ORIGINAL ARTICLES

Frequency of cervicogenic headache among students of Rehman Medical Institute Peshawar Khyber Pakhtunkhwa

Mahin Khilji[1], Raeed Mufti[2], Anum Shakeel[3], Wajid Ali[4], Hajira Ishfaq[5], Mohammad Bin Afsar Jan[6]

Submitted:
January 09, 2019
Accepted:
February 14, 2019

Author Information
[1,2]Physical Therapy Department
Rehman Medical Institute
[3,4,5,6]Rehman College of Rehabilitation Sciences

Corresponding Author
Mahin Khilji
Rehman College of Rehabilitation Sciences
Peshawar Khyber Pakhtunkhwa
Email: mahinkhilji@gmail.com

ABSTRACT

Introduction: Headaches have been posed to be a common occurring complaint being as frequent as 66% in general population. One the common types of headaches is Cervicogenic Headache which is considered as a secondary headache wherein the symptoms occur due to cervical spine and its bony components, disc or soft tissue structures. Cervicogenic headache is a syndrome described as pain felt on one side of the head, relating same side neck, shoulder and arm pain that is aggravated by neck movements or sustained head posture. Objectively, Cervicogenic Headache is diagnosed by Cervical Flexion Rotation Test (CFRT) or Passive Accessory Intervertebral Movements (PAIVM).

Material & Methods: A cross-sectional survey was conducted amongst students of Rehman Medical Institute and a valid questionnaire was distributed amongst all participants. Informed consent form was obtained from all participants prior to their recruitment into this survey. Objectively measuring tools CFRT and PAIVM were used to assess CGH amongst all participants. The responses from these participants were recorded and analysed through SPSS version 22. Data was presented through mean, standard deviation and X^2 test was used to see differences between categorical variables.

Results: A total of 187 participants with mean age 20.93 ± 1.79 years were included in this cross-sectional survey. On the basis of subjective diagnostic criteria, the frequency of CGH amongst these students was found to be 21.9% (17.6% males and 25.5% females). The common age of students suffering from CGH was 21 years. Out of total population, 36.8% had a positive CFRT and subjective diagnostic criteria for CGH, while 26.1% had positive CFRT alone. More than 1/3 (37.1%) of the population had positive test results for both PAIVMs and subjective diagnostic criteria.

Conclusion: Students in medical institutes are prone to developing cervicogenic headache which might be due to wrong posture during their studies.

Keywords: Cervicogenic Headache, Frequency, Students.

The authors declared no conflict of interest and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.All authors contributed substantially to the planning of research, questionnaire design, data collection, data analysis and write-up of the article as part of a student research team at Rehman College of Rehabilitation Sciences. The research work was supervised by Dr. Mohammad Bin Afsar Jan (PT) Principal Rehman College of Rehabilitation Sciences.

Citation: Khilji M, Mufti R, Shakeel A, Ali W, Ishfaq H and Jan MBA. Frequency of cervicogenic headache among students of Rehman Medical Institute, Peshawar Khyber Pakhtunkhwa. Rehman J Health Sci. 2019; 1(1):6-8

INTRODUCTION

Headaches have been posed to be a common occurring complaint being as frequent as 66% in the general population (1). The International Headache Society (IHS) has classified headaches into two main categories: primary and secondary. Cervicogenic headache (CGH) is one of the latter types of headaches wherein the symptoms occur in a relation to another disorder (2). This pain is caused by changes in cervical spine (mainly the upper three segments) and its constituent bony, disc or soft tissue structures (3). CGH is a syndrome described as pain felt on one side of the head, relating same side neck, shoulder and arm pain and it aggravated by neck movements , sustained head posture and limited range of movement (4). Objectively, CGH is diagnosed by either Cervical Flexion Rotation Test (CFRT) or by Passive Accessory Intervertebral Movements (PAIVM) (5). The prevalence of CGH has been reported 4.1% in general population (6) 17.5% in patients (7) and 41.4% in medical students (8). It is well-known fact that headaches have a major impact on personal and social life, with decreased capacity for learning and productivity (9, 10). Among headaches, CGH has even worse effect on quality of life (11). A variety of factors included fatigue, altered sleep, cervical disc problems, neck injuries, poor posture, muscular stress and smoking have been correlated with developing CGH (12-14). Medical students are more prone to some of these factors and hence a great proportion of this population have been reported to develop neck pain.

