified specialist neurologist with special interest in headaches and three neurology fellows in training and the same patient will be independently consulted by 2 neurology doctors as mentioned above. All the demographics details which include age and gender, age of onset, clinical phenotypes, trigger factors, rescue therapy, prophylaxis usage, frequency of headache, psychiatric symptoms, marital status and education level were documented via interview during the consultation. We classify the frequency of migraine headaches as mild if it occurs less than 4 days per month, moderate if migraine attacks present between 4 to 14 days per month; severe if the frequency is between 15 to 28 days per month and extremely severe if it occurs more than 28 days in a month. The severity of migraine headaches is varied among the studies. The assessment of the psychiatry illness among the migraine patients were according to the background history of psychiatric co-morbid.

All migraine headaches were coded according to ICHD-III criteria. When a patient met criteria for more than one headache type, all relevant types were diagnosed and coded. The secondary causes of headache were denied according to the clinical examination of the samples and this group of patients were given an early appointment for computed tomography scan of brain. The rest of the patients complaining from headache that were non- classified and were categorized as "non-specific headache" which include post traumatic headache, medication-induced headache, secondary headache, functional disorders and others.

Statistical analysis:

The data collected was analysed using SPSS software. Descriptive statistics, mean, and standard deviation were used to evaluate for clinical data.

Ethical consideration:

This study was approved by the Malaysian Medical Research and Ethics Committee.

Results:

Table 1 summarized the demographic data of patients with headaches. Out of 73 patients who are included in the study, a total of 38 (52.1%) patients have migraine without aura, 6 (8.2%) with migraine with aura, 1(1.4%) patient with tension-type headache, 1 (1.4%) patient with cluster headache and 27 (37%) patients suffer from non-specific headaches. The mean age of migraine patients is 30 years old whereas the mean age of onset for migraine headache is 24.8 years old (SD 7.52). There are 36 (81.8%) females and 8 (18.2%) males among the patients suffer from migraine.

Table 1
Demographic data of patients with headaches

Types of headache	**n (%)**
Migraine without aura	38 (52.1)
Migraine with aura	6 (8.2)
Tension-type headache	1(1.4)
Cluster headache	1(1.4)
Non-specific headache	27(37)
Gender	
Male	8 (18.2)
Female	36 (81.8)
Marital status	
Single	23 (52.3)
Married	21 (47.7)
Divorced	0 (0)
Widowed	0 (0)
Education	
Primary and below	0 (0)
Secondary	13 (29.5)
Tertiary	31 (70.5)
For migraine headache	**Mean age, (SD)**
Mean age of patients with migraine headache	30 years old (SD 11.5)
Mean age of onset for patients with migraine headache	24.8 years old (SD 7.52)

Regarding the educational level, 31 (70.5%) patients with migraine pursued tertiary education level while 13 (29.5%) patients had secondary level of education. There is no data available on educational level for

11 (25%) patients. Most of the patients are single (23, 52.3%) and the remaining was married. (21, 47.7%)

The clinical characteristics of patients with migraine are shown in Table 2. Out of 44 (60.3%) patients with migraine, 36(81.8%) had unilateral headache and 39(88.6%) had throbbing headache. 34 (77.3%) migraine patients had nausea but only 22 (50%) patients had migraine associated with vomiting. More than half of the migraine patients had photophobia and phonophobia, 29 (65.9%) and 25 (56.8%) respectively.

Table 2
Clinical characteristics of patients with migraine headaches

Migraine symptoms	Number, percentage (n, %)
Unilateral headache	36 (81.8)
Throbbing	39 (88.6)
Nausea	34 (77.3)
Vomiting	22 (50)
Photophobia	29 (56.9)
Phonophobia	25 (56.8)
Trigger factors	
Weather	11 (25)
Stress	23 (52.3)
Sleep deprivation	9 (20.5)
Menstruation	4 (9.1)
Caffein intake	3 (6.8)
Change in position	2 (4.5)
Bright lights	2 (4.5)
Missed meal	1 (2.3)
Change in work environment	1 (2.3)
Prolonged standing	1 (2.3)
Post traumatic event (history of motor-vehicle accident)	1 (2.3)
Rescue therapy	
Sleep	18 (40.9)
Isolation into a dark room	1 (2.3)
Paracetamol	18 (40.9)
NSAIDS	11 (25)
Triptans	3 (6.8)
Ergots	9 (20.5)
Frequency of migraine attacks	
Less than 4 days per month	7 (15.9)

