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Awareness of Cluster Headache among students of Hail University

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ABSTRACT

Introduction: Cluster headache (CH) needs to be better studied in our region, given the absence of previous literature in Saudi Arabia regarding awareness of this rare disease. Furthermore, CH is one of the leading causes of life disability. Therefore, we looked to increase CH awareness among students at Hail University. *Method:* We used a cross-sectional study prospectively studying the awareness of CH among Hail University students by an electrical form questionnaire; our study aimed to improve the understanding of CH among Hail University students and secondly to measure the prevalence of CH in our university. *Result:* The study survey was completed by 400 students in total. 32.8 percent of the candidate has heard about CH. Only 86 (21.5%) of the subjects experienced CH. Compared to 17.7% of male students, 25.7% of female students reported having an attack at least. A precise 158 (39.5%) students attended medical colleges, while 242 (60.5%) attended non-medical institutions. *Conclusion:* We found a low level of awareness among Hail University students. We ultimately concluded that to improve Hail University students' knowledge of the disease more effectively, we needed to raise their degree of awareness. Although it's one of the region's first studies, more studies must follow to confirm our results.

Keyword: Cluster headache, Awareness, Severe headache, Hail University

1. INTRODUCTION

Cluster Headache (CH) is one of the most severe primary headaches and the most common of Trigeminal Autonomic Cephalalgia (TAC) (Buture et al., 2019). The prevalence of CH is 124 per 100,000 and affects primarily men up to 0.5 to 3 per 1000 (Buture et al., 2019). CH is rare compared to other primary headaches, such as Migraines or Tension-type headaches (Negro et al., 2020). CH is characterized by recurrent attacks and severe Pain commonly localized in the orbital or peri-orbital area, associated with the ipsilateral autonomic symptom such as miosis, rhinorrhoea, eyelid edema, conjunctival injection and lacrimation or a sense of restlessness or both (Buture et al., 2019; Ali et al., 2022).

The period of attacks is relatively short-lasting, usually from 15 to 180 minutes (Buture et al., 2019). However, if untreated, it could strike up to eight

times daily (Headache Classification Committee of the International Headache Society, 2013). CH is divided into episodic and chronic types (Headache Classification Committee of the International Headache Society, 2013). Episodic CH is the most common type of CH, affecting 80% to 90% of patients with CH, with attacks occurring at intervals of seven days to twelve months, with pain-free intervals of at least one month in between (Headache Classification Committee of the International Headache Society, 2013).

Chronic CH lasting more than a year without remission or for less than a month each time (Headache Classification Committee of the International Headache Society, 2013). Chronic CH may develop de novo (primary chronic CH) or arise from an episodic form: Secondary chronic CH (Headache Classification Committee of the International Headache Society, 2013). The risk of CH development might come from genetic and environmental causes (Cheema and Matharu, 2021). For example, smoking is quite common among people with CH, although in non-smokers, there is typically a history of childhood passive smoking (Cheema and Matharu, 2021). Other risk factors include illicit drugs, alcohol and caffeine consumption (Cheema and Matharu, 2021).

CH in Kuwait is the most comprehensive study of our population in the Gulf region; this study shows a 3:1 ratio of males to females and a less favorable family history (Al-Hashel et al., 2019). Hence the absence of studies regarding awareness of CH and its prevalence in our society, we tried to measure it in Hail University students as a sample representative of the local community.

2. METHODS

We collected our data prospectively to illustrate the awareness of CH. This cross-sectional study uses an electrical questionnaire of 400 active university students at Hail University from all specialties. Consent was obtained before data collection and Data was analyzed using SPSS software. This study is based on previous studies; our study aimed to improve the awareness of CH among Hail University students. This study was performed from November 2022 until February 2023.

Data analysis

The data were collected, reviewed and then fed to SPSS (SPSS: Statistical Package for Social Sciences version 21, An IBM Company). All statistical methods were two-tailed with an alpha level of 0.05, considering significance if the P value is less than or equal to 0.05. Regarding students' awareness, each correct answer was given a 1-point score. Overall knowledge level regarding CH was assessed by summing up discrete scores for different right awareness items. If the total score was 60% or more of the total possible score, the level of awareness was considered good and scores less than 60% were considered poor.

Descriptive analysis was done by prescribing frequency distribution and percentage for study variables, including student data, academic data and family history of CH. Also, students' awareness about CH was tabulated while overall awareness level was graphed. Cross tabulation for showing students' general awareness level distribution by their data and other factors using Pearson chi-square test for significance and exact probability test if there were small frequency distributions.

