

Cervicogenic Headache and Depression: A Questionnaire Based Survey

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Abstract

Background: Headache is a common disorder seen in 66% of the global population, and thereby has evolved as a major health issue, disturbing both quality of life and work productivity. Both entities of headache and depression are known to hamper function.

Method: In this case-control study, Physicians from the Department of Orthopaedics and Medicine identified the patients with a chief complaint of Cervicogenic Headache (CGH) and the nursing staff identified the patients who would be in the control group presenting complaints other than headache. The investigators obtained informed written consent from patients who were willing to participate and requested them to complete the PHQ-9 and formulated the results.

Conclusion: Patients with Cervicogenic Headache had a high prevalence of Depression as reported by the PHQ-9 when compared to their counterparts who suffered from disorders other than headache.

Keywords: Cervicogenic headache; Depression; Patient Health Questionnaire (PHQ-9)

Introduction

Headache is a common disorder seen in 66% of the global population [1], and thereby has evolved as a major health issue, disturbing both quality of life and work productivity [2,3]. The most common form of headache is tension-type headache with a global prevalence of 38% [1], whereas migraine has a prevalence of 10% [1], chronic daily headache 3% [1], and Cervicogenic headache (CGH) 2.5-4.1% [4,5]. Even though the prevalence of CGH is consistently lower in comparison to tension type headache and migraine, CGH sufferers have a major quality-of-life burden, which is equal in comparison to those patients with migraine and tension-type headache [6].

The International Headache Society [7] defines CGH as "pain, referred from a source in the neck and perceived in 1 or more regions of the head and/or face." Headache can be triggered from various structures in the cervical spine which can be either vertebral joints from occiput to C3 or the facet joints from the same area [8,9]. Most common clinical presentation of CGH usually include unilateral head pain without side-shift, combined with neck pain and restriction of neck movement [10]. Zito et al. [11] have stressed the importance of examining the C1-C2 segment while diagnosing CGH. Another study by Aprill et al. [12] has also magnified the relative importance of C1-C2 as a primary cause of CGH.

In the year 1990, Chung and Kraybill [13] reported that 63% of patients with a chief complaint of headache visiting their outpatient clinic had a depression score which was equal or greater than 50 which was assessed on the Zung Self-rating Depression Scale and thus concluded that headache sufferers also suffer from depression. Then in the year 2000, Lipton et al. [3,14] used the Primary Care Evaluation of Mental Disorders (PRIME-MD) to conduct a population based survey on patients from the United Kingdom and the United States of America and concluded that 47% of patients with migraine had "depression" in comparison to 17% of control patients. The symptoms of depression are often subtle and hard to diagnose and hence these symptoms may be overlooked in patients with headache complaints [15,16]. But none of these studies have assessed depression in cases of CGH.

In a Primary care set-up, several tools have been used to screen for depression among adults. The commonly used tools are PRIME-MD

Patient Health Questionnaire (PHQ-9), Primary Care Evaluation of Mental Disorders (PRIME-MD), Beck Depression Inventory and the Zung Self-Rating Depression Scale in outpatient settings. According to Nease and Maloin [17] who conducted a recent systematic review of depression screening measures found that the PHQ-9 is the best depression screening tool available for primary set-ups. Hence the objective of our study was to use the PHQ-9 to screen patients for the presence of depression in outpatients with a chief complaint of CGH in comparison to patients with disorders other than headache.

Methodology

Instrument

The PRIME-MD PHQ-9 is a tool which can be self-administered and scores each of 9 Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, criteria for major depression. The tool has good reliability and validity and high positive predictive value for major depression [17-19]. The most positive factor regarding this tool is that it just takes 2-5 minutes to complete and it is easy for the patient to use. The scores range from "0" (not at all) to "3" (nearly every day). PHQ-9 score equal to or greater than 10 had a sensitivity of 88% and a specificity of 88% for major depression. Scores range from "0" (not at all) to "3" (nearly every day). PHQ-9 scores of 5 to 9 represents mild, 10 to 14 moderate, 15 to 19 moderately severe and equal to or more than 20 represents severe symptoms of depression [18].

