

Migraine disability assessment among a sample of Iraqi patients at the college of medicine /Kerbala university/ Iraq

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ABSTRACT

migraine is common among young age group. It causes loss of many days of study program which leads to delay, embarrassment, and put burden on the sufferers. It is a preventable disease in more than 60% of patient if it is diagnosed and treated properly. To early diagnose, categorize and know the disability scores of migraines among medical college students.

The Design A cross sectional study. A selected questionnaire is distributed to the students of Medicine college/ Kerbala University. A four hundreds (400) students who complain of recurrent headache accepted to participate in this study. Revision of the questionnaire is then done by a neurologist to select students who fulfill the criteria of migraine according to international headache society, they were 80 students. The data was entered in excel (2016) and analyzed by using the statistical package for social program (SPSS program).

Results: From Iraqi patients in the college of medicine / kerbala university a total of 400 patients who complain of headache participated in the study, 80 patients of them (71% females and 29% males) found to fulfilled the criteria of migraine according to the diagnostic criteria of migraine issued by the international headache society. This study disclosed that 13.3.% of our patients had moderate headache and about 37.5% had severe headache according to Midas test.

Key words: Migraine, Migraine disability, MIDAS score

INTRODUCTION

Migraine is a complicated illness characterized by periods of moderate to severe headache, most frequently unilateral, and is frequently accompanied by nausea and heightened sensitivity to light and sound. The name migraine is taken from the Greek word "hemicrania," which was eventually changed to the Latin word "hemigranea." This word's equivalent in French is "migraine" [Rose, 1995]. The most frequent cause of disability and job loss is migraine. Migraine attacks are complex brain processes that can last anywhere from a few hours to many days. 75 percent of migraine patients lack any recognizable aura.

There are several subtypes of migraines, according to (the headache classification committee of the International Headache Society 2018).

Migraine Subtypes:

- A migraine without an aura is a repeated headache attack lasting 4 to 72 hours; it is often unilateral, pulsing in nature, moderate to severe in severity, increased by physical activity, and accompanied by nausea as well as sensitivity to light and sound (photophobia and phonophobia).
- Migraine with aura experiences frequent, minute-long attacks that are totally reversible, with one or more of the following unilateral symptoms: visual, sensory, speech and language, motor, brainstem, and retinal symptoms. These symptoms are frequently followed by headache and migraine symptoms.

- Chronic migraine is a headache with migraine-like symptoms on at least eight days a month and 15 or more days a month for more than three months.

Complications of migraine

- A severe migraine episode called status migrainosus lasts for more than 72 hours.
- A persistent aura without an infarction is one that lasts longer than a week without showing any signs of an infarction on neuroimaging.
- One or more aura symptoms during a normal migraine episode that are linked to brain ischemia on neuroimaging are called migrainous infarctions.
 - A seizure is induced by a migraine episode that has an aura, which is called a migraine aura-triggered seizure.
- Probable migraine is a symptomatic migraine episode that does not fit the criteria for another form of headache and does not have one of the characteristics necessary to meet the criteria for one of the above.
- Episodic syndromes that may be associated with migraine
 - Recurrent gastrointestinal disturbances are frequent episodes of nausea, vomiting, and gastrointestinal pain that may accompany migraines.
- Benign paroxysmal vertigo features transient, repeated vertigo episodes.
- Recurrent bouts of head tilting to one side are a symptom of benign paroxysmal torticollis.

Pathophysiology

Despite incomplete understanding, pathogenesis involves several components of the peripheral and central nervous systems. Descriptions of some of the most well-liked concepts are provided in this section. While the aura is thought to be induced by vasoconstriction, the previous vascular theory of migraine suggested that the headache is caused by vasodilation(Amin FM, 2013). According to current beliefs, a variety of underlying neural flaws induce a variety of intracranial and extra cranial changes that lead to headaches (Burstein R et al, 2015)

Caspase-1 is activated as a result of the neuronal pannexin-1 mega channel opening, which stimulates the trigeminal afferents. Nuclear factor Kappa-B is subsequently activated, proinflammatory mediators are then produced, and this inflammatory signal travels to trigeminal nerve fibers close to the pia mater's blood vessels (Karatas, H, et al.,2013)

The pain-sensitive meninges become inflamed as a result of a series of cortical, meningeal, and brainstem events, which causes headaches through both central and peripheral mechanisms (Anderreou and Advinsson, 2019). The cerebral depression that generates the aura as well as the subsequent, prolonged stimulation of trigeminal nociception that results in headaches may thus both be explained by this route.