3. RESULTS

A total of 400 students completed the study survey. 158 (39.5%) were at medical colleges and 242 (60.5%) were at non-medical colleges. Between 18 and more than 30 years old, the average age of the students was 22.6 ±4.9 years old. Most students were in the fourth academic year or below and only a few percent were in the 5th or 6th year or interns. Exact of 389 (97.3%) were single. A total of 42 (10.5%) students reported that they know someone of family, neighbours or friends who were diagnosed with CH, while only 43 (10.8%) were smokers (Table 1). 86(21.5%) students reported an attack of severe, strictly unilateral Pain associated with ipsilateral conjunctival injection, lacrimation and nasal congestion, while 314 (78.5%) did not.

Table 1 Personal characteristics of study students, Hail University, Saudi Arabia

Personal data	No	%
Age in years		
< 25	372	93.0%
25-30	22	5.5%
> 30	6	1.5%
Gender		
Male	209	52.3%
Female	191	47.8%
College nature		

Medical	158	39.5%
Non-Medical	242	60.5%
Academic year		
1st year	99	24.8%
2nd year	61	15.3%
3rd year	87	21.8%
4th year	106	26.5%
5th year	26	6.5%
6th year	4	1.0%
Intern	17	4.3%
Marital status		
Single	389	97.3%
Married	11	2.8%
Do you know any one of your family, neighbors or friends who diagnosed with cluster headache?		
Yes	42	10.5%
No	358	89.5%
Do you smoke cigarettes or shisha		
Yes	43	10.8%
No	357	89.3%

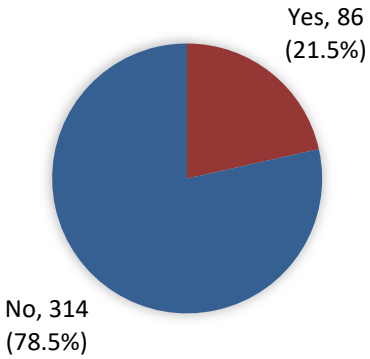

Figure 1 Prevalence of cluster headache attacks among university students, Hail University, Saudi Arabia

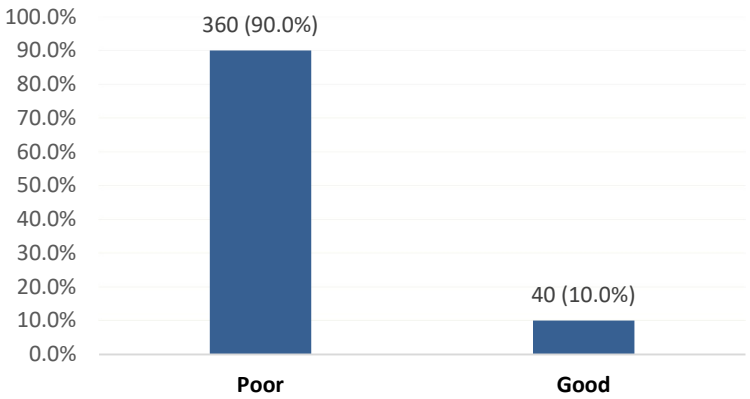

Figure 2 Overall awareness level regarding cluster headache among university students, Hail University. Exact 40 (10%) had a general awareness level regarding cluster headaches, while 360 (90%) had a poor rank

In Table 2, Factors associated with CH attacks among university students, Hail University. CH attacks were reported among 20.2% of students under 25 years versus 83.3% of others older than 30, with recorded statistical significance (P=.001). Likewise, 25.7% of female students experienced CH attacks compared to 17.7% of males (P=.049). Also, 10.1% of medical students experienced CH compared to 28.9% of non-medical students (P=.001). Furthermore, 40.5% of those with a family history of CH experienced the attacks versus 19.3% of others (P=.002).

Table 2 Factors associated with cluster headache attacks among university students, Hail University