Patients

Patients aged 18 years or older who were diagnosed with a chief complaint of CGH by the physicians from the Department of Medicine and Orthopaedics were selected after informed written consent was

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obtained from them. For each patient of CGH who was willing to participate in the study, a sex matched and age \pm 3 years patient was identified and requested to participate as a control from other patients with disorders other than headache. Complaints of control patients included chronic disorders such as high blood pressure, diabetes, back and neck pain, osteoarthritis, asthma, abdominal pain or chronic pulmonary diseases. Patients who had any diagnosis of headache in their list of associated problems or in their past records were not included as a control. This process of enrolment was undertaken until the sample (sample size calculator Open epi software calculated a sample size of 94) number of 100 (50 in each group) was achieved. Enrolment continued from May 2012 through January 2013.

Cervicogenic headache diagnostic criteria [10]

Major criteria

- I. Symptoms and signs of neck involvement; it is obligatory that one or more of the phenomena 1a to 1c are present.
 - Ia) Precipitation of head pain, similar to the usually occurring one:
 - Ia1) By neck movement and/or sustained, awkward head positioning, and/or:
 - Ia2) By external pressure over the upper cervical or occipital region on the symptomatic side.
 - Ib) Restriction of the range of motion (ROM) in the neck.
 - Ic) Ipsilateral neck, shoulder, or arm pain of a rather vague, non-radicular nature, or-occasionally-arm pain of a radicular nature.
- II. Confirmatory evidence by diagnostic anesthetic blockages.
- III. Unilaterality of the head pain, without sideshift.

Head pain characteristics

- IV. Moderate-severe, non-throbbing pain, usually starting in the neck
- Episodes of varying duration, or:
Fluctuating, continuous pain

Design

A case-control analysis was used in this study. The Physicians from the Department of Orthopaedics and Medicine identified the patients with a chief complaint of CGH and the nursing staff identified the patients who would be in the control group presenting complaints other than headache. The investigators obtained informed written consent from patients who were willing to participate and requested them to complete the PHQ-9 and formulated the results. The investigators later scored the completed PHQ-9 and then notified the physicians regarding any patient in the study that had scored greater than or equal to 5 so that further management could be planned with referral to a psychiatrist.

Data analysis

Descriptive statistics was used for reporting the age and sex characteristics of the patients in the 2 groups. The percentage of patients who reported depression in the CGH group was compared with the percentage of patients with symptoms of depression in the control group.

Results

A total of 100 patients willingly participated in this study: 50 in the CGH group and 50 in the control group. Considering both the groups, the mean age of participants was 47.75 years. Women constituted 76% and men constituted 24% of the participants (Table 1).

Patients who suffered from CGH had a 62% prevalence of reporting mild (PHQ-9 score from 5-9) symptoms of depression in comparison with a 32% prevalence in the Control patients (Table 2) and 20% of CGH sufferers had moderate depression symptoms (PHQ-9 score 10-14) against 12% in the Control group (Table 2).

On comparison between CGH and Control group it was found that number of subjects affected with depression in CGH group is more than control group (Figure 1).

Discussion

This study revealed a relatively high (more than two third of patients) prevalence of depression symptoms in patients with a chief complaint of CGH as compared to patients with other complaints in the control group. Various other studies on this issue have found varying degrees of depression in headache patients ranging from as low as 3.4% to as high as 78% [13-15,20-24].

The primary cause for depression in patients with CGH can be associated to chronic pain and frequency of the symptoms. Both disorders have a common aetiology i.e. the neurotransmitters. Neurotransmitters like serotonin and nor epinephrine that are known to be altered in depression, are also involved in the pain gate mechanism [21-23]. It has also been noted that when a patient is treated with an antidepressant, not only depression but also the headache seem to improve as these are designed to alter neurotransmitter levels [14].