Based on some of the researches, it is obvious that headaches are common problem amongst general population in Pakistan. However, there seems a huge gap in the available literature on headaches especially on CGH in medical students in our country and only a handful of research may be found. Moreover, majority of the research on the topic may be found in the form of interventional trials where different techniques have been compared.

MATERIALS & METHODS

This was a cross-sectional survey which was conducted at Rehman Medical Institute and students from Rehman Medical College, Rehman College of Nursing, Rehman College of Allied Health Sciences, Rehman College of Dentistry and Rehman College of Rehabilitation Sciences participated in this survey. Data collection was done within three months following approval from graduate committee. Initially, participants were screened for this survey and information about the study were provided. Informed consent was obtained from all participants who showed their willingness to participate in this sur-

vey. The research team met students individually, explained the topic and purpose of the study after which their willingness to participate was anticipated. Those willing were given informed consent forms initially for undertaking of their consent to be a part of this study on voluntary basis. After taking signed consent, the participants were then given the questionnaire derived from the Checklist and criteria defined for CGH by the International Classification of Headache Disorders guidelines. A member of the group overlooked the participants filling their questionnaire for any query or ambiguity regarding any query. All of the questionnaires were filled by the participants themselves. Once filled, those participants who complained of ever having a headache in recent or past were then taken to a designated assessment area for manual assessment. An online calculator was used to determine sample size for this trial. While using online calculator, a total of 285 participants were required for this survey. For data collection, convenient sampling was used due to a short duration allocated for the project and unavailability of willing students to participate. Data collected was entered and analysed by IBM SPSS version 21 and frequencies, means and standard deviation were calculated. Cross-tabulation was done to see correlation amongst different. Students from both the genders were included to find out the ratio of gender specific ailment. The accepted age for participation in this survey was 18-26 years. Students suffering from a neuro-deficit, psychological/psychiatric or other diagnosed systemic disease were not included in this survey.

RESULTS

A total number 187 participants with mean age 20.93 ± 1.79 years (mean ± sd) were included in this study. Less than half (45.5%) of the population were males and the remaining 54.5% were females. A big proportion of the included population (89.8%) reported to have been suffered from a headache recently or in the past. Out of these, yet again, female proportion was higher, being 56.5% compared to the counterpart male population (43.5%). Headache accompanied with neck pain were reported by 55.1% of the participants while 2.1% stated complaint of having associated shoulder or neck pain (see table I for other symptoms reported by participants).

Table 1: Table showing associated symptoms with headache

#	Samptons	Percentage
1	Dizziness	39.60%
2	Pins and needles	19.30%
3	Ringing in ears	24.60%
4	Sight disturbances	37.40%
5	Associated vomiting	21.40%
6	Associated nausea	29.40%
7	Others*	12.80%

*Tears, Upper back stiffness, Eye pain and heaviness, Light headedness, Irritability and Lethargy

Headaches or neck pains triggering with movements of the neck were presented by 27.3% of the subjects while 56.7% claimed to have it triggered with sustained postures of head and neck. Frequency of CGH according to the subjective criteria was 21.9%, comprising of 17.6% males and 25.5% females. The most common age for CGH in this population was 21 years followed by 20 years, 19 years and 18 years. It is interesting to report that the incidence of CGH started decreasing with an increase of age; 22 years 10 %, 23 years 8%, 24 and 26 years 3% and 25 years 2%. A total of 19.3% of the subjects met major subjective criteria but were missing one of the characteristics of pain i.e. either location of headache, intensity or quality of pain. Among these participants, 37.1% had positive CFRT and 40% had positive PAIVMs. Exclusions from possible diagnosis of CGH were based on the subjects either having a medical condition or taking any medicine for it and turned out to be 24.1%. The response for overall condition of the subjects who suffered from headache or neck pains was recorded to be 33.3% in lieu that it was getting better, 23.1% said that it was getting worse while 43.6% reported that their condition is not changing. For possible causative events that could relate to the symptoms of CGH in the diagnosed CGH subjects, 38.5% reported having an accident while longstanding computer sessions was reported by 25.7% of the subjects. The same parameters; for diagnosis based upon criteria with a missing characteristic of pain, the presentation was 15.4% for accidents and 22.9% for prolonged computer sessions. The duration of suffering from headaches of the subjectively diagnosed CGH subjects was up to 10 years (see table 2 for more details).