Personal data	Attacks of cluster headache				p-value
	Yes		No		
	No	%	No	%	
Age in years					
< 25	75	20.2%	297	79.8%	.001*$
25-30	6	27.3%	16	72.7%	
> 30	5	83.3%	1	16.7%	
Gender					
Male	37	17.7%	172	82.3%	.049*
Female	49	25.7%	142	74.3%	
College nature					
Medical	16	10.1%	142	89.9%	.001*
Non-Medical	70	28.9%	172	71.1%	
Academic year					
1st year	31	31.3%	68	68.7%	.059$
2nd year	11	18.0%	50	82.0%	
3rd year	17	19.5%	70	80.5%	
4th year	17	16.0%	89	84.0%	
5th year	2	7.7%	24	92.3%	
6th year	1	25.0%	3	75.0%	
Intern	7	41.2%	10	58.8%	
Marital status					
Single	80	20.6%	309	79.4%	.007*
Married	6	54.5%	5	45.5%	
Do you know any one of your family, neighbors or friends who diagnosed with cluster headache?					.002*
Yes	17	40.5%	25	59.5%	
No	69	19.3%	289	80.7%	
Do you smoke cigarettes or shisha					.279
Yes	12	27.9%	31	72.1%	
No	74	20.7%	283	79.3%	

P: Pearson X^2 test $: Exact probability test * P < 0.05 (significant)

In Table 3, University students' awareness regarding CH, Hail University. Exact 32.8% of the students know about CH, but only 18.3% know how to diagnose CH. As for the location of CH, 34% reported the Pain of CH is around the eye. As for symptoms, the most reported were Pain around the eye (42.8%), Tears falling from the eyes (23.8%), Pain above the eye (21.5%), runny nose (20.3%), and stuffy nose (14%). In addition, 20% of people know that smoking and CH are related and 29.8% know about acute abortive medication for CH. The most known drugs included Sumatriptan tablet or injection (12.5%) and Paracetamol (13%), while 71.5% do not know about medications. As for prevention, 20% know that there is prophylaxis for CH, where the most reported included Verapamil (6.5%), Lithium (3.8%) and Propranolol (3%), while 80% do not know.

Table 3 University student's awareness regarding cluster headache, Hail University

Awareness items		No	%
Do know about cluster headache	Yes	131	32.8%
	No	269	67.3%
Do you know how to diagnose cluster headache?	Yes	73	18.3%
	No	327	81.8%
What is the location of the pain in a cluster headache?	Around the eye	136	34.0%
	One part of the head	42	10.5%
	Full head	21	5.3%
	I don't know	201	50.3%
What are the symptoms of cluster headache	Pain around the eye	171	42.8%
	Pain above the eye	86	21.5%
	Tears falling from the eyes	95	23.8%
	Vomiting	24	6.0%
	Runny nose	81	20.3%
	Stuffy nose	56	14.0%
	Face sweating	50	12.5%
	Peri-orbital edema	39	9.8%
	I don't know	217	54.3%
Do you know if there is a relation between cluster headache and smoking?	Yes	80	20.0%
	No	320	80.0%
Do you know if there is acute abortive medication for cluster headache?	Yes	119	29.8%
	No	281	70.3%
If yes, which of the following apply?	Sumatriptan (imigran) tablet or injection	50	12.5%
	Paracetamol (Panadol)	52	13.0%
	Zolmitriptan	13	3.3%
	NSAIDs	24	6.0%
	Oxygen	47	11.8%
	I don’t know	286	71.5%
Do you know if there is a prophylaxis for cluster headache?	Yes	80	20.0%
	No	320	80.0%
If the answer is yes, which of the following is a prophylaxis for cluster headache?	Verapamil	26	6.5%
	Amitriptyline	6	1.5%
	Lithium	15	3.8%
	Propranolol (Inderal)	12	3.0%
	Topiramate (Topamax)	11	2.8%
	Corticosteroids	6	1.5%
	Vagus nerve stimulation	2	.5%
	Others	22	5.5%
	I don't know	320	80.0%

Factors associated with university students’ awareness regarding CH, Hail University. 18.4% of the medical students had an excellent overall awareness level versus 4.5% non-medical (P=.001). Also, good awareness regarding CH was detected among 25% of 6th-year medical students versus 7.1% of first-year students (P=.033). All other factors were insignificantly associated with students’ awareness levels.

4. DISCUSSION

Al-Hashel et al., (2019) discovered that 1.7% of headache patients had CH in Kuwait. Stovner and Andree, (2010) found the prevalence around 0.326% in a European study. In Egypt, the prevalence was 1.6% (El-Sherbiny et al., 2015). In our study, the prevalence of CH among university students at Hail University is 21.5% which is relatively high. We assume that the increased prevalence is because of a low sample size and a particular group of university students/high percentage of medical students 39.5%. This is one of the first studies to be conducted on a university campus and we encourage other universities to do so in the future. A more extensive prospective population study must be performed for more precise data.

