

**Prevalence Of Chronic Migraine and Medication Overuse Headache in Adults and Adolescents Using ICHD Beta 3 Version - A Tertiary Care Hospital Based Study in Kashmir.**

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**Abstract**

Chronic migraine especially medication overuse headache is the most common chronic headache disorder and a public health problem with a worldwide prevalence of 1-2%.

**Objective:** To study the prevalence and distribution, compare the age and sex specific profiles and Comprehensive comorbidity profile of chronic migraine and medication overuse headache in Kashmiri population.

**Materials and methods:** Patients of medication overuse headache and chronic migraine, who visited OPD and IPD, Departments of Neurology and General Medicine, Govt. Medical College Srinagar. All patients underwent a set of baseline investigations.

**Results and conclusion:** In our study we found that out of a total of 621 cases of headache chronic migraine was present in 267 (43%) and other primary type of headache in 354 (57%) cases respectively. Total number of patients with medication overuse headache was 220. The overall sex distribution was 1:2.06 (M: F) in headache disorders.

Our results are in agreement with those of other researchers.

**Keywords:** Migraine, Medication overuse, neurology.

**Introduction**

Headache or cephalalgia, a universal feature of the human experience, is one of the most frequent complaints evaluated by internists and neurologists in the office practice<sup>1</sup>. The term headache encompasses all aches and pains located in the head, but in practice its application is restricted to discomfort in the region of the cranial vault<sup>2</sup>. The frequency and occurrence of headache disorders varies greatly because of the different methodology, questionnaire and classification criteria used in the diagnosis and assessment of headache. For uniformity and to remove the bias of occurrence of headache, International Society formulated criteria for diagnosis and classification of various headache disorders.<sup>3</sup>

Primary headaches are unaccompanied by any structural, metabolic or any other lesion in the body in general and brain in particular whereas secondary headaches are those caused by exogenous disorders.<sup>4</sup> Common forms of

primary headaches include, tension type headache (69%), followed by migraine headache (16%), cluster headache (0.1%), idiopathic stabbing headache (2%), exertional headache (1%); secondary causes of headache disorders include; systemic infection (63%), head injury (4%), vascular disorders (1%) and brain tumors (0.1%).<sup>5</sup>

tenderness, abnormal electromyograms (EMGs), abnormal platelet serotonin and decreased CSF-endorphin levels. These above common features provide ample evidence to suggest that both migraine and tension type headache have a similar pathogenesis.<sup>6</sup>

Chronic migraine belongs to a set of primary headache disorders called chronic daily headaches (CDH) which is usually applied to patients who have had headaches 15 days or more in a month for more than 3 months. Population based studies have placed the prevalence of CDH as high as 3% to 5% of the general population.<sup>7</sup>

Medication-overuse headache, previously known as “rebound headache,” is a condition in which headaches become more and more frequent as a patient begins to use more and more acute headache medications. It’s a downward spiral in the truest sense; the more medications you use, the more headaches you get, thus the inclination to use more of the culprit medication, and so on. Researchers are unsure as to what causes medication-overuse headache.

ICHD beta 3<sup>8</sup> version diagnostic criteria for MOH are as under

- Headache occurring for more than 15 days per month in a patient with a persisting headache disorder.
- Regular overuse for more than three months of one or more drugs that can be taken for acute and/or symptomatic treatment of headache.
- Not better accounted for by another ICHD beta 3 diagnosis

### Objectives to study

- The prevalence and distribution of chronic migraine and medication overuse headache in Kashmiri population.
- Comprehensive comorbidity profile of chronic migraine and medication overuse headache.
- Compare the age and sex specific profiles of chronic migraine and medication overuse headache and related disability.
- Study the future directions in the epidemiology of chronic migraine and medication overuse headache.

### Inclusion Criteria

- Patients of medication overuse headache and chronic migraine.
- Patients who visited OPD and IPD, Departments of Neurology and General Medicine, Govt. Medical College, Srinagar.

