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CHRONIC DAILY HEADACHE: MEDICATION OVERUSE AND PSYCHIATRIC MORBIDITY

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# ABSTRACT

**Objectives:** The objectives of the study were: (i) To assess the frequency of different chronic daily head- aches in patients using ICHD-2 criteria (ii) To find out the frequency and type of medication overuse and psychiatric morbidity in chronic daily headache subjects.

**Design**: Cross sectional observational study.

**Place and duration of study:** The study was conducted in the psychiatry outpatient department of a teaching medical institution during January to September 2005.

**Subjects and Methods:** Subjects suffering from chronic daily headache were recruited from a special- ized headache clinic in a tertiary care hospital’s Psychiatry department. The diagnoses were made ac- cording to ICHD-2. Medication overuse was defined according to ICHD-2 criteria and psychiatric illness was diagnosed following ICD-10 criteria in CDH patients. In subjects fulfilling the criteria for ‘medication overuse’, the culprit drug was stopped immediately and prophylactic therapy was started.

**Results:** Frequency of chronic daily headache was 37% in this sample. Females outnumbered males (1: 1.52) and formed higher number of migraine cases (p=0.02). Tension Type Headache (TTH) was most frequent headache (48.5%). According to ICHD-2 criteria, probable medication overuse headache could be diagnosed in all patients, which precluded the diagnosis of chronic migraine and chronic TTH.

Psychiatric morbidity was seen in 70.3% subjects and mild to moderate depression was the most common illness (53%). TTH subjects showed predisposition for anxiety disorders (OR= 6.41; p= 0.004).

**Conclusion:** TTH is the most common subtype of CDH when ICHD-2 is followed. Medication overuse is common in this group of patients and these probably should be discontinued according to substance dependence de-addiction model for better compliance, and even more slowly in subjects with chronic migraine headache. Psychiatric morbidity is prevalent in CDH patients and requires special attention.

**Key words:** Chronic Headache, Psychiatric morbidity, Treatment adherence, Analgesic overuse.

# INTRODUCTION

Chronic daily headache (CDH) is defined as a head- ache that occurs 15 days or more a month 1. It is one of the most common cause of referral to specialized cen- ters with prevalence of approximately 3.2- 4.7% in gen- eral population1-3 and 50% in clinic’s population4.

ICHD-25 classifies primary daily headaches with their episodic variants, which may be beneficial to the

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research purpose, but for clinical practice grouping these patients under a single entity i.e., CDH is more sensible1. Among primary CDH, the migraine or transformed mi- graine is more common than the TTH in specialized clin- ics, while the opposite is seen in general practice1. Other studies have shown that transformed migraine3-4, 6 was the most common diagnosis in this group and Tension Type headache comprised only a small part.

This is an important clinical group since these pa- tients suffer frequent absenteeism and poor quality of life7 in addition to the higher prevalence of psychiatric illnesses1,4,8-9 and medication overuse1,10.

However, data regarding prevalence of CDH in using ICHD-25 criteria for chronic primary headaches is scarce as most of the past studies had used Silberstein et al’s criteria11 for diagnosis of chronic migraine. To our knowledge, there is only one report12 that examined the prevalence of chronic migraine following ICHD-2. Incon- sistencies regarding the definitions of CDH and medica- tion overuse between these studies make the results dif- ficult to interpret ‘en-mass’ and thus results can not be

used in clinical practice. There is also paucity of data regarding prevalence of different psychiatric illnesses and type of medication overuse in these patients following ICHD-2 criteria. Hence, present study was planned to address these issues.

# SUBJECTS AND METHODS

Subjects presenting with complaints of headache in the Psychiatry outpatient department during six study months were screened for the presence of chronic daily headache. The diagnosis of headache was based upon history (see below), clinical examination and wherever required, laboratory investigations. Those who suffered secondary headache were excluded from the study.

Informed consent was taken from the subjects before inclusion into the study and details regarding their demographic data were gathered. We recorded follow- ing data for the diagnosis of headache: Time since on- set, average number of attacks per month, average num- ber of days for which patients suffered pain in past six months, change in the pain since onset (Frequency, du- ration and severity of episodes), laterality (Unilateral, bi- lateral, changing), location (Temporal, frontal, occipital, parietal, orbital, generalized, neck), quality (aching, pul- sating/ throbbing, pressing, tightening, band like etc), duration of episode, usual time of onset, precipitating and relieving factors, radiation of pain, premonitory symp- toms, associated symptoms (phonophobia, nausea-vom- iting, photophobia, red eye, lacrimation, nasal blockade, worsening with exertion, dizziness, ptosis etc). Follow- ing this physical examination was carried out as de- scribed by Mongini13.

