# **Original Research Article**

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# Clinical profile and disability of children presenting with chronic daily headache in a tertiary care hospital

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## **ABSTRACT**

**Background:** The aim of the study is to analyses the clinical profile and disability of children presenting with chronic daily headache to the pediatric outpatient department.

**Methods:** Children and adolescents aged 5-15 years presenting to the paediatric outpatient department with chronic headache were included in the study after obtaining informed consent. Disability due to headache was assessed using the PedMIDAS scoring system. Headache severity was assessed using the visual analog scale for children above 6 years of age and Faces pain scale for children below 6 years.

**Results:** Thirty eight children and adolescents presenting with chronic headache were recruited into the study. Of these children and adolescents, 53% (20) were diagnosed with chronic migraine, 42% (16) children fulfilled the criteria for chronic Tension-type headache and 5% (2) had chronic migraine with aura. The mean Paediatric Migraine Disability Assessment score (PedMIDAS) used to assess the disability due chronic headache was 20.72.

**Conclusions:** Female gender and adolescent age groups are important risk factors for chronic daily headache. Most children and adolescents with CDH have mild disability as assessed using PedMIDAS scoring system.

Keywords: Clinical profile, Chronic daily headache, Disability, Migraine, Tension-type headache

#### INTRODUCTION

Headache is one of the most common reasons for visit to the paediatric outpatient department. Chronic daily headache (CDH) is defined as headache for at least 15 days a month for three or more months.<sup>1</sup>

Recurrent headache is defined as at least 3 episodes of headache in the past year.<sup>2</sup> In a school-based questionnaire study of Indian adolescents, 57.5% reported having recurrent headache.<sup>3</sup> Few data are available for prevalence of CDH in adolescents.

There are no data regarding the prevalence of CDH in younger school going children. A hospital-based study on children referred for evaluation of headache conducted for 11 years found that 3% of them satisfied the criteria for CDH.<sup>4</sup> Chronic migraine is an important cause of headache in both children and adolescents.<sup>5</sup>

Children with CDH experience significant functional disability, especially in school attendance and school performance.<sup>6-8</sup>

# **METHODS**

The observational descriptive study was conducted at the paediatric outpatient department of our institute.

The study was conducted over a 6-month period from July 2017 to December 2017. Prior clearance was taken from the Institutional ethical committee. Informed

consent was taken from the parents of the cases. All children aged 5-15 years attending the outpatient department with chronic headache were included in the study after taking informed consent from the parents. Headache due to secondary causes like fever, trauma, acute CNS infection and sinusitis were excluded from the study.

#### Data collection

Details from patients were collected using a pretested structured questionnaire. All the patients were evaluated by complete physical examination, ENT examination, and ophthalmological evaluation including fundus examination.

Table 1: Diagnostic criteria for migraine without aura.

S. No.			
A	At least five attacks fulfilling criteria B–D		
B.	Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)		
C.	Headache has at least two of the following four characteristics:		
	<ol> <li>unilateral location</li> <li>pulsating quality</li> <li>moderate or severe pain intensity</li> <li>aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs)</li> </ol>		
D.	During headache at least one of the following:		
	<ol> <li>nausea and/or vomiting</li> <li>photophobia and phonophobia</li> </ol>		
E.	Not better accounted for by another ICHD-3 diagnosis		

Table 2: Diagnostic criteria for migraine with aura.

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S. No.				
A.	At least two attacks fulfilling criteria B and C			
B.	One or more of the following fully reversible aura			
В.	symptoms:			
	1. visual			
	2. sensory			
	3. speech and/or language			
	4. motor			
	5. brainstem			
	6. retinal			
C.	At least two of the following four characteristics			
	1. at least one aura symptom spreads gradually			
	over $\geq$ 5 minutes, and/or two or more			
	symptoms occur in succession			
	2. each individual aura symptom lasts 5-60 min			
	3. at least one aura symptom is unilateral			
	4. the aura is accompanied, or followed within 60			
	minutes, by headache			
	Not better accounted for by another ICHD-3			
D.	diagnosis, and transient ischaemic attack has been			
	excluded			

Table 3: Diagnostic criteria for chronic migraine.