### Diagnostic Criteria for Chronic Migraine<sup>9, 10</sup>

- Headache (tension type-like and/or migraine-like on  $\geq 15$  per month for more than 3 months and fulfilling criteria B and C.
- Occurring in a patient who has had at least 5 attacks fulfilling criteria B to D for migraine without aura and/or criteria B and C for migraine with aura.
- On  $\geq 8$  days per month for more than 3 months fulfilling any of the following
  - Criteria C and D for migraine without aura
  - Criteria B and C for migraine with aura
  - Believed by the patients to be migraine at onset and relieved by a triptan or ergot derivative.
  - Not better accounted for by another ICHD-3 diagnosis.

Diagnostic Criteria for medication overuse headache:

- Headache occurring for more than 15 days per month in a patient with a persisting headache disorder.

- Regular overuse for more than three months of one or more drugs that can be taken for acute and/or symptomatic treatment of headache<sup>11</sup>.
- Not better accounted for by another ICHD beta 3 diagnosis.

#### Exclusion Criteria

- Patients below 14 years of age
- Patients of secondary headache
- Patients who refuse to consent

All the patients underwent a detailed history and a thorough general physical examination. Patients were enquired about their headache frequency, duration and distribution. Nature of drugs, duration of intake of drugs and their impact on headache frequency, intensity, and duration was also asked.

All patients underwent a set of baseline investigations including complete blood count, kidney function test, liver function test, serum electrolytes, blood glucose, electrocardiography and x-ray chest. Cranial imaging such as computed tomography and magnetic resonance imaging were done on patients wherever found necessary.

#### Discussion

The present research summarizes the results of study conducted to find out the prevalence of chronic migraine and medication overuse headache in adults and adolescents of Kashmir valley.

In our study we found that out of a total of 621 cases of headache chronic migraine was present in 267 (43%) and other primary type of headache in 354 (57%) cases respectively.

Total number of patients with medication overuse headache was 220, out of which 112 were initially diagnosed as chronic migraine and 108 were initially diagnosed as other primary headache types.

The overall sex distribution of chronic migraine and other primary headaches showed a marked predilection for female sex, where M: F in chronic migraine was 1:2.2 and 1:1.95 respectively. However, overall M: F was 1:2.06 in headache disorders.

Out of 220 MOH patient, 63 (28.6%) were males and 157 (71.4%) were females.

Our results are consistent with the findings of Straube A et al (2009)<sup>12</sup> wherein out of 73 MOH patients, 74% were females and 26% were males.

The peak prevalence of primary headache disorders occurred in the age group of 40-49 years of age.

Both chronic migraine and other primary headaches showed maximum prevalence in the age group of 40-49 years with a statistically insignificant higher prevalence of other primary headaches in the same age group. The prevalence of both types of headaches decreased with age and was more pronounced, though statistically insignificant, with a more prominent fall among females (33.7% in age group 40-49 to 5.4% in  $\geq 60$  years as against 32.5% in 40-49 years to 4.8% in  $\geq 60$  years in males). These results are in consonance with aforementioned researchers.<sup>13,14</sup>

Majority of our study patients i.e. 79 (35.9%) were 40-49 years of age, followed by 61 (27.7%) were in the age group of 50-59 years, 46 (20.9%) belonged to age group of 30-39 years. Our results are similar to the studies of Westergaard M et al (2014)<sup>15</sup>, Aaseth K et al (2008)<sup>16</sup>, Zwart et al (2004)<sup>17</sup> and Colas et al (2004)<sup>18</sup> who found MOH to be most prevalent among middle aged people in their 30s to 50s.

A positive family history was obtained in 55.6% of primary headache patients, while such history was elicitable in 19.6% and 35.9% in father and mother. This observation is endorsed by

other researchers<sup>19,20,21,22</sup>.

Out of 220 patients of MOH, positive family history was present in 100 (45.5%), out of which 68 (30.9%) had history of MOH in mother and 32 (14.5%) had MOH history in father.

In our study we found nausea and vomiting to be the most frequent symptoms in 202 (75.7%) patients followed by photophobia in 175 (65.5%) patients. This was followed by pulsating quality in 173 (64.8%), hemi cranial headache was seen in 171 (64.0%). 57 (21.3%) of subjects described their headache to be bilateral.

