

Early or Brief Migraine in Children or Adolescents – A Modification to International Headache Society Pediatric Migraine Diagnostic Criteria

M V Francis

Eye and Migraine Centre, Cherthala, Alleppey*

ABSTRACT

Published on 30th December 2008

Background: The International Headache Society (IHS) diagnostic criteria (International classification of headache disorders edition 1 and 2- ICHD 1 and 2) for headache in children and adults improved the accuracy of migraine diagnoses. However many short duration headaches in children, receive an atypical migraine diagnosis -probable migraines according to ICHD 2 published in 2004 or migrainous disorders in ICHD1(1988). This study is to diagnose children and adolescents who presented with such atypical migraines of less than one hour duration. Methods: 1402 children and adolescents aged 5 to 15 years who presented with recurrent brief activity affected head pain, were studied. Common migraine triggers and family history of migraine were recorded. Diagnosis was done according to ICHD2 and HIS(R) criteria.

Objective: To diagnose early or brief migraine episodes in children and adolescents and to propose a modification to pediatric migraine diagnostic criteria of the International headache society.

Design: Prospective study.

Setting: Eye and Migraine Centre, Cherthala and St Sebastians Visitation Hospital, Arthunkal, Kerala.

Results: All the children studied had moderate to severe headache lasting 5 to 45 minutes which forced them motionless during the attacks. At least one of the International Headache Society pediatric migraine diagnostic symptoms (nausea/vomiting/photophobia/phonophobia) was present in all. Two additional features were diagnostic of early or brief migraines in all of them- one of the parents or siblings was a migrainer and one of the common migraine triggers as a precipitating factor.

Conclusion: This study concludes that if duration of head pain is less than one hour, two additional features to be included to diagnose definitive migraine in children and adolescents are: one migraine parent or sibling and one of the common migraine triggers precipitating the head pain.

Keywords: Brief migraines, International headache society modification, Common migraine triggers, Family history

*See End Note for complete author details

INTRODUCTION

Prior to the publication of I H S Headache classification system in 1988,¹ several classifications were used for headache diagnosis in children. These dealt mainly with migraine and included the criteria established by Vahlquist,² Deubner³ and Prensky and Sommer.⁴ During the last 15 years, several studies^{5,6,7,8,9} have proposed revisions to the I H S criteria for children and adolescents with migraine. The major suggestions were to shorten the duration of the migraine attack to one hour and to remove hemicrania as a criterion since many children have headaches that are bitemporal or bifrontal. An additional suggestion was to require either photophobia or phonophobia instead of both.¹⁰ However, when I H S criteria and the various

modifications are applied, a sizable proportion of headache children with migrainous features fail to fully meet I H S migraine criteria and thus they receive an atypical migraine diagnosis (migrainous disorder or probable migraine). Many children report brief episodes of head pain which resemble migraine but these migraine episodes of less than one hour duration are not well documented. Little is known about the frequency of these head pain attacks in the childhood and adolescent age groups. Moreover there are overlapping statements in the diagnostic criteria of migraine and tension type headaches- number of episodes, duration of pain, bilaterality, moderate intensity and either phonophobia or photophobia- all these features are common for making both diagnoses.

Corresponding Author:

Dr. M V Francis, MS, Chief Consultant, Eye and Migraine Centre, Cherthala, Alleppey 688527.
Phone: 0478 2821091. E-mail: mvfrancis@rediffmail.com

Present study is undertaken to document early or brief migraine episodes lasting less than one hour duration in children and to suggest clear-cut differentiating features to distinguish migraine from tension type headaches and to propose a modification to pediatric migraine (without aura) diagnostic criteria.

METHODS

9620 children and adolescents aged 5 to 15 years who presented with recurrent short duration headpain at The Eye and Migraine centre and St Sebastians Visitation Hospital, Arthunkal in Cherthala. Alleppey were studied prospectively, spanning 4 years. Patients attending the free eye and headache camps were also included. The inclusion criteria were recurrent headpain (minimum 5 episodes) of less than one hour duration, activity affected (motionless) during the headpain episodes, one associated feature (phonophobia, photophobia, nausea or vomiting), one common migraine trigger precipitating the attacks and one parent or sibling suffering from IHS Migraine (with or without aura) headaches. Information regarding the duration, severity, quality and location of headpain and behaviour during headpain episodes were also recorded. Children with typical IHS tension type headaches and other headaches of eye, ENT and dental origin were excluded so also fever and other systemic and organic illnesses.