Migraine symptoms	Number, percentage (n, %)
4–14 days per month	15 (34.1)
15–28 days per month	6 (13.6)
More than 28 days per month	13 (29.5)
Prophylaxis usage	
Prophylaxis naïve	42 (95.5)
Propanolol	0 (0)
Amitriptylin	1 (2.3)
Sibelium	2 (4.5)
Pizotifen	0 (0)
Alprazolam	1 (2.3)
Botulinum toxin	0 (0)
Psychiatric disorders	
Depression	1 (2.3)
Anxiety	1 (2.3)
Psychosis	0 (0)
Sleep disturbance	1 (2.3)

With regard to the triggers of migraine, the frequency for particular trigger factors being associated with migraine patients were stress (23, 25.3%), weather (11,25%), sleep deprivation (9, 20.5%) and others (Table 1). Among the female patients, only 4 (9.1%) considered menstruation as a trigger factor for migraine headache.

All the migraine patients practise non-pharmalogical rescue therapy and medication to relieve migraine attacks. A total of 18 (40.9%) patients prefer to sleep and only 1 patient (2.3%) choose to isolate in a dark room during acute attack of migraine. Majority of the patients (18, 40.9%) took paracetamol, followed by 11 (25%) patients who took NSAIDS to relieve headache, whereas only 9 (20.5%) patients and 3 patients (6.8%) used ergots and triptans respectively as rescue therapy for migraine.

In general, most of the migraine sufferers experienced acute attack 4–14 days in a month (15, 34.1%) followed by more than 28 days per month (13, 29.5%) and there were 7 (15.9%) patients suffered from migraine for less than 4 days in a month and 6 patients who had migraine between 15–28 days per month.

Interestingly, only 2(4.5%) patients were prescribed with migraine prophylaxis which were amitriptyline and flunarizine; and alprazolam with flunarizine respectively whereas a total of 42(95.5%) patients were prophylaxis naïve. There were no patients receive propranolol, pizotifen and botulinum toxin injection for migraine prophylaxis.

Among all the migraine patients in this study, only one (2.3%) migraine patient had depression and another (2.3%) patient had anxiety. None of the patients had psychosis.

Discussions:

This is the first detailed study of the prevalence of headaches in Kuala Lumpur hospital. The results of the study show a higher incidence of migraine headache among the females as compared to males. The gender differences in this present study are consistent with the findings of previous studies. [5, 8, 9] One study reported the peak prevalence of migraine in East Asia was among adult women aged 30 to 49 years, which is in line with worldwide studies on migraine disability. [7, 10] Women with migraine are more likely to experience longer duration of headaches, migraine-associated symptoms, migraine-related disability and a high burden of comorbidity. [11] Migraine without aura accounted for the largest proportion of the migraineurs as compared to migraine with aura in the present study. By contrast, a cross sectional study reported a lifetime prevalence of migraine with aura was 5%, with a male to female ratio of 1:2 and lifetime prevalence of migraine without aura was 8%, male to female ratio of 1:7. [12]

By using ICHD III criteria [13], we found that the most common symptoms of migraine in our patients was unilateral throbbing headache, nausea and photophobia whereas only approximately half of the patients had vomiting and phonophobia. K. Zarea and colleagues reported the most frequent symptoms of headache are vertigo, photophobia, nausea and vomiting. [14] An Iranian study revealed that nausea (55.6%), vomiting (40.7%), and photophobia (85.2%) were the common factors for their migraine population, which are similar from the present study. [15]

Consistent with various research findings, our study showed that among the most frequent trigger factors for migraine headaches are related to stress, weather and sleep deprivation. Other precipitating factors were menstruation, caffein intake, missed meal, postural changes or change in position, prolonged standing, bright lights and change of working environment. J wang and colleagues reported that sleep disturbance (40.1%) was the most common trigger for migraineurs, followed by negative affect (34.2%), sunlight (32.7%) and change of the weather (31.1%) and menstrual cycle (8.8%) [16] Another recent study conducted in Saudi Arabia revealed that the commonest cause of life style behaviour precipitating migraine was lack of sleep in (88%) cases, followed by stress of exams (67.2%) and prolonged hunger (68.5%). [17]

