STUDY OF CLINICAL CHARACTERISTICS
AND SOME RISK FACTORS OF MIGRAINE HEADACHE
AT CAN THO CENTRAL GENERAL HOSPITAL IN 2022-2023

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ABSTRACT

Background: Migraine is a common disorder; however, it is still not perfectly diagnosed and treated due to many difficulties in recognizing symptoms or accompanying risk factors. Understanding migraine headaches through surveying standard samples can guide clinicians in the appropriate way of diagnosis and treatment. Objectives: The study aimed to describe the clinical characteristics of migraine and to investigate some risk factors related to migraine headaches among patients examined at Can Tho Central General Hospital during 2022-2023. Materials and methods: A cross-sectional descriptive study was conducted on 46 patients diagnosed with migraine headaches at Can Tho Central General Hospital in 2022-2023. Results: We recorded that most of the patients experienced headaches lasting from 24 to 72 hours, unilateral (left or right side) fixed headaches, pulsatile headaches and severe intensity headaches with the proportions being 39.14%, 73.9%, 80.4%, and 63.1% respectively. The symptoms accompanying the headache included nausea (67.4%), photophobia (52.2%), dizziness (34.8%), vomiting (32.6%), and absence of aura symptoms (unilateral fixed headache, nausea or/and vomiting, photophobia or/and phonophobia) accounting for 95.7. Factors exacerbating headaches are stimulant use (21,7%), weather (19,6%), menstrual conditions aggravating headaches in 16.7% of female patients, and physical activity (13.0%). Factors alleviating headaches include using analgesics (60,9%), resting (39.1%), and avoiding exposure to light and photophobia (4.3%). Influencing factors include female (65.2%), insomnia (58.7%), anxiety disorder (52.2%), and family history of having a parent with migraine disease (4.3%). Conclusion: The highest rates were observed among patients experiencing unilateral (left or right side) fixed pain (73.9%) and pulsatile headache (80.4%). The most common accompanying symptom is nausea (67.4%). The proportion of migraineurs without aura symptoms accounts for 95.7%. Stimulant use (21.7%) is the factors that exacerbate headaches the most. On the other hand, avoiding exposure to light and noise reduces headaches in most cases (accounting for 60.9%).

Keywords: Migraine headaches, migraineurs, clinical characteristics, risk factors

I. INTRODUCTION

Migraine is defined as an episodic headache associated with certain characteristics such as sensitivity to light, sound or movement. It can also be understood as a "recurrent headache syndrome accompanied by other symptoms in a number of different mixed neurological disorders" [1]. According to an analysis of The Global Burden of Disease (GBD) study reported in The Lancet Neurology, nearly 1.04 billion people suffered from migraine headaches in 2016 [2]. In Vietnam, migraine disease has a prevalence of 17.4% [3]. Contributing to reducing this global burden, researchers have conducted studies on migraine. For example, research by Burch et al (2018) showed that 1 in 6 Americans was affected by migraines [4]. Additionally, research by Lam Tien Uyen (2020) noted that the majority of patients experienced accompanying symptoms such as nausea, sensitivity to light and noise, accounting for 77.6% and 81%, respectively [5]. To provide an overview

and update on this issue, we conducted research on the topic "Study of clinical characteristics and some risk factors of migraine headache at Can Tho Central General Hospital 2022-2023" with two main goals: (1) To describe the clinical characteristics of migraine headache in patients examined at Can Tho Central General Hospital in 2022-2023; (2) To investigate some risk factors related to migraine headache in patients examined at Can Tho Central General Hospital in 2022-2023.

II. MATERIALS AND METHODS

2.1. Research subjects

Patients diagnosed with migraine who are 16 years old or older come for examination and treatment at the Department of Neurology, Can Tho Central General Hospital.

2.2. Research methods

Research design: We conducted a cross-sectional descriptive study.

Sample size and sampling method: The study sample size was calculated according to the formula to estimate the proportion:

$$n = Z^2_{1-\frac{\alpha}{2}} \frac{\rho(1-\rho)}{d^2}$$

n: the minimal sample size   required

Z: the confidence coefficient at the 95% probability level corresponds to Z = 1.96

d: the acceptable error. We chose d = 0.07

p: rate of typical pulsatile headache in migraineurs, according to clinical research by Do Thi Kim Phuong with p=0.942 [6]

Applying the calculation formula, we calculated n ≥ 43 patients.

The actual sample for this study was 46 patients.

