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Original Research Article

FACTORS ASSOCIATED WITH DEVELOPING CHRONIC DAILY HEADACHE IN MIGRAINE PATIENTS

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Abstract: *To examine the factors associated with developing chronic daily headache in migraine patients. Two hundred patients with migraine were selected for this descriptive study conducted from 01-Sept-2023 to 30-Nov-2023 at the Department of Medicine, Lady Reading Hospital, Medical Teaching Institution, Peshawar. Factors associated with developing chronic daily headache were assessed. SPSS 23 was employed for analyzing the data. The mean age was 38.09±12.03 years. The frequency of chronic daily headache in our study was 31 (15.5%). Female gender (p = 0.02), smoking (p = 0.0001), high caffeine intake (p = 0.0001), painkiller overuse (p = 0.0001) and obesity (p = 0.0001) were factors significantly identified for developing chronic daily headache. We conclude that the factors for developing chronic daily headache in migraine patients were female gender, smoking, high intake of pain relieving medicines, high intake of caffeinated drinks and obesity.*

Keywords: Migraine, Chronic daily headache, Factors, Obesity

Introduction

Migraine is a neurological condition that is defined by severe headaches being experienced repeatedly (Vukovic Cvetkovic and Jensen, 2019). A proportion of patients develop a more problematic illness known as chronic daily headache (CDH), which is significantly more difficult to manage than episodic migraines (Teckchandani and Cowan, 2019). Chronic daily headache disorder is characterized by headaches that occur for 15 or more days per month over a period of at least three months, and the symptoms of chronic daily headache are similar to those of migraines (Yamani and Olesen, 2019). Chronic daily headache affects 1–4 % of the general population (Castillo et al., 1999). The transition from episodic headaches to chronic headaches places a substantial burden on the lives of patients, resulting in a decrease in quality of life and an increase in the expenses of healthcare (Diener et al., 2018). To enhance therapeutic care and preventative efforts, it is essential to have a solid understanding of the factors that are related to the development of chronic headache in migraine patients (Schwedt et al., 2018).

Migraine is a complicated illness that can be caused by several different variables, including those that are genetic, environmental and physiological (Korkmaz et al., 2019). In migraine sufferers, the frequency and severity of their headaches are two of the most important characteristics that are associated with the development of chronic headache (Buse et al., 2020). In addition, psychological variables have a key role in the progression of migraines into chronic headache conditions. The persistence and progression of headaches may be caused by a complicated interaction between migraines and mental health, which is shown by the fact that the relationship between the two is bidirectional (Garramone et al., 2020; Garrigós-Pedrón et al., 2019). When investigating the elements that are related to chronic headaches in migraine patients, genetic susceptibility is another important component that should be taken into consideration at some point. Researchers have shown that certain genetic variants may play a role in determining whether or not an individual is more likely to experience chronic headaches (Rainero et al., 2019). The use of acute migraine drugs, such as triptans or analgesics, more than the recommended limits might paradoxically result in a rise in the frequency and intensity of headaches, which can facilitate the transition to a chronic state (Cooper et al., 2020; Kuca et al., 2018).

The development of persistent daily headaches in migraine sufferers is a complex process that is impacted by a variety of factors, including genetic, environmental, psychological and physiological factors. The ability of physicians to recognize these risk factors and the interactions between them is essential to develop effective interventions for both the avoidance and management of CDH; which will result in the decreased transformation from episodic migraine to CDH. We, therefore, conducted this study to determine the factors leading to developing chronic daily headache in migraine patients. It might pave the way for a more thorough knowledge of chronic headache diseases. This will ultimately result in improved patient outcomes and a higher quality of life for people who are afflicted with these terrible conditions.

Methodology

We conducted this descriptive observational study from 01-Sept-2023 to 30-Nov-2023 at the Department of Medicine, Lady Reading Hospital, Medical Teaching Institution, Peshawar, after taking an ethical certificate from the hospital. Two hundred patients presenting with migraine aged 18 to 60 years of either gender were selected through consecutive sampling methods. Patients with other headache disorders like sinusitis, tension-type headache, cluster headache, giant cell arteritis and headache associated with raised intracranial pressure were excluded from the

study. Patients were informed about the study and consent was taken from them. Non-consenting patients were also excluded.