In this study, only 4 female patients considered menstrual cycle as a trigger factor for migraine. This is in contrast with a study which showed menstruation had the most significant effect on intensifying migraine headaches (55.6%) [14] MacGregor and colleagues revealed that migraine frequency will

increase following the rapid decline in oestrogen level that normally occurs during the beginning of menstruation. [18] Fluctuation of oestrogen level could be one of the reasons of the higher incidence of migraine among female. On the contrary, one study reported similar findings when they found a relatively low prevalence rate of 3% migraine with menstrual among 1181 Dutch women. [19] In addition, they found that migraine associated with menstruation was more severe, persistent and resistant to treatment. [19]

With regard to treatment for migraine headaches, majority of the patients were not taking any prophylaxis and only two patients received amitriptyline, flunarizine and alprazolam as migraine prophylaxis. One cross-sectional study from a neurology clinic in China revealed 43.1% of patients had not used analgesics, 2.7% had used prophylaxis whereas none had used triptans. [20, 21] During an acute attack of migraine, majority of patients took paracetamol and NSAIDS to relieve headache while only small numbers of patients preferred ergot and triptans as rescue therapy for migraine. This partly could be due to the easy access of paracetamol and NSAIDS and the cost were lower as compared to ergot and triptans.

Most of the migraine sufferers experienced acute attack 4–14 days in a month followed by more than 28 days per month. This study revealed that majority of the patients had higher frequency of migraine most of the days in a month. This could be attributed to the fact that all patients in this study were new cases and mostly were prophylaxis naïve which were mainly referred from primary care clinics with limited resources. They were referred for evaluation and further management as there are wider access of prophylaxis as well as treatment options for migraine headaches in Hospital Kuala Lumpur. As compared to the one study, the frequency of headache was once a month in 43.8% of the patients, once a week in 21.3%, 2–4 times a week in 9.2%, daily in 2.6% and the frequency was variable in 4.6% of patients. [14]

Few epidemiological studies had investigated whether individuals with migraine are significantly more likely to suffer from a psychiatric disorder such as depression or anxiety than population without migraine headache. [6] Interestingly, our study only revealed one (2.3%) migraine patient with depression; another (2.3%) patient had anxiety and none of the patients had psychosis. This could possibly due to some patients reluctant to report emotional symptoms. Individuals with migraine headache had been reported 2–5 times more likely to be diagnosed with depression or anxiety disorder. [22, 23] Common genetic factors and pathophysiological abnormalities for instance, serotonergic processing and oestrogen response were playing roles in explaining the association between migraine headache and psychiatric disorders. [24]

With regard to the education level, majority of our patients with migraine headache pursued tertiary education level followed by patients with secondary level of education. This is also consistent with a study reported that most of the migraine participants (67.6%) had higher education, while the least belong to primary education level (2.8%) and their study showed a positive correlation between migraine and higher educational level as well as satisfactory monthly income. [17]

Regarding the marital status of migraine patients in this study, most of the patients are single (23, 52.3%) and the remaining was married. (19, 43.2%). Similarly, another study also reported majority of their migraine patients were single (85.2%) as compared to patients who were married (14.8%). [14] This is in contrast with a study done in Singapore as 59.8% of the migraine patients were married. [6]

Conclusions:

In conclusion, characteristics of the migraine headaches patients in Kuala Lumpur Hospital are comparable with those previously described in the literature. The most common entity is migraine with most headaches in our patients could be coded according to ICHD-III criteria. Our study demonstrate that majority of the patients were prophylaxis naïve and fall into moderate to very severe migraine headaches as classified above, and hence we should expand the knowledge of migraine headache to all primary care clinics or other hospital-based care providers. We believe that priority of tertiary care should be given to migraine headache patients who had failed primary treatment and need more advanced therapy. We acknowledge that our study is currently limited by the small number of headache patients as majority of the migraine patients are normally followed-up in primary care settings. However, it unveils that there is a need to develop a proper registry of headache patients to further understand the true prevalence and local impact of the disease in Malaysia and to enhance the management of headaches patient within this region.