Few subjects were meeting criteria for more than one primary headache but, in those cases the headache which was fulfilling criteria for ‘chronic’ was kept as main diagnosis and the headache which was present inter- mittently before the onset of chronic headache, was di- agnosed as the co-morbid headache.

Headaches were diagnosed based on ICHD-2 cri- teria. Medication overuse headache was defined as in- take of analgesics more than 15 times a month for at least 3 months i.e., criteria B of 8.2.3; and for combina- tions and ergotamine more than 10 days a month for 3 months- i.e., criteria B of 8.2.1 and 8.2.5 respectively.

During the process of data acquisition we encoun- tered following problems in diagnostic classification: (i) Diagnosis of Chronic Migraine (CM; ICHD 1.5.1) and Chronic Tension Type Headache (CTTH; ICHD 2.3) could not be made because it requires absence of Analgesic overuse headache (ICHD 8.2.3) (ii) Analgesic overuse headache could not be diagnosed because study was terminated at 6 weeks due to poor follow-up. (iii) New Daily Persistent Headache (NDPH; ICHD 4.8) could not be diagnosed because information gathered was retro- spective and all subjects were fulfilling the criteria B (An-

algesic overuse for > 15 days a month for > 3 months) of analgesic overuse headache (ICHD 8.2) at the time of diagnosis. Due to these problems diagnosis of (i) ‘Mi- graine with aura with Probable Chronic Migraine with aura with Probable MOH’, (ii) ‘Migraine without aura with Prob- able Chronic Migraine without aura with Probable MOH’, and (iii) ‘TTH with Probable Chronic Tension Type Head- ache with Probable Medication Overuse Headache’ were made5,14. Though, for the sake of simplicity of presenta- tion, designations like Migraine with aura, Migraine with- out aura and TTH for categories (i), (ii) and (iii) were used in this study respectively.

Details regarding behavioral symptoms were gath- ered from the patient in the presence of a reliable infor- mant, who confirmed the history, and diagnosis was made according to ICD-10 criteria15. We could not use any structured interview schedule because most of the patients could not speak English, and Hindi version of the same is not available, in addition to reasons discussed later. During diagnosis of psychiatric morbidity it was assured that these behavioral symptoms were not lim- ited to headache episodes and they occurred indepen- dent to these episodes. If any subject had symptoms lasting for headache episode only, diagnosis of co-mor- bid psychiatric disorder was not made.

All the subjects were kept on the prophylactic drugs according to available literature13,16 and their abused medications were stopped immediately. It resulted in a very high attrition rate of subjects from the study, the rea- sons for which are discussed later.

For statistical analysis SPSS Version 11 for Win- dows was used. For comparison of proportions (Categori- cal data), Chi-square test with category collapse and Fisher exact test were applied. For numerical variables independent sample ‘t’ test was used and logistic regres- sion was applied to find out odds ratios (OR).

# RESULTS

A total of 245 subjects reported primary headache out of whom 91 (37.14%) were suffering from chronic headache. Females were overrepresented in the sample compared to males in a ratio of 1: 1.52. Mean age of subjects in the study was 33.98 + 10.03 years (Range 13- 65 years) and there was no significant difference (t=0.23; P= 0.81) between age of male and female sub- jects (34.29 vs 33.80).

In patients with chronic daily headache group, gender significantly affected (p=0.002) the frequency of headache as migraine with or without aura was more frequent among females while TTH had opposite trend. Overall, TTH was the most common diagnosis followed by migraine without aura. Medication over- use was present in all CDH subjects, but due to poor follow up, study was terminated prematurely and diag- nosis of Probable Medication Overuse Headache was made.

**Table 1**

**General Characteristics of the study sample.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No. Variable** | **Male (N= 36)** | **Female (N= 55)** | **Total (N=91)** |  |
| 1. Principal Headaches\* |  |  |  |  |
| * TTH# | 27 (75%) | 21 (33.2%) | 48 (52.7%) |  |
| * MO@ | 6 (16.7%) | 18 (32.7%) | 24 (26.4%) | p= 0.002 |
| * MA$ | 3 (8.3%) | 16 (29.1%) | 19 (20.9%) |  |
| 2. Principal Headaches\*\* |  |  |  |  |
| * TTH# | 27 (75%) | 21 (38.2%) | 48 (52.7%) |  |
| * MO@ | 3 (8.3%) | 3 (5.5%) | 6 (6.6%) |  |
| * MA$ | 2 (5.6%) | 3 (5.5%) | 5 (5.5%) |  |
| * MO + TTH | 2 (5.6%) | 10 (18.2%) | 12 (13.2%) |  |
| * MO + Unspecified | 1 (2.8%) | 5 (9.1%) | 6 (6.6%) |  |
| * MA + TTH | 1 (2.8%) | 7 (12.7%) | 8 (8.8%) |  |
| * MA + Unspecified | nil | 6 (10.9%) | 6 (6.6%) |  |
| 3. Psychiatric illness |  |  |  |  |
| * Absent | 10 (27.8%) | 17 (30.9%) | 27 (29.7%) |  |
| * Depression with Somatoform | 19 (52.8%) | 29 (52.7%) | 48 (52.7%) | 0.91 |
| * Anxiety Disorders | 7 (19.4%) | 9 (16.4%) | 16 (17.6%) |  |

\* Following ICHD-2 criteria limited to different episodes.