10.8% of CH patients in our study are smokers. However, the average percentage of patients who smoked was 60% in Kuwait (Al-Hashel et al., 2019). The variation in the ratio is mainly attributed to a university-based study on our site. In the Kuwait survey, the male-to-female ratio was 15.3:1 (Al-Hashel et al., 2019). On the other hand, our cross-sectional study revealed that female students were more likely than male students to experience CH attacks, with 25.7% of female students reporting attacks compared to 17.7% of male students. This parallels with more recent studies giving more percentages to the female sex, especially in the early onset (Allena et al., 2019).

The level of awareness could have been higher and only 10% had good knowledge about it. This demonstrates the importance of education in the general population and the medical field. Also, we found that medical students have a higher level of awareness than non-medical students, with 18.4% of medical college students having an above-average level of understanding compared to 4.5% of non-medical students.

Awareness of abortive medication for CH in our study was 29.8%. The most known drugs were Sumatriptan tablet or injection (12.5%) and Paracetamol (13%). The easy access to Paracetamol was the most likely reason for using it more frequently. However, given the low awareness level, most were unaware of abortive medications 71.5%. Regarding awareness of prevention, the vast majority of 80% did not know about preventive medicines. The most reported included Verapamil (6.5%), Lithium (3.8%) and Propranolol (3%).

We have several limitations, including the number of participants, the small geographic location and the type of study. Therefore, more prospective studies will be crucial in the future. In addition, a generalized population-based study is needed in our region. Nevertheless, our study is unique in this population and we look forward to expanding with different universities.

5. CONCLUSION

This study demonstrates the level of awareness of CH among students at Hail University. Overall, our results suggest that the awareness of CH among Hail University students could be better, but we found medical students to possess greater knowledge than non-medical students. Also, most students need to learn the relationship between smoking and CH. Moreover, most of them need to be more educated about treatment. Therefore, we concluded that we have to raise the awareness level of Hail University students to increase their education about the disease more efficiently.

Abbreviation

CH: Cluster Headache
TAC: Trigeminal Autonomic Cephalalgia
SPSS: Statistical Package for Social Sciences
HIS: International Headache Society

Ethical consideration

The study was approved by the Ethics Committee of Hail University (Ethical approval code: H-2022-389).

Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

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Authors' contribution

Each author made a significant contribution to the work including spreading and collecting questionnaire, analysis of the data, writing the project. Proofreading and revised by our primary investigator Dr Walid Alesefir.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

REFERENCES AND NOTES

1. Al-Hashel J, Ibrahim I, Youssry D, Ahmed SF, Goadsby P. Cluster Headache in Kuwait: A Hospital-Based Study. Front Neurol 2019; 10:573. doi: 10.3389/fneur.2019.00573
2. Ali AHA, Serhan OO, Alqahtani NM, Alarjani KH, Alqahtani FTJ, Alghamdi FAO, Ababtain A, Alqahtani SM, Alzuhairi MO, ALmuaythir AM, Alhusaini SB, Alsaad AS. Role of head CT in diagnosis of headache in Saudi population. Medical Science 2022; 26: ms483e2576. doi: 10.54905/disssi/v26i129/ms483e2576
3. Allena M, De-Icco R, Sances G, Ahmad L, Putortì A, Pucci E, Greco R, Tassorelli C. Gender Differences in the Clinical Presentation of Cluster Headache: A Role for Sexual Hormones? Front Neurol 2019; 10:1220. doi: 10.3389/fneur.2019.01220
4. Buture A, Ahmed F, Dikomitis L, Boland JW. Systematic literature review on the delays in the diagnosis and misdiagnosis of cluster headache. Neurol Sci 2019; 40(1):25-39. doi: 10.1007/s10072-018-3598-5
5. Cheema S, Matharu M. Cluster Headache: What's New? Neurol India 2021; 69(Supplement):S124-S134. doi: 10.4103/0028-3886.315983
6. El-Sherbiny NA, Masoud M, Shalaby NM, Shehata HS. Prevalence of primary headache disorders in Fayoum Governorate, Egypt. J Headache Pain 2015; 16:85. doi: 10.1186/s10194-015-0569-6
7. Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd edition (beta version). Cephalalgia 2013; 33(9):629-808. doi: 10.1177/0333102413485658
8. Negro A, Sciattella P, Spuntarelli V, Martelletti P, Mennini FS. Direct and indirect costs of cluster headache: A prospective analysis in a tertiary level headache centre. J Headache Pain 2020; 21(1):44. doi: 10.1186/s10194-020-01115-4
9. Stovner LJ, Andree C. Prevalence of headache in Europe: A review for the Eurolight project. J Headache Pain 2010; 11(4):289-99. doi: 10.1007/s10194-010-0217-0