RESULTS

1402 children and adolescents fulfilled the inclusion criteria to diagnose brief migraine episodes of less than one hour duration (5 minutes to 45 minutes). There were 842 girls and 560 boys. The headache characteristics, common migraine triggers and family history of 1402 children are given below. Headache characteristics

Duration: 5 to 15 minutes-112 (8%), 15 to 30 minutes - 211 (15%), 30 to 45 minutes - 1079 (77%)

Location: always unilateral 448 (32%), bilateral 785 (56%), unilateral spreading to bilateral 169 (12%)

Quality: pulsating 518 (37%), non pulsating 617 (44%), just ache (not able to explain) 267 (19%)

Behaviour during attack: sit quiet 588 (42%), lie down (with or without pressing on temples) 449 (32%), applying balm and sleep off 365 (26%)

Associated features: nausea 252 (18%), vomiting 196 (14%), phonophobia 883 (63%), photophobia 798 (57%)

Common migraine triggers - exposure to sunlight 1290 (92%), travelling by bus 673 (46%), strenuous physical exercises like dancing and cycling 590 (42%), sleep disturbances 336 (23%), missing meal at the right time 296 (21%). 1010 (72%) reported more than one trigger. Anxiety situations like examinations and funerals were another significant common trigger but omitted in this study, not to confuse with tension type headaches.

Family history: mother - 1148 (82%), father - 155 (11%), siblings or second degree relatives like aunts - 99 (7%)

DISCUSSION

In children and adolescents, migraine tends to be of shorter duration. The duration of head pain was reported to be less than 2 h in 11-81 % and less than one hour in 8 to 25%.^{12,13} Similarly Metsahonkala⁶ reported that when duration was omitted as a criterion the prevalence of migraine increased by 25.9%. In fact Gherpelli and colleagues¹⁴ found that entirely excluding duration criterion increased the sensitivity without decreasing the specificity of pediatric migraine diagnosis. This study supports the suggestion of decreasing the criterion on the minimal duration of head pain to less than one hour for migraine in children.

In this study, 1402 children reported recurrent activity affected head pain lasting 5 to 45 minutes with one of the associated diagnostic migraine features of nausea/vomiting/phonophobia/photophobia. IHSR recommends either phonophobia or photophobia for diagnosing migraine in young age group. This study is also based on either phonophobia or photophobia for migraine diagnosis, but many children were complaining of both when repeatedly questioned and the behaviour during head pain episodes were also suggestive of both (switching off Television and radio, closing the door and putting off lights, covering the head with clothes or blanket while lying down etc). All of them were getting the head pain attacks when exposed to one or more of the common migraine triggers^{9,15} in this region. Exposure to sunlight and traveling by bus were the most common triggers. Mortimer¹³ et al reported that a migraine trigger could be identified in 44.4 % of the children aged 8 -11 years. In children more than 8 years tiredness, exercise, noise, glaring light, missing a meal were all reported as migraine precipitants by different studies. This is the first study to document common migraine triggers in a region to aid in the migraine diagnostic work up. Majority of the children and their parents

reported same common triggers with exposure to sunlight precipitating migraine in nearly 90% of them. Family history revealed mother (82%), father or one first or second degree relative suffering from IHS migraine with or without aura. Migraine is a familial disorder, although disagreement exists regarding the mode of inheritance. If one looks at the families of children with migraine, 50 to 90% of relatives also have migraine. Parents must be questioned in detail to find out migraine symptoms. Most of them considered their headaches are different from what their children are getting. The diagnosis as told to them by their medical practitioners are - sinus, low (especially if dizzy spells are associated with headaches) or high blood pressure, tension, spectacle related or functional. Therefore leading questions like whether they get

headache when exposed to sunlight, bus traveling or other migraine triggers must be specifically asked to unravel migraine