Management

First-line treatment

Worldwide, over-the-counter analgesics are used to treat acute migraines (WHO, 2011) . Non-steroidal anti-inflammatory medicines (NSAIDs) are among those with established efficacy; the best research supports the use

of acetylsalicylic acid, ibuprofen, and diclofenac potassium as first-line treatments (Rabbie, R, et al.2013). Only individuals who are intolerant to NSAIDs should utilize paracetamol due to its lower effectiveness.

Second-line treatment

Patients who have insufficient headache relief from over-the-counter analgesics should be prescribed a triptan. Although the efficacy of all triptans has been thoroughly established, access to them varies from country to country. while taken early in an episode, while the headache is still light, triptans are most helpful (Derry, S, et al, 2012). However, there is no proof to back up the usage of triptans during the migraine attack's aura phase. Even if one triptan is useless, there may still be relief from others. Sumatriptan via subcutaneous injection may be helpful when all other triptans have failed, in individuals who quickly achieve their peak headache severity, or in patients who are unable to take oral triptans due to vomiting.

Third-line treatment

There are currently few options if all triptans are ineffective after a sufficient trial time (no or insufficient therapeutic response in at least three consecutive episodes) or if their usage is contraindicated. Although their availability is now very restricted, ditans or gepants might be utilized. Ubrogepant and rimegepant are the only gepants licensed for the acute treatment of migraines, while lasmiditan is the only ditan. The effectiveness of lasmiditan, according to data from randomized controlled trials, is equivalent to that of triptans, but its usage is linked to transitory driving impairment, which is likely to deter widespread use (Derry,S,et

al.2012) People who use lasmiditan may be unable to judge their own ability to drive safely and shouldn't operate machines for at least 8 hours after taking it.

Medications to avoid

Triptans shouldn't be substituted with oral ergot alkaloids since they are potentially hazardous and have low therapeutic efficacy. Opioids and barbiturates both have significant negative side effects and the possibility of addiction, and their effectiveness is debatable (Goadsby, P, et al. 2004). As a result, none of these drugs should be used to treat migraines acutely.

therapies in alternative medicine. If taking drugs is not advised, a variety of non-pharmacological preventive treatments can be employed instead of or in addition to acute and preventative pharmaceuticals. Biobehavioural therapy, acupuncture, and non-invasive neuromodulatory devices have all been shown to be effective, while a study of acupuncture found that it was not more effective than sham acupuncture. Contrary to common assumption, nutritional treatments, spinal manipulation, and physical therapy have little to no scientific support. Other treatment choices, such as melatonin, magnesium, and riboflavin, are not recommended by us since there is little information on their effectiveness and little experience with using them in clinical settings (Diener, H,et al. 2006)

Migraine Disability Assessment

The MIDAS questionnaire was developed to measure headache-related disability and improve doctor- patient communication about the functional consequence of migraine. The questionnaire based on 5

disability questions that focus on lost time in three domains: school works or work for pay household work or chores; and family, social and leisure activities. This score can be used by physician, nurses, pharmacist and alternative practioners. It is easy to complete and take only few minutes. The MIDAS questionnaire has demonstrated reliability, as reported by 2 separated population-based studies, one in the UK And one in the united states, and validity by using a 3- months daily-diary study as the gold standard. Scores on the MIDAS are highly correlated with physician judgments about the severity of illness and the needs for treatment.

The MIDAS score is determined by how respondents answered five questions concerning headache-related impairment during the past three months. Responses to each question are scaled in terms of days and presented as either the number of days missed (for work or school, household duties, and extracurricular activities) or the number of days in the previous three months when productivity was lowered by at least 50% (for work or school, and household duties). This instrument is scored as follow:

Grade1 (10-5) indicate little or no disability,

Grade2 (6- 10) indicate mild disability,

Grade 3 (11-20) indicate moderate disability

Grade 4 (21 or more) indicate severe disability

The MIDAS score is an important part of a package of educational, investigative, and therapeutic measures and could play a major role in in improving the care of patients with migraine and other types of headache A randomized, placebo-controlled trial showed that the MIDAS grade

provide a basis for the selecting initial treatment in a stratified care. In comparison to the Headache Impact Questionnaire (Stewart et al., 1998, 1999a), this question format has a significant benefit in that it gives a straightforward method of determining a disability score in clearly understood units. The alternate technique is averaging across the three categories of activity and multiplying days by 1.0 minus percent efficacy. We were worried that the simplicity and intuitively understandable units offered by the MIDAS system could come at the expense of dependability and validity (Rodriguez-Almagro, et al. 2020)

Measurement of migraine intensity enables treatment planning for patients with varying demands (Lipton RB, et al.1994). However, because to the episodic nature of assaults and change in impact from one episode to the next, determining severity is difficult. ((Stewart WF, et al. 1999) Headaches can differ in severity, duration, accompanying symptoms, and impairment within a single person. According to our survey, 50% of people have moderate to severe sickness.