\*\* Following ICHD-2 criteria applicable to single episodes.

Chi-square test could not be applied because of small expected frequencies in more than 20% of cells.

# TTH with probable chronic TTH with probable MOH.

@ Migraine without aura with probable chronic MO with probable MOH.

$ Migraine with aura with probable chronic MA with probable MOH.

Co-morbid headaches are shown in Fig. 1. Few subjects in TTH group also had TTH as comorbid head- ache because in these cases Episodic TTH was present well before the onset of Probable CTTH.

As a result of abrupt discontinuation from over- used analgesics, the entire sample was lost to follow up by the end of six weeks. Figure 2 shows that MA patients were first to lost to follow up, while TTH subjects were the last. Also notable is the finding that a substantial number of subjects were lost to follow-up by the end of first week (i.e., start of pro- phylactic drugs and withdrawal from overused medi- cation).

Psychiatric morbidity was seen in 70.3 % subjects. Gender did not affect occurrence of psychiatric morbid- ity (P= 0.91). Subjects with TTH were more likely to suf- fer from anxiety disorders (OR= 6.41; p= 0.004), while analysis for depression did not reach statistical signifi- cance (OR= 1.76; p= 0.244).

**Fig. 1: Co-morbid Headaches in different Primary CDH Groups**



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**Fig. 2: CDH subjects lost at weekly follow-up after acute withdrawal from overused medication**



**Table 2**

**Distribution of psychiatric morbidity in different Primary Headache Groups$**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. Psychiatric Headache Type Total morbidity TTH\* Migraine#** | | | | |
| 1 Absent | 10  (20.8%) | 17  (39.5%) | 27 |  |
| 2. Depression | 26 | 22 | 52 |  |
| and | (54.2%) | (51.2%) |  | P= |
| Somatoform |  |  |  | 0.05 |
| Disorders |  |  |  |  |
| 3. Anxiety Disorders | 12  (25%) | 4  (9.3%) | 16 |  |
| **Total** | 48 | 43 | **91** |  |

\* Episodic Frequent/Infrequent TTH with probable chronic TTH with probable MOH

# includes Migraine with aura with Probable Chronic Migraine with/ without aura with Probable MOH; Migraine without aura with Probable Migraine with/without aura with Probable MOH.

$ Criteria followed in clinical context.

# DISCUSSION

## *Prevalence of CDH and loss at follow-up*

In present study 37% subjects attending special clinic suffered from CDH. Nearly similar figure has been reported by Chakravarty4 in the Indian population in a specialty clinic. These patients comprise a substantial number and should be given due concern. Like present study, higher number of female subjects (72%3, 83%4, 65%6 and 73% 17 in chronic daily headache group as a whole and also in migraine subgroup) has been re- ported3-4.

In this study all the subjects were lost to follow up at six weeks. Similar results have been reported from Indian population and acceptance of headache as a part of life; change of doctors and way out to alternate forms of therapy were implied as the causative factors4 in those studies. Another reason for this could be sudden dis- continuation of overused medication which usually re- sults in rebound headache. Abrupt discontinuation has been tried previously18, but in that study use of NSAID drug other than the one overused was allowed to a maxi- mum of two times a week. Despite this only 52% were retained till the end of that study18. In present study MA had the poorest compliance to the prophylactic therapy while the TTH subjects were the last. We could not find any other study that reported similar or contradictory find- ings. These findings on retrospect make one to think of having a different approach to stopping the overused medication. The possibility of gradual tapering of over- used drugs accompanied with explaining the purpose of taking such a step to the patients may help in getting better compliance and retention in the study.