Migraine was operationally defined as a recurrent unilateral throbbing headache, with the presence of 02 associated features (photophobia, phonophobia, nausea/vomiting) with or without aura (transient visual, speech, sensory symptoms preceding the headache) (Society, 1988).

We assessed the patients for chronic daily headaches. CDH was labelled yes if a patient had it for ≥ 15 days a month, over a period of at least three months. We assessed various factors such as obesity, smoking, high intake of caffeinated drinks, education level, residence, socio-economic status and overuse of painkillers.

We used SPSS 23 to analyze the data. Mean ± standard deviations were calculated for numerical variables like age; and frequency for categorical variables like gender and the mentioned risk factors. We employed the Chi-Square test for assessing the factors of a chronic daily headache keeping the P value at <0.05 as significant.

Results

We conducted this study on 200 patients with migraine. The mean age was 38.09±12.03 years. The mean BMI was 25.90±3.64 kg/m^2. Gender-wise distribution exhibited that the frequency of female patients was 117 (58.5%), as shown in Figure 1. Age distribution is shown in Figure 2, with most patients (31.5%) in the age group of 18 to 30 years.

The frequency of chronic daily headache in our study was 31 (15.5%). After running a subgroup analysis, we found that the female gender had a notably higher frequency of chronic daily headache, 24 (77.4%), (p = 0.02). Smokers had a higher frequency of chronic daily headache, 20 (64.5%), (p = 0.0001). Patients with high caffeine intake had a higher frequency of chronic daily headache, 27 (87.1%), (p = 0.0001). Painkiller overuse was 17 (54.8%) in chronic daily headache patients (p = 0.0001) and obesity was also higher in chronic daily headache patients, 24 (77.4%), (p = 0.0001); as shown in Table 2. We applied the Chi-Square test for the association of various factors with a chronic daily headache.

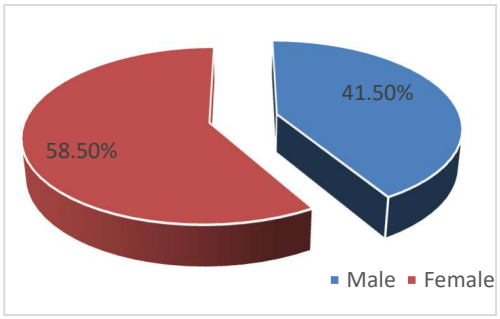

Figure 1: Gender distribution (n=200)

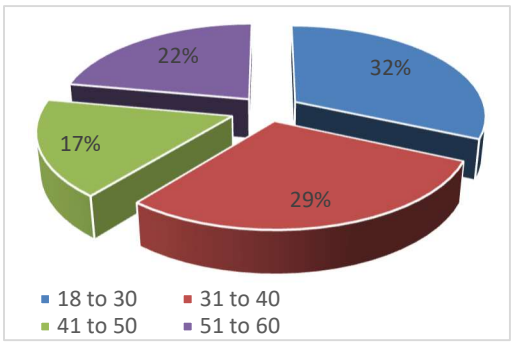

Figure 2: Age distribution (years), (n=200)

Table 1: Frequency of chronic daily headache (n=200)

Chronic daily headache	Frequency	Per cent
Yes	31	15.5
No	169	84.5
Total	200	100

Table 2: Factors associated with chronic daily headache

Risk Factors		Chronic daily headache				*P value*
		Yes		No		
		N	%	N	%	
Gender	Male	7	22.6%	76	45.0%	0.02
	Female	24	77.4%	93	55.0%	
Smoking	Yes	20	64.5%	3	1.8%	0.0001
	No	11	35.5%	166	98.2%	
High Caffeine Intake	Yes	27	87.1%	10	5.9%	0.0001
	No	4	12.9%	159	94.1%	
Painkiller Overuse	Yes	17	54.8%	0	0.0%	0.0001
	No	14	45.2%	169	100.0%	
Obesity	Yes	24	77.4%	14	8.3%	0.0001
	No	7	22.6%	155	91.7%	
Socioeconomic Status	Poor (≤25K PRK/Month)	14	45.2%	59	34.9%	0.32
	Middle class (25 to 50K PKR/Month)	10	32.3%	79	46.7%	
	Upper middle class (> 50K PKR/Month)	7	22.6%	31	18.3%	
Area of Residence	Urban	13	41.9%	76	45.0%	0.75
	Rural	18	58.1%	93	55.0%	
Education	Illiterate	16	51.6%	70	41.4%	0.29
	Literate	15	48.4%	99	58.6%	