Table 1: Table showing duration of headaches in diagnosed CGH subjects

#	Duration	% diagnosed with CGH
1	6 months or less	36.60%
2	6 months to 1 year	26.80%
3	1 year to 5 years	31.70%
4	5 years to 10 years	4.90%

Students of Rehman College of Nursing were the most prevalent among the sufferers of CGH based upon subjective criteria having an estimate of 33.3% positive result (for the rest see table 3).

Table 1: Table showing frequency of CGH subjects among all the colleges of RMI

#	Name of college	Frequency
1	Rehman College of Nursing	33.30%
2	Rehman College of Rehabilitation Sciences	30.70%
3	Rehman College of Allied Health Sciences	21.40%
4	Rehman College of Dentistry	12.50%
5	Rehman Medical College	6.00%

DISCUSSION

Among headaches, CGH is one of the prevalent problems reported in general population with an estimated range of 2.1% to 20% (6, 7). Among students and specifically medical college students, this incidence rate is reported as high as 41% in a study conducted in Pakistan (8) which then correlates with our investigation of finding a considerable percentage of students suffering from CGH, at a rate of 21.9%. This result was based on the IHS subjective criteria which is a predefined checklist to diagnose CGH (15). However, if only major criteria is fulfilled and other important but not obligatory symptoms are excluded, a possibility previously documented (16), the prevalence then is estimated to be 19.3%. The rate is lower as the subjects already diagnosed with complete IHS criteria were excluded from this finding.

Differences in duration since when an individual is suffering from CGH may be found in the literature (17, 18). In our survey, the duration since when individuals were suffering from CGH was reported

up to ten years. There are ambiguous reports available as for the preponderance of female gender suffering from CGH but most studies report it high (17). Our estimated prevalence of higher female ratio sufferers is in conjunction with the literature where the number of female population suffering from CGH was higher compared to their counterpart male population. Just as the major criteria of diagnosis, our study also suggests a remarkable association of neck pain with headache. A hallmark identification is the high ratio of associated dizziness with headaches that was recorded during the study and can lead to the debate that CGH can lead to another known condition of Cervicogenic Dizziness. The correlation of a positive subject criterion diagnosis and that of CFRT is very approximate to that of the correlation of the former with PAIVM suggesting both objective testing being appropriate and reliable. Furthermore, a notable prevalence of these tests signify that the higher rate of musculoskeletal disorders can be addressed and thus prove helpful in providing treatment. On the other hand, a greater prevalence of objective testing being positive in students with subjectively diagnosed CGH also supports physical assessment being a more accurate tool for diagnosis.

Moreover, a greater frequency of accidents and long sessions at a computer, being the predictors of a possible aetiology of CGH among the diagnosed subjects, suggests them to be at a higher in the list of risk factors that are already stated (14). Strengths of the study include a thorough collection and analysis of the data and reporting both the subjective and objective criteria. Secondly, an account of the causative risk factor and cause itself leading to CGH have been identified. Moreover, we identified percentage of subjects who were not fitting into fit the subjective criteria while having a positive result for CFRT which a highly accurate diagnostic test is.

One of the limitations of this survey included number of proposed participants which was not achieved at the end of this study. The reason was unavailability of the students during winter vacations in some institutes and exams at other institutes. A major hindrance in collection of data was caused by the unwillingness of students to spare time and come for objective assessment. Apart from that, the reliability of the results could be altered as the skill level of assessors were not same and some of the students were involved during the data collection. An internal validity concern could be taken up as the objective testing was performed the researchers themselves so a degree of biasedness might be present.