PATIENTS & METHODS

Study design: A cross sectional study

Ethical consideration:

Approval of the study protocol and written consent was obtained from the University of Karbala / College of Medicine prior to data collection.

Sampling size:

The total number of students included in the study was 400 and only 80 who complain of migraine (71% female and 29%) were included

Questionnaire and data collection

A selected questionnaire is distributed to the students of the college. Revision of the questionnaire is then done by neurologist to select students who fulfill the criteria of migraine according to international headache society. then a categorization of the disability score is done according to the migraine disability test. physical and neurological examination is offered for student with migraine and neuroimaging is also offered whenever it is indicated. All the subjects successfully completed the MIDAS questionnaires. None had any difficulties in understanding or answering any parts of the questionnaires.

Inclusion criteria

All the students who accept to participate in the study and accept to answer the questionnaire of the study

Exclusion criteria.

1. Known cases of migraine on treatment
2. All student with known neurological disorder that cause headache such as tumors or medications
3. Students who refuse participation in the study

Statistical analysis:

The statistical package for social science (SPSS Program) was used to evaluate the data after it was entered in Excel 2016 for this project. Tables were used to indicate the frequency and percentage of each question. MIDAS score was used to identify the severity of headache. Data were reported as mean \pm standard deviation. Then we have done the

statistical work by IBM SPSS comparing the variables according to the chi square and the P values was extracted.

RESULTS:

From Iraqi patient in the college of medicine /Karbala university a total of 400 students complained of headache fill the questionnaire distributed by the researchers. 80 students who fulfilled the criteria of migraine were enrolled in the study. Their mean age was (22.7 ± 0.863) (71% females and 29% males). This study disclosed that about 13.3% of our patients had moderate headache and about 37.5% complain of severe headache (Table 1)

Table1. MIDAS Score

Items	Grade	Frequency	Percentage
MIDAS Score	0-5 little or no	29	36.3%
	6-10 mild	10	12.5%
	11-20 moderate	11	13.3%
	+20 sever	30	37.5%
Total		80	100%

It was found that most of cases in this study had 1-5 attacks of migraine per month (61.2%). About 23.8% hade more than 10 attacks per month. According to duration of attack we found that 47.3 of patients had duration of attack 1-3 hours. Table 2 illustrated the remaining results.

Table 2: - percentage of patients according to number and duration of at

Variables	Categories	Number of students	Percentage %
Number of attacks of migraine	1-5 /month	49	61
	6-10 /month	12	15
	11-15/month	9	11.3
	16 & above/month	10	12.5
Duration of attacks of migraine	Below 1 h	13	16.3
	1-3 h	38	47.3
	4-6 h	20	25
	7-12 h	4	5
	13-23	4	5
	1 day & above	1	1.3

This study found that 61.2% of participants had bilateral headaches as a primary headache site, 53.7% had non-pulsatile headache, 56.25% had moderate headache, and 45% of cases had headaches that were made worse by or prevented participants from engaging in regular physical activity. Table 3 demonstrate the characteristics of migraine in this study.

Table 3: - migraine headache characteristics

Variables	Categories	Frequency	Percentage %
Site	Unilateral	31	38.8
	Bilateral	49	61.2
Total		80	100%
Character	Pulsatile	37	46.3
	Non pulsatile	43	53.7
Total		80	100%
Severity of headache 0-10	Mild	26	32.5
	Moderate	45	56.25
	sever	9	11.3
Total		80	100%

Aggravating by or causing avoidance of routine physical activity	yes	36	45
	no	44	55
Total		80	100%

The most common associated symptoms was nausea & vomiting, photophobia and phonophobia as shown in table5

Aura, Hemianopia disturbance, scintillating scotomas, and sensory symptoms were all shown to be related with migraine in this research.

And as indicated in table 5, one of the 80 patients who participated in this study had nystagmus as a symptom of a migraine attack.

Table 4: -Associated symptoms with migraine

Items	Yes	percentage	No	Percentage
Nausea & vomiting	18	22.5%	62	77.5%
Photophobia	30	37.5%	50	62.5%
Phonophobia	29	36.3%	51	63.8%
Aura	8	10%	72	90%
Hemianopic disturbance	5	6.3%	75	93.8%
scintillating scotoma	14	17.3%	66	82.3%
Sensory symptoms	15	18.8% %	65	81.3%
Total	80	100%	80	100%

The study showed significant association of the number of attacks with style of food intake, P value was 0.001. table 5. Compliant patient defined as those who avoided foods that precipitate migraine were 31 patients. The non -compliant were 49 patients. Results are seen in table 5.