## *Frequency of primary headaches according to* ICHD-2:

In this study TTH was most common type of pri- mary CDH followed by Migraine. This observation does not match with previous reports that describe high preva- lence of transformed migraine- e.g., 55%3, 82%4, 87% 6. Definition of chronic headache that was followed in pre- vious studies influenced the prevalence of migraine as they used Siberstein et al’s criteria11,19 that are different from ICHD-2 criteria5 for Chronic Migraine in three ways-

: (i) they rely on the past history of episodic migraine (ii) all 15 or more episodes in a month need not to fulfill criteria for migraine (iii) and lastly, decrease in the sever- ity of headache is allowed. Recently, Bigal et al12 reported that ICHD-2 criteria for migraine are too restrictive and result in multiple diagnostic entities specially the CTTH along with CM. ‘CM without TTH’ could not be found even in a single case6 while pure chronic migraine cases made a little number when ICHD-2 was followed12. More- over, it is known that chronic migraineurs lose typical features and acquire TTH like picture14 and chronic anal- gesic or ergot use also contributes to changes in pre- sentation of episodic migraine to TTH14. Monzini et al20 reported that almost all the migraine subjects lost pul- sating quality, acquired bilateral location and mild-mod- erate intensity when it became chronic. Therefore, many of the chronic migraine subjects that lost migrainous character in present study were spuriously diagnosed as TTH sufferers. In addition, recruitment bias as sub- jects were enrolled from the Headache Clinic of a Ter- tiary care Psychiatry department could have also con- tributed to higher prevalence of CTTH.

In this study, NDPH was no diagnosed because of the retrospective data analysis and the medication over- use, while it has been reported in other studies6. In addi- tion, NDPH in itself does not have any particular charac-

teristics, and different primary headaches e.g., Migraine and TTH can be kept under this rubric6 provided they fulfill the duration criteria of NDPH.

## *Medication overuse:*

Analgesic overuse was found in all subjects (100%) in the present study. On the contrary, previous reports describe analgesic overuse in 34%3, 43%4, and 82%6 chronic daily headache subjects only. This difference could be secondary to definition of ‘overuse’ as previ- ous3-4,6 studies followed Silberstein et al’s19 criteria that require more number of days a month than IHS criteria and specifies minimum amount of the drug in question. Chakravarty4 reported analgesic overuse only in migraine group and he could not find a single case of medication overuse in TTH group, contrary to findings of this study. It is possible that difference in headache definition as explained above along with difference in the population led to these results. Most of the patients were suffering from psychiatric illness and were working on daily wages; both the factors in addition to cheaper and easy avail- ability of acute treatment drugs4 could have promoted medication overuse. Moreover, headache was described as most significant predictor for drug overuse21.

Pattern of medication overuse was also dependent on the type of headache. TTH subjects used simple an- algesics while migraine subjects consumed combination of analgesics or analgesics with ergot. This pattern dem- onstrates prescription practices since combined analge- sics/ ergot are usually prescribed to migraine subjects and simple analgesics to TTH, as well as availability of drug, as overuse of Over-The-Counter drugs is more common compared to prescribed medicines3-4.

## *Psychiatric illness:*

Present study reports prevalence of psychiatric ill- ness in CDH subjects to be 70%. Previous studies22-23 using SCID (Structured Clinical Interview for DSM IV) and MINI (Mini International Neuropsychiatric Interview) for Axis I disorder demonstrated prevalence of 90% and 78% respectively, while one study9 that used only HADRS (Hospital Anxiety and Depression rating scale) reported a prevalence of 42%. Only available Indian study4 that was based on clinical examination using DSM IV criteria showed a prevalence of nearly 50%. Differences can be attributed to the use of structured interviews in the above mentioned studies22-23 as structured interviews have lim- ited validity and are sensitive for more severe illnesses only24. Possibility of spurious patients response on these interviews can not be ruled out as rewording of the ques- tion is not allowed24, ignoring whether patient had un- derstood the question or not. On the other hand, HADRS detects only ‘caseness’ and not the individual diagno- sis9. Although subjects in the present study were recruited from psychiatry OPD, even then it did not influence the prevalence of psychiatric illness since they were attend- ing ‘headache clinic’ with primary complaint of headache rather than psychiatric illness.

In this study, psychiatric illness was less common in migraine group compared to TTH group. TTH and Mi- graine headache subjects had nearly comparable preva- lence of depression while anxiety disorders were more common among TTH subjects. Similar results have been reported in the past4. It can be further substantiated by biochemical findings as already reported in the literature showing the decreased platelet serotonin, up regulation of 5HT 2A receptors in CDH subjects10 and serotonin abnormalities in depression.

## *Limitations of the study:*

This was a retrospective, recall based study con- ducted in a tertiary care centre. Therefore, possibility of recall bias can’t be ruled out but to a limited extent only, as most of the subjects with chronic headache tend to remember headache characteristics. Second, results of a specialized center can not be applied to general popu- lation.

In conclusion, a substantial number of patients with CDH suffer from psychiatric disorders as well as medi- cation overuse. Sudden discontinuation of abused medi- cation leads to poor compliance to prophylactic treat- ment forcing us to rethink the treatment strategies re- quired to retain patients while discontinuing the overused medication. The substance dependence de-addiction model may be tried and tested here.

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