S. No.			
A.	Headache (tension-type-like and/or migraine-like) on $\geq 15$ days per month for $>3$ months and fulfilling criteria B and C.		
В.	Occurring in a patient who has had at least five attacks fulfilling criteria B-D for 1.1 Migraine without aura and/or criteria B and C for 1.2 Migraine with aura.		
C.	On $\geq$ 8 days per month for >3 months, fulfilling any of the following:		
	<ol> <li>criteria C and D for 1.1 Migraine without aura</li> <li>criteria B and C for 1.2 Migraine with aura</li> <li>believed by the patient to be migraine at onset and relieved by a triptan or ergot derivative</li> </ol>		
D.	Not better accounted for by another ICHD-3 Diagnosis		

International classification of headache disorder (ICHD III) criteria of International Headache Society (HIS) was used to diagnose the various headache subtypes.<sup>5</sup> The diagnostic criteria are given in Table 1 to 4.

The disability due to the headache was assessed using the Paediatric Migraine Disability Assessment (PedMIDAS) scoring system.<sup>9</sup>

Headache severity was assessed using the Visual Analog Scale (VAS) for children older than 6 years of age and Faces Pain Scale (FPS) for children less than 6 years. <sup>10,11</sup>

Table 4: Diagnostic criteria for chronic tension-type headache.

S. No.				
A.	Headache occurring on $\geq$ 15 days per month on average for $>$ 3 months ( $\geq$ 180 days per year), fulfilling criteria B-D			
B.	Headache occurring on $\geq 15$ days per month on average for $>3$ months ( $\geq 180$ days per year), fulfilling criteria B-D			
C.	At least two of the following four characteristics:			
	<ul> <li>bilateral location</li> <li>pressing or tightening (non-pulsating)</li> <li>quality</li> <li>mild or moderate intensity</li> <li>not aggravated by routine physical activity such as walking or climbing stairs</li> </ul>			
D.	Both of the following:			
	<ul> <li>no more than one of photophobia, phonophobia or mild nausea</li> <li>neither moderate or severe nausea nor vomiting</li> </ul>			
E.	Not better accounted for by another ICHD-3 diagnosis			

#### RESULTS

Of all the children presenting with headache, 38 fulfilled the criteria for CDH. The median age of children presenting with CDH was 13. Among the 38 children and adolescents, 45% (17) are male and 55% (21) are female (Table 6). The average duration of headache before presentation was 5 months. 53% (20) children were diagnosed with chronic migraine without aura, 42% (16) children had chronic Tension-type headache (TTH) and 5% (2) had chronic migraine with aura (Table 1). Only 4 children with migraine had family history of migraine. The mean score of the severity of headache assessed using the VAS was 6.7. Only 3 children were below 6 years of age. The mean score of headache severity assessed using FPS in these children were 4.

**Table 5: Distribution of various headache subtypes.** 

Chronic headache type	No.	%
chronic migraine without aura	20	53
chronic TTH	16	42
chronic migraine with aura	2	5
Total	38	100

The mean pedMIDAS score of children with chronic migraine with or without aura was 20.72. 12 (55%) of children had mild disability (score between 11 and 30), while 6 (27%) children had moderate disability (score 31 to 50) and 4 (18%) children had little or no disability (score 0 to 10).

Table 5: Clinical characteristics of children with chronic daily headache.

	ССТН	Chronic migraine with/ without aura		
Sex distribution				
Male	7	10		
Female	9	12		
Age at presentation				
≤ 6 y	3	0		
6-10 y	3	2		
>10 y	10	20		
Duration of headache before presentation				
≤3 mo	10	18		
>3 mo	6	4		
Ped MIDAS score				
little (0 to 10)	6	3		
mild (11 to 30)	10	13		
moderate (31 to 50)	0	6		
severe (>50)	0	0		

All children had normal ophthalmological evaluation. Two children had adenotonsillar hypertrophy and one child had nasal poly on ENT evaluation which have no etiological role in CDH. Neuroimaging was done in four children where it was indicated. All of them had normal imaging findings. All children with CDH were referred to

neurology clinic for maintenance therapy. Thirty-four children came to follow-up one month after starting therapy. Majority of them had significant improvement in PedMIDAS score one month after therapy.