CONCLUSION

There is a considerable frequency of cervicogenic headache amongst medical students. The reasons for having CGH at such a large level in these students might be correlated with poor sustained posture amongst these students.

REFERENCES

1. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton RB, Scher AI, et al. The global burden of headache: A documentation of headache prevalence and disability worldwide. Cephalalgia. 2007;27:193-210.
2. Hall T, Briffa K, Hopper D. Clinical evaluation of cervicogenic headache: a clinical perspective. Journal of Manual & Manipulative Therapy. 2008;16(2):73-80.
3. Olesen J. The international classification of headache disorders. Headache: The Journal of Head and Face Pain. 2008;48(5):691-3.
4. Biondi DM. Cervicogenic headache: diagnostic evaluation and treatment strategies. Curr Pain Headache Rep. 2001;5(4):361-8.
5. Rubio-Ochoa J, Benítez-Martínez J, Lluch E, Santacruz-Zaragoza S, Gomez- Contreras P, Cook C. Physical examination tests for screening and diagnosis of cervicogenic headache: A systematic review. Manual therapy. 2016;21:35-40.
6. Sjaastad O, Bakketeig L. Prevalence of cervicogenic headache: Vågå study of headache epidemiology. Acta Neurologica Scandinavica. 2008;117(3):173-80.
7. Evers S. Introduction: Comparison of cervicogenic headache with migraine. Cephalalgia. 2008;28(1 suppl):16-7.
8. Muhammad Umar MB, Maryam , Amir Naeem, Laiq Rehman , Ahmed. Prevalence Of Different Types Of Headache In Medical Students Of Rawalpindi & Islamabad. Int J Rehabil Sci 2015;04(01):15-9.
9. Ibrahim NK, Alotaibi AK, Alhazmi AM, Alshehri RZ, Saimaldaher RN, Murad MA. Prevalence, predictors and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. Pakistan journal of medical sciences. 2017;33(2):270.
10. Zhao Q, Zhang Y, Deng G, Jiang W, Zhang L, Di L, et al. Relationship between the incidence of chronic pain and academic pressure in high school students. Zhonghua yi xue za zhi. 2014;94(48):3831- 5.
11. Suijlekom HAv, Lamé I, Stomp van den Berg SG, Kessels AG, Weber WE. Quality of Life of Patients With Cervicogenic Headache: A Comparison With Control Subjects and Patients With Migraine or Tension type Headache. Headache: The Journal of Head and Face Pain. 2003;43(10):1034-41.
12. Shimohata K, Hasegawa K, Onodera O, Nishizawa M, Shimohata T. The Clinical Features, Risk Factors, and Surgical Treatment of Cervicogenic Headache in Patients With Cervical Spine Disorders Requiring Surgery. Headache: The Journal of Head and Face Pain. 2017.
13. Gerard Malanga M. Cervicogenic Headaches Start in the Neck 2017 [cited 2018 20 January]. Available from: https://www.spineuniverse.com/condition s/neck-pain/cervicogenic-headachesstart- neck.
14. Mueller D. Cervicogenic Headache Risk Factors | The Neurosurgery Center Of Colorado 2012 [cited 2018 20 January]. Available from: https://theneurosurgerycenterofcolorado. wordpress.com/2012/09/21/cervicogenicheadache- risk-factors/
15. Tepper SJ. International Classification of Headache Disorders, beta version. Headache: The Journal of Head and Face Pain. 2013;53(8):1381-2.
16. Bogduk N. Distinguishing primary headache disorders from cervicogenic headache: clinical and therapeutic implications. Headache Currents. 2005;2(2):27-36.
17. Racicki S, Gerwin S, DiClaudio S, Reinmann S, Donaldson M. Conservative physical therapy management for the treatment of cervicogenic headache: a systematic review. Journal of manual & manipulative therapy. 2013;21(2):113-24.
18. Sedighi A, Ansari NN, Naghdi S. Comparison of acute effects of superficial and deep dry needling into trigger points of suboccipital and upper trapezius muscles in patients with cervicogenic headache. Journal of bodywork and movement therapies. 2017;21(4):810-4.