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Discussion

Migraines are thought to be caused by a confluence of factors, including those that are hereditary, environmental and neurological in nature[14]. However, the actual aetiology of migraines is not completely understood. Certain foods, hormonal shifts, stress, a lack of sleep, and environmental stimuli such as bright lights or strong odours are examples of some of the most prevalent causes (Society, 2004). Headache disorders are responsible for a widespread and serious health concern, which calls for increased awareness and care. Not only does the occurrence of headaches on a consistent or nearly daily basis have a negative impact on one's quality of life, but it also has the potential to bring about disorders such as depression. Consequently, there is a crucial need to educate primary care practitioners, particularly family physicians, internists and clinical neurologists. To facilitate an accurate diagnosis and the implementation of effective treatment modalities, it is essential to conduct a full interview as well as a systematic physical examination. Imaging and labs are planned accordingly.

We conducted our study on two hundred patients with migraine. Our patients had a mean age of 38.09±12.03 years. We observed that the majority of our patients were females, and literature suggests the same that migraine is more common in the female gender (Schwedt, 2014).

We found that the CDH was present in 31 (15.5%) patients. Other studies reported the frequency of CDH as Lu et al (Lu et al., 2001) (3.2%), Wang et al (Wang et al., 2000) (3.9%), and Manack et al (Manack et al., 2011) (4.6%).

Factors leading to the development of CDH in our study turned out to be female gender (77.4%), smoking (64.5%), high intake of caffeinated drinks (87.1%), overuse of painkillers (54.8%) and obesity accounted (77.4%) of cases in patients with chronic daily headache. Female gender is reported to have an increased prevalence of CDH by various research studies (Castillo et al., 1999) (Lu et al., 2001) (Grande et al., 2008; Karbowniczek and Domitrz, 2011; Park et al., 2014). This conforms with the findings of our study. A higher prevalence of CDH was reported in patients with age around 30 years by a Brazilian study (Queiroz et al., 2008); which is similar to our study.

To improve the overall quality of life for those who are coping with chronic daily headaches (CDH), the primary goal of therapeutic intervention is to lessen the frequency, severity, and length of headaches. The utilization of prophylactic treatment options includes the utilization of a wide range of pharmacological medications. It is important to note that a significant number of patients with chronic headaches utilize over-the-counter drugs for the management of migraines. This is one of the factors that contribute to the development of medication overuse headache (MOH), as compared to the choice of prescription medications(Goadsby et al., 2008).

Another study reported that predictors of the development of chronic daily headaches were smoking, and obesity (Schramm et al., 2013). Increasing BMI was related to a higher prevalence of CDH as shown by Bigal et al (Bigal and Lipton, 2006) (4.9 and 6.8 %) and Scher et al (Scher et al., 2003) (3-5 times higher odds).

Patients with migraine are prone to the consumption of increased caffeine due to frequent sleepiness during the daytime. However, caffeine might have mixed effects and might lead to the development of CDH paradoxically. A study reported that the intake of caffeinated drinks contributed to the development of chronic daily headaches, which is also similar to our results (Scher et al., 2008).

Limitation of Study

We did not consider factors such as environmental and genetic. We recommend further studies with larger sample sizes to assess the association of chronic daily headaches with these factors to further explore this chronic illness

Conclusion

We conclude that the factors associated with developing chronic daily headache in migraine patients were female gender, smoking, high intake of pain relieving medicines, high intake of caffeinated drinks and obesity. We recommend social awareness campaigns in medical setups regarding the factors of chronic daily headache. Health professionals need to counsel their patients presenting with migraine to reduce their weight, slowly cut off caffeinated drinks and stop taking pain relieving medicines without physicians' prescriptions.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department concerned.
Consent for publication
Approved
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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

ZEESHAN AYAZ
Coordination of collaborative efforts.
Study Design, Review of Literature.
Manuscript revisions, critical input.
Data acquisition, and analysis.
Manuscript drafting.
ZAFAR ALI (Assistant professor)
Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.
Conception of Study, Final approval of manuscript.
Data entry and Data analysis, drafting article.

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