Overall nausea and vomiting vary in different studies in subjects with headache (nausea 53-80% and vomiting 48-58%) and our results are comparable to their results<sup>23,24,25,26</sup>.

In present series, stress was the most common aggravating factor of primary headache disorder (74.2%), followed by physical exertion (50.9%), noise (22.5%), change in weather (10.9%) and bright light (4.1%).

In females 75.5% reported menstruation as an aggravating factor in chronic migraine, the same was an aggravating factor in 67.5% in other primary headaches.

The most common triggering risk factors in our study was stress found in 121 (55%) patients followed by sleep deprivation in 87 (39.5%) patients and smoking in 35 (15.9%) patients. There appears to be a relationship between lifestyle factors (smoking, obesity, physical inactivity) and MOH<sup>27,28,29</sup>.

The present study, 176 (65.9%) of chronic migraine used medicine as relieving factor. Sleep 83 (31.1%) and isolation 56 (21.0%), applying cold substances 5 (1.9%) were the relieving factors in the remainder of the patients. It is evident that analgesics were commonly used by our patients and this could be attributed to over-

the-counter availability of these drugs in one part of the world.

In our study it was found that the average age of onset of the primary headache disorder was 29.5 years.

In our study, the commonest co-morbidity in chronic migraine patients was depression in 61 (22.8%), followed by hypothyroidism in 57 (21.3%), anxiety in 42 (15.7%) patients, hypertension in 29 (10.9%), panic attacks in 21 (7.9%) patients, while as diabetes was seen in 16 (6%) patients in our study. Those patients of migraine headache who had hypothyroidism were 24.6%.

Following hypothyroidism depression was the second most common associated co-morbidity, present in patients of primary headache disorder (26.1%) in migraine headache.

Hypertension was associated co-morbidity in 19.8% of total primary headache disorder patients with 19.0% in migraine headache.<sup>30</sup>

Anxiety and panic disorder were present in 16.3% and 12.6% of primary headache subjects<sup>30</sup>.

In our study, out of 267 patients of chronic migraine we found to have aura in 86 (32.2%) and rest 181 (67.8%) patients had no aura.

Among the 86 patients with aura, 39 (45.3%) were males and 47 (54.7%) were females, and, among the 181 subjects without aura, 44 (24.3%) were males and 137 (75.7%) were females.

Depression, anxiety and panic attack were the comorbidities found in our study with 53 (24.1%), 37 (16.8%) and 24 (10.9%) patients in each category.

In our study the most common medication used by the patients of MOH are analgesics i.e., 149 (67.7%), followed by Triptans 92 (42.3%),

Opioid was used by 47 (21.4%) and Ergots used by 9 (4.1%).

In our study, most of the patients i.e., 148 (67.3%) belonged to lower class followed by 39 (17.7%) to middle class and 33 (15%) to upper-class.

### Conclusion

- Chronic migraine is the second most common type of primary headache (43%) following tension type headache (57%).
- The prevalence of chronic migraine and medication overuse headache was found to be statistically significantly higher in females.
- Stress was the most common aggravating factor for primary headache disorder.
- Analgesic intake was the commonest medication overuse reported by the patients of medication overuse headache.
- Depression was the commonest comorbidity following by hypothyroidism among the patients of chronic migraine and medication overuse headache.

The aforementioned study revealed that the prevalence of various headache disorders among the general population and their associated comorbid illnesses is in consonance with most of the studied from rest of the world. Further studies are required to find out the causes and precipitating factor for primary headache disorders to avoid its adverse impact on the quality of life as well as unnecessary use of medications to alleviate headache.