	CGH (n=50)	Control (n=50)
Mean age in years	46.6	48.9
Gender (n, %)		
Male	12 (24.0)	12 (24.0)
Female	38 (76.0)	38 (76.0)

Table 1: Age and Gender distribution in CGH and Control Groups.

Depression	CGH (n_%_)	Control (n_%_)
Mild (PHQ 9_5)	31 (62)	16 (32)
Moderate (PHQ 9_10)	10 (20)	06 (12)
Moderately severe (PHQ 9_15)	04 (08)	01 (02)
Severe (PHQ 9_20)	01 (02)	00 (00)

Table 2: Prevalence of Depression Symptoms.

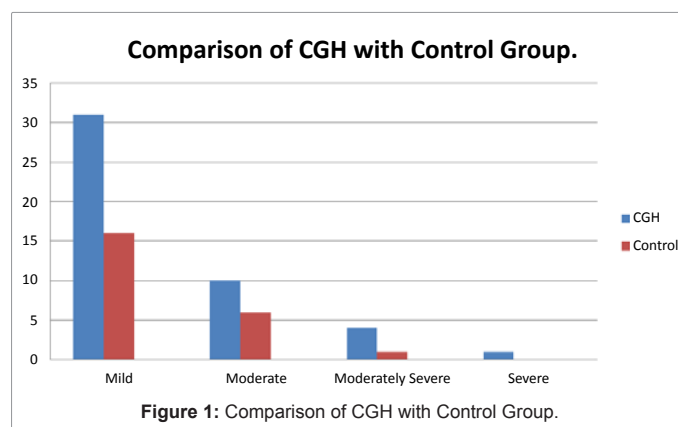


Figure 1: Comparison of CGH with Control Group.

Since both depression and headache are common problems, we cannot actually comment whether these problems are actually related or merely coexist together. This explanation, however, doesn't hold true as CGH is not as common as other forms of headache like migraine. Adding to this, there is also evidence that depression may contribute to the amount of suffering associated with headaches [24]. Both entities of headache and depression are known to hamper function also.

Hence it becomes mandatory for the treating physicians and therapists to be aware of the high prevalence of depression symptoms among patients with CGH and treat not only the headache, but depression also, if it is confirmed to co-exist. Physicians when treating patients with CGH also need to consider that depression can be present before prescribing or considering the medications for treating this disorder as several of these medications such as beta blockers, narcotics and anti anxiety agents can further worsen depression [13]. Physiotherapists involved in the treatment of such patients should be conscious regarding psychological issues which might have a negative influence or even hamper the healing process. Unless the symptoms of depression are not evaluated and treated, the outcome of the treatment cannot be ascertained.

Furthermore our patients were not assessed for the chronicity and the frequency of CGH, nor were their associated symptoms evaluated. The presence of other concomitant pain disorders in both the CGH and control groups could also affect the quantity of depression reported by them. Another question awaiting further research is whether patients with CGH have a perception that they are more disabled than their counterparts because of the frequency and duration of their symptoms?

Conclusion

Patients with Cervicogenic Headache had a high prevalence of Depression as reported by the PHQ-9 when compared to their counterparts who suffered from disorders other than headache. These patients should be evaluated thoroughly for depression and a holistic management strategy involving not only the treating physician and physiotherapist but also a psychologist and social worker should be undertaken.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the authorship and/or publication of this article.