Research Content: General features of the researched subjects include gender, age, career, and educational background. Clinical aspects of migraine encompass headache location, initial characteristics, headache duration, intensity, accompanying symptoms (nausea, vomiting, dizziness), and the proportion of patients experiencing three symptoms, including one-sided headache, nausea or vomiting, and sensitivity to light or noise. Additionally, prodromal symptoms, factors increasing headache intensity (such as weather or physical activities, menstrual conditions in female patients, and stimulant consumption), and factors decreasing intensity (rest, light/noise avoidance, and painkiller use) are considered. Risks associated with migraine include anxiety disorder, sleep disorder, and a family history of migraine. Furthermore, factors related to the severity of migraine in patients are explored.

Sampling method: Patients meeting the criteria for research subjects were asked about their medical condition and underwent a clinical examination. The information obtained was then recorded in the data collection form.

Research content: After collecting data, we sequentially inputted the information into the computer in the form of a database file. Data were processed using SPSS 18.0 software. Results are presented in tables and Figures.

III. RESULTS

From January 2023 to Sept ember 2023, 46 standard samples were taken at the Department of Neurology, Can Tho Central General Hospital.

Table 1. General features of the research sample

General features		Number of cases (n)	Rate (%)
Age group	The average age: 49,80 ± 13,65		
	< 30	1	2.17
	30 - 39	10	21.74
	40 - 49	14	30.44
	≥ 50	21	45.65
Gender	Woman	30	65.2
	Man	16	34.8
Place of residence	Rural areas	25	54.3
	Urban areas	21	45.7
Job	Unskilled labor	26	56.5
	Retirement	8	17.4
	Non-manual worker	6	13
	Unemployment	6	13

The table show that the average age of the study is 49.80 ± 13.65; Age group ≥ 50 is 45.65%; women account for 65.2%; The rate of samples living in rural areas is 54.3%; The rate of unskilled labor is 56.5%.

Table 2. Clinical characteristics of migraine disease

Clinical characteristics		Number of cases (n)	Rate (%)
Pain duration	4 - 24 hours	14	30.43
	24 - 72 hours	18	39.14
	> 72 hours	14	30.43
Pain location	Unilateral fixed	34	73.9
	Bilateral	9	19.6
	Not fixed	3	6.5
Pain character	Pulsatile	37	80.4
	Not-pulsatile	9	19.6
Pain intensity	Mild (1-3 points)	3	6.5
	Moderate (4-6 points)	14	30.4
	Severe (7-10 points)	29	63.1
Accompanying symptoms	Nausea	31	67.4
	Photophobia	24	52.2
	Dizzyness	16	34.8
	Vomiting	15	32.6
Triad symptoms (unilateral fixed headache, nausea or/and vomiting, photophobia or/and phonophobia)	Complete	27	58.7
	Incomplete	19	41.3
Aura symptoms	Presence	2	4.3
	Absence	44	95.7

The table show that the pain period lasting from 24 hours to 72 hours represents 39.14% of cases. Additionally, 73.9% of patients experience a unilateral fixed headache, while 80.4% report a pulsatile headache. Severe intensity headache (7-10 points) accounts for 63.1%. Accompanying symptoms such as nausea (67.4%), photophobia (52.2%), dizziness (34.8%), and vomiting (32.6%) are common. Complete triad symptoms, including a unilateral

fixed headache, nausea or/and vomiting, and photophobia or/and phonophobia, are observed in 58.7% of cases. Notably, 95.7% of patients do not experience aura symptoms.

Table 3. Relevant factors of the migraine headache

Relevant factors		Number of cases (n)	Rate (%)
Exacerbating factors	Weather	9	19.6
	Physical activity	6	13.0
	Stimulants use	10	21.7
	Menstrual status	5/30	16.7
Alleviating factors	Avoiding exposure to light and noise	2	4.3
	Resting	18	39.1
	Using analgesics	28	60,9
Influencing factors	Sex (female)	30	65.2
	Sleep disorders	27	58.7
	Family history of migraine	2	4.3
	History of anxiety disorders	24	52.2

The table shows that factors exacerbating migraine headaches are often Stimulant use (21.7%), Weather (19.6%), menstrual conditions in women (16.7%), and physical activity (13.0%). Relief from headaches is observed when taking medication, resting and avoiding exposure to light and noise is 65.2%, 60.9% and 39.1%, respectively. Furthermore, up to 65.2% of migraineurs is female, 58.7% of patients have sleep disorders, 52.2% have a history of anxiety disorders and 4.3% a family history of migraine disease in both parents with migraine disease.