Table 5 : Number of attacks according to style of food intake

Food style	No. of participant	percent	P-value
Non-compliant	49	61.2	0.001
Compliant	31	38.8	
Total	80	100	

The number of attacks also showed significant association with sleep pattern. The student with erratic sleep pattern were 58(72.5) patients. All this is shown in the last table number 6.

Table 6: number of attacks according to the sleep pattern

Sleep pattern	No. of participant	percent	P value
erratic	58	72.5	0.001
Regular	22	27.5	
Total	80	100	

DISCUSSION

Measuring the burden of migraine is necessary prior to effective treatment to reduce its burden. The most frequently used disability instrument in migraine research is MIDAS questionnaire (Stewart &Lipton 2002). this study revealed that moderate and severe migraine was reported in more than 50% of the students. A previous study by Stewart, Walter F., et. (2017) found that 40% of his cases has moderate migraine. Also, a comparable results found by Kogelman, Lisette JA, et al.(2019) . Another extra study done in Pakistan showed that the majority of migraine patients (56%) had severe disability (Jawed, Shafaq, et al., 2019) and they found great burden on their daily social and work life. .

This high percent of moderate and severe migraine in this study may be due to the fact that most students do not seek a medical advice for this type of headaches, incorrect diagnosis or underestimation of the problem. Another important factor noticed, is that most of the medical care giver may started incorrect treatment and skipped these cases as sinusitis or neck pain or others, because they underestimate the burden of the disease on the patient life.

There was a significant association between the number of attacks and style of food habits. This fact is well established for all the studies done on different food types. This study showed the same results or a little bit more. The current study also proved the significant relationship between erratic sleep pattern which is common among students and the number of migraine attacks. Most of student registered a delayed night sleep and early awake or less than 6 hours night sleep (Rodriguez, A.et al.2020)

The study showed that a total of 80 patients (mean age was 22.7 ± 0.863) had migraine (71% females and 29% males) had migraine. this result was almost similar to previous studies (75% females and 25% males, mean age was 32) in (El Hasnaoui, A., et al, 2004) , (80% femlaes and 20% mlaes, mean age was 33) in (El Hasnaoui, Abdelkader, et al, 2017) and (79% females and 21% males, mean age was 44) in (Khorsha, Faezeh, et al. 2020]. These result reflect that the mid age was more susceptible to have migraine more than other age groups and according to gender we can find that the females are more susceptible to have migraine more than males.

The majority of cases in this study that complained from migraine had a duration about 1-6 hours and the percent was 56.7% so that duration can help in scoring the duration of disability and how it affect their life style. Many previous studies a comparable results. Duration of attacks was 2-6 hours in (El Hasnaoui, A., et al. 2004) and 5-8hours in (Khorsha, Faezeh, et al, 2020). In addition to the usual duration of the attacks an extra percent of 7% of instances experienced headaches lasting 72 hours or more, and these cases were more common in patients who were ignorant, medications overuse, irregular sleeping pattern, using contraceptive pills, or who were mentally exhausted.

This study revealed that 80 students have migraine out of the total 400 patients (20%) who have headache due to other causes. This early picking up and diagnosis of all migraine cases was feasible and easy by history, physical examination, and fulfillment of the diagnostic criteria. And this percentage which is about 20% was accepted and goes with previous national and international researches which indicate that the prevalence and incidence of migraine is highly variable and may range from 10- 50% . This way was very successful in picking up cases of migraine by such simple methods (Headache classification committee of HIS, 2016)

Conclusion

1. This study shows that migraines may be identified and treated early by using a thorough medical history, a physical exam, or a short questionnaire.
2. According to the MIDAS score, 50% of our patients report moderate to severe headaches, reflecting a severe pattern of illness and indicating the importance of early diagnosis and treatment.
3. Approximately 49% of patients had bilateral headaches and met the migraine criteria, which suggests that unilateral headache is not crucial to the diagnosis.
4. Duration of attack was 1-3 h in 47.3% of cases.
5. High percent showed significant association of the number of attacks with eating styles and sleep pattern

Recommendations

1. First, we advise all headache sufferers to go to a primary care facility for an early diagnosis and follow-up.
2. Most moderate to severe instances that have an impact on a student's everyday life should be sent to a neurologist for a better diagnosis and course of action.
3. In order to improve sample size and help with these instances, we recommend more thorough research on larger samples.
4. Picking up cases of migraine needs a well-trained physician to minimize unnecessary waste of time and money and to early helping those people

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