References

1. Stovner Lj, Hagen K, Jensen R, Katsarava Z, Lipton R, et al. (2007) The global burden of headache: a documentation of headache prevalence and disability worldwide. *Cephalalgia* 27: 193-210.
2. Diener I (2001) The impact of cervicogenic headache on patients attending a private physiotherapy practice in Cape Town. *S Afr J Physiother* 57: 35-39.
3. Lipton RB, Stewart WF (1994) The epidemiology of migraine. *Eur Neurol* 34: 6-11.
4. Haldeman S, Dagenais S (2001) Cervicogenic headaches: a critical review. *Spine J* 1: 31-46.
5. Sjaastad O, Bakketeig LS (2008) Prevalence of cervicogenic headache: Vaga study of headache epidemiology. *Acta Neurol Scand* 117: 170-183.
6. Van Suijlekom HA, Lame I, Stomp-van den Berg SG, Kessels AG, Weber WE (2003) Quality of life of patients with cervicogenic headache: A comparison with control subjects and patients with migraine or tension-type headache. *Headache* 43: 1034-1041.
7. Headache Classification Subcommittee of the International Headache Society (2004) The International Classification of Headache Disorders: 2nd edition. *Cephalalgia* 24: 9-160.
8. Dreyfuss P, Michaelsen M, Fletcher D (1994) Atlanto-occipital and lateral atlanto-axial joint pain patterns. *Spine (Phila Pa 1976)* 19: 1125-1131.
9. Smith KL, Horn C (1997) Cervicogenic Headache Part I: An Anatomic and Clinical Overview. *Journal of Manual and Manipulative Therapy* 5: 158-170.
10. Sjaastad O, Fredriksen TA, Pfaffenrath V (1998) Cervicogenic headache: diagnostic criteria. The Cervicogenic Headache International Study Group. *Headache* 38: 442-445.
11. Zito G, Jull G, Story I (2006) Clinical tests of musculoskeletal dysfunction in the diagnosis of cervicogenic headache. *Man Ther* 11: 118-129.
12. Aprill C, Axinn MJ, Bogduk N (2002) Occipital headaches stemming from the lateral atlanto-axial (C1-2) joint. *Cephalalgia* 22: 15-22.
13. Chung MK, Kraybill DE (1990) Headache: a marker of depression. *J Fam Pract* 31: 360-364.
14. Couch JR, Ziegler DK, Hassanein RS (1975) Evaluation of the relationship between migraine headache and depression. *Headache* 15: 41-50.
15. Holroyd KA, Stensland M, Lipchik GL, Hill KR, O'Donnell FS, et al. (2000) Psychosocial correlates and impact of chronic tension-type headaches. *Headache* 40: 3-16.
16. Diamond S (1983) Depression and headache. *Headache* 23: 122-126.
17. Nease DE Jr, Maloin JM (2003) Depression screening: a practical strategy. *J Fam Pract* 52: 118-124.
18. Kroenke K, Spitzer RL, Williams JB (2001) The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 16: 606-613.
19. Williams JW Jr, Noël PH, Cordes JA, Ramirez G, Pignone M (2002) Is this patient clinically depressed? *JAMA* 287: 1160-1170.
20. Mitsikostas DD, Thomas AM (1999) Comorbidity of headache and depressive disorders. *Cephalalgia* 19: 211-217.
21. Okasha A, Ismail MK, Khalil AH, el Fiki R, Soliman A, et al. (1999) A psychiatric study of nonorganic chronic headache patients. *Psychosomatics* 40: 233-238.
22. Yücel B, Kora K, Ozyalçın S, Alçalar N, Ozdemir O, et al. (2002) Depression, automatic thoughts, alexithymia, and assertiveness in patients with tension-type headache. *Headache* 42: 194-199.
23. Puca F, Genco S, Prudenzano MP, Savarese M, Bussone G, et al. (1999) Psychiatric comorbidity and psychosocial stress in patients with tension-type headache from headache centers in Italy. The Italian Collaborative Group for the Study of Psychopathological Factors in Primary Headaches. *Cephalalgia* 19: 159-164.
24. Kashiwagi T, McClure JN Jr, Wetzel RD (1972) Headache and psychiatric disorders. *Dis Nerv Syst* 33: 659-663.

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