## **DISCUSSION**

In this observational descriptive study of 38 children and adolescents with chronic daily headache, 53% (20) had chronic migraine, 42% (16) had chronic tension type headache while only 5% (2) had migraine with aura. Few studies are available regarding the epidemiology of CDH or chronic migraine in the adolescent population. There are no available data regarding the epidemiology of chronic daily headache in younger children.

In an epidemiological study almost 5% of general population (9% of women) were found to be suffering from CDH.<sup>12</sup> This study found equal proportion of people suffering from chronic tension type headache and chronic migraine. The prevalence of headache increases throughout childhood peaking at about 11 to 13 years in both sexes.<sup>13</sup> The prevalence of headache increases from 3% in children between 3-7 years to 8-23% in 11 year olds.<sup>14</sup> An Indian study on school going children (8-18 years) found the prevalence of headache to be 66.4% with higher proportion of Tension-type headache (50.99%) compared to migraine (26.98%).<sup>15</sup>

Ozge A et al in their school-based study found that the prevalence of migraine increases with increasing age.<sup>5</sup> The significant risk factors for the development of migraine include adolescent age, female gender and father and sibling headache histories.

Most of the studies show a female preponderance of CDH. A.16,17 In present study also there is a female preponderance (55%) of CDH. A school-based cohort study of adolescents found incidence of CDH to be common in adolescents (1.13 per 100PY's), migraine being more common than TTH. Female gender, acute family financial distress, obesity, higher headache frequency and baseline migraine were found to be independent risk factors for CDH. Female gender was a significant risk factor both chronic migraine and chronic tension type headache.

In our hospital-based study, chronic migraine with or without aura (58%, n=22) was found be more common than chronic TTH (42%, n=16). This is similar to findings of other clinical studies on CDH. In an epidemiology study of Primary Recurrent Headaches in Indian Adolescents, migraine was the most prevalent (17.2%) headache subtype followed by unspecified (14.9%) and tension type headache (11%).<sup>3</sup> Pacheva I et al found that chronic TTH (42.5%) was more prevalent than chronic migraine (32%) in an epidemiological study of school going children aged 7-17 yrs.<sup>16</sup> Whereas they also found that chronic migraine (46.8%) was more common than chronic TTH (29.6%) in clinical setting in

an hospital. This may be due to the reason that children with chronic migraine are more likely to visit the hospital because of the severity of the headache than children with chronic TTH.

The pedMIDAS score used to assess the disability due to migraine headache revealed mild disability in most children (55%) in the study. Stress was identified as a major factor in precipitating CDH in most children and adolescents involved in the study. A study on clinical characteristics of children and adolescents with CDH found that psychosocial factors were present either acutely or chronically during the period of increase in headache frequency. A review study found that CDH in children and adolescents is co-morbid with adverse life events, anxiety and depressive disorders. They also found that these factors contribute to initiating and maintaining CDH.

#### **CONCLUSION**

This study of chronic daily headache in hospital setting highlights the clinical profile and disability of CDH in children and adolescents. This study reveals that female gender and adolescent age group are more commonly affected by CDH. Also, in this study chronic migraine was found to be commoner than chronic TTH, which is similar to findings of other studies on western children. Also, most of the children and adolescents with chronic migraine in the study had mild disability due to the headache as assessed by pedMIDAS scoring system. There are no available data on the prevalence and clinical profile of chronic headache in Indian children and adolescents. More epidemiological studies are needed to determine the incidence and prevalence of CDH in Indian children and adolescents.

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Institutional Ethics Committee

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