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**Legend Table**

Headache	Frequency	Percentage
Chronic migraine	267	43.0
Other primary headache	354	57.0
Total	621	100

Gender	Chronic Migraine		Other primary headache		Total	
	No.	%Age	No.	%Age	No.	%Age
Male	83	31.1	120	33.9	203	32.7
Female	184	68.9	234	66.1	418	67.3
Total	267	100	354	100	621	100

Gender	Frequency	Percentage
Male	63	28.6
Female	157	71.4
Total	220	100

Age (years)	Male		Female		Total	
	No.	%Age	No.	%Age	No.	%Age
14-29	18	21.7	40	21.7	58	21.7
30-39	19	22.9	52	28.3	71	26.6
40-49	27	32.5	62	33.7	89	33.3
50-59	15	18.1	20	10.9	35	13.1

≥ 60	4	4.8	10	5.4	14	5.2
Total	83	100	184	100	267	100

Table 5: Prevalence of other primary headache as per age and gender

Age (years)	Male		Female		Total	
	No.	%Age	No.	%Age	No.	%Age
14-29	24	20.0	31	13.2	55	15.5
30-39	22	18.3	78	33.3	100	28.2
40-49	21	17.5	66	28.2	87	24.6
50-59	35	29.2	42	17.9	77	21.8
≥ 60	18	15.0	17	7.3	35	9.9
Total	120	100	234	100	354	100

Table 6: Prevalence of medication overuse headache as per age and gender

Age (years)	Male		Female		Total	
	No.	%Age	No.	%Age	No.	%Age
14-29	3	4.8	11	7.0	14	6.4
30-39	16	25.4	30	19.1	46	20.9
40-49	23	36.5	56	35.7	79	35.9
50-59	15	23.8	46	29.3	61	27.7
≥ 60	6	9.5	14	8.9	20	9.1
Total	63	100	157	100	220	100

Table 7: Showing family history of headache

Family History	Chronic migraine		Other primary headache		Total	
	No.	%Age	No.	%Age	No.	%Age
Father	70	26.2	52	14.7	122	19.6
Mother	114	42.7	109	30.8	223	35.9
Total	184	68.9	161	45.5	345	55.6

Table 8: Showing family history of medication overuse headache

Family History	Frequency	Percentage
Father	32	14.5
Mother	68	30.9
Total	100	45.5

Table 9: Symptomatology in chronic migraine patients

Symptomatology	Frequency	Percentage
Nausea and vomiting	202	75.7
Photophobia	175	65.5
Pulsating quality	173	64.8
Hemi cranial headache	171	64.0
Bilaterality	57	21.3

Table 10: Triggering factor for chronic migraine

Triggering factor	Frequency	Percentage
Stress	198	74.2
Physical exertion	136	50.9
Noise	60	22.5
Change in weather	29	10.9
Bright light	11	4.1

Table 11: Triggering factor for medication overuse headache

Triggering factor	Frequency	Percentage
Stress	121	55.0
Sleep deprivation	87	39.5
Smoking	35	15.9

Table 12: Relieving factor for chronic migraine

Relieving factor	Frequency	Percentage
Medicine	176	65.9
Sleep	83	31.1

Isolation	56	21.0
Applying cold	5	1.9

Table 13: Relationship of headache to menstrual period

	Chronic Migraine		Other primary headache		Total	
	No.	%Age	No.	%Age	No.	%Age
Yes	139	75.5	158	67.5	297	71.1
No	45	24.5	76	32.5	121	28.9
Total	184	100	234	100	418	100

Table 14

Parameter	Mean	SD	Min	Max
Age of onset (Years)	29.5	9.3	10	50
Duration of medication use (Months)	6.7	4.6	5	24

Table 15: Comorbidities in chronic migraine

Comorbidities	Frequency	Percentage
Depression	61	22.8
Anxiety	42	15.7
Panic attack	21	7.9
Hypertension	29	10.9
Hypothyroid	57	21.3
Diabetes	16	6.0

Table 16: Comorbidities in medication overuse headache

Comorbidities	Frequency	Percentage
Depression	53	24.1
Anxiety	37	16.8
Panic attack	24	10.9



Table 17: History of addiction in medication overuse headache

Medication overuse headache	Frequency	Percentage
Smoking	38	17.3
Snuff use	9	4.1
Recreational drugs	7	3.2

Table 18: Medication overuse in MOH

Medication overuse headache	Frequency	Percentage
Analgesics	149	67.7
Triptans	93	42.3
Opioids	47	21.4
Ergots	9	4.1

Table 19: Socioeconomic status in medication overuse headache patients

Socioeconomic Status	Frequency	Percentage
Lower Class	148	67.3
Middle Class	39	17.7
Upper Class	33	15.0
Total	220	100