Abbreviations

International Classification of Headache Disorders (ICHD-3), World Health Organization (WHO), Non-steroidal anti-inflammatory drugs (NSAIDS)

Declarations

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Author Roles and Responsibilities:

1. Conception and Design: Yue Hui Lau, Sufian Adenan

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3. Critical Analysis and Revision: Yue Hui Lau, Sufian Adenan
4. Final approval: All authors

Ethical approvals: This study was approved by the Malaysian Medical Research and Ethics Committee.

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Figures

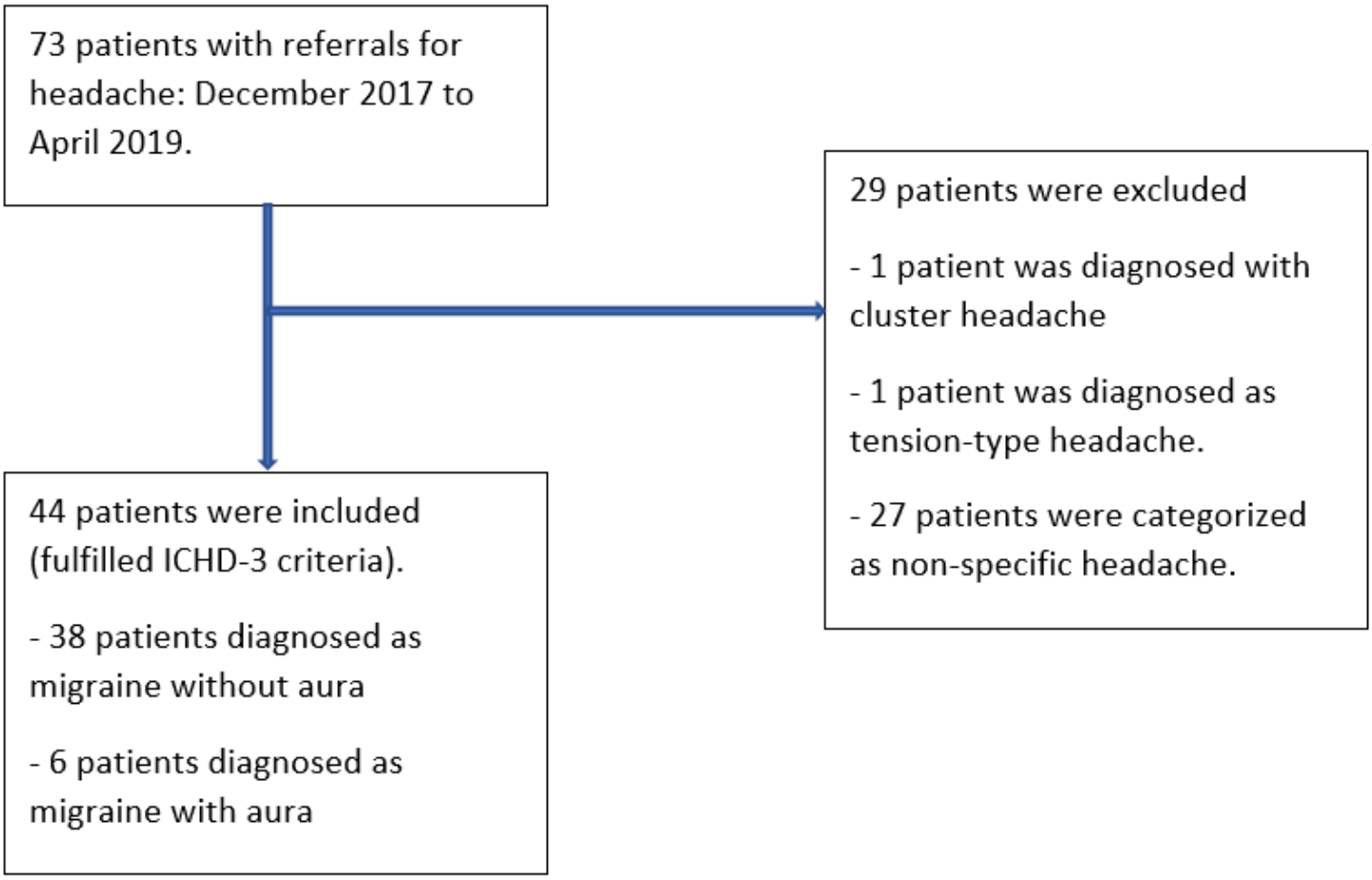

Figure 1

Study flow diagram