IV. DISCUSSIONS

The average age of patients admitted to the hospital was 49.80 ± 13.65, comparable to Lam Tien Uyen's study of 47.10 ± 12.31 [5]. We found that 65.2% of patients were female, aligning with studies by David W Dodick (84.9%) and Chuan Hu (84%) [7], [8]. We documented that 54.3% of patients residing in rural areas experienced migraine headaches, compared to 45.7% in urban areas. This distribution closely resembles Lam Tien Uyen's study, which reported 56.9% rural and 43.1% urban migraine sufferers, as well as Nguyen Ngoc Anh Thu's findings. Also, this result is similar to Nguyen Ngoc Anh Thu's study which recorded that 64.6% of rural patients were twice as who live in urban areas [8]. We categorized patients' occupations into groups: 26/46 patients classified as unskilled labor (56.5%), 6/46 were non-manual workers (13%), 8/46 were retirees (17.4%) and 6/46 patients were unemployed (13%). Among these, the group of unskilled laborers had the highest incidence of the disease. Our research results are consistent with those of Lam Tien Uyen and Nguyen Ngoc Anh Thu, who also found that the group of unskilled workers had the highest rate, which was 58.6% and 58.5%, respectively [8].

Regarding time duration, 18/46 patients (39.14%) had headaches lasting from 24 to 72 hours, which accounts for the highest rate. This result is similar to findings from some studies on the clinical characteristics of migraine attacks in the United States [10]. Research by Lam Tien Uyen (44.8%) also reported similar results.

As for the types of pain, 34 out of 46 patients suffered from unilateral fixed headaches, accounting for the highest proportion (73.9%). Epidemiological research on 145,000 migraineurs in the United States also indicated that unilateral fixed headache accounted for 60%; according to author Nguyen Anh Diem Thuy, this rate was 61.9%, which is consistent with these studies [10], [11]. Additionally, we found that 80.4% of

patients experienced pulsatile headaches, a figure similar to the research results of Nguyen Van Chuong (90.79%) [12].

63.1% of patients had severe-intensity headaches, while 30.4% had moderate-intensity headaches. This finding is consistent with the literature, which suggests that the majority of migraineurs have moderate to severe headaches. Nguyen Ngoc Anh Thu's report also supports this, indicating a rate of 95.4% [9], [13], [14]. We observed that 67.4% of patients had nausea, whereas 32.6% of patients had vomiting. However, according to author Lam Tien Uyen [5], the rates of such symptoms were 77.6% for nausea and 50% for vomiting, placing our findings within the same range. Fear of light and noise was a common symptom, with a prevalence rate of 52.2%. Nguyen Anh Diem Thuy reported a higher rate of 82% [11]. Dizziness symptoms were prevalent among 34.8% of patients, which aligns with the findings of Nguyen Anh Diem Thuy, Nguyen Van Chuong, and Nguyen Ngoc Anh Thu, who reported rates of 37.85%, 57.89%, and 53.8%, respectively [9], [11], [12].

In a total of 46 research samples, patients with all three symptoms of nausea, vomiting, fear of light, and noise accounted for 58.7%, while the group without these three symptoms accounted for 41.3%. Therefore, the difference is insignificant. However, the study by author Nguyen Van Chuong showed opposite results, possibly due to differences in sample size and research subjects [12]. The number of patients with aura symptoms in our study was 4.3%, and the group without aura symptoms accounted for 95.7%. According to research by Rebecca Burch in 2018, about one-third of migraineurs had at least one migraine attack with accompanying aura symptoms [4].

The majority of migraineurs were found to have sleep disorders (60.86%). The findings are similar to Lam Tien Uyen's research, with sleep disorders being 58.6% [5]. We observed a higher proportion of patients with anxiety disorders compared to those without (73.91% compared to 26.09%). This result is consistent with Nguyen Van Chuong's study, which revealed that 55.84% of migraineurs had anxiety disorders [12].

Our study recorded that 95.7% of patients did not have a family history of migraine disease, while only 4.3% had such a history. These findings closely correspond to those reported by Nguyen Ngoc Anh Thu, who also noted a high rate of patients without a family history of the disease at 95.4% [9].

V. CONCLUSIONS

Through observation of the clinical characteristics of migraineurs in the study, our results found that fixed pain on one side of the head accounts for 73.9%, pulsatile headache accounts for 80.4%, fear of light and noise is 52.2%, nausea is 67.4%, and vomiting is 32.6%. These are valuable symptoms that contribute to the formation of diagnostic criteria for migraine disease.

Factors including female gender (65.2%), sleep disorders (60.86%), anxiety disorders (73.91%), and no family history of migraine (95.7%) are common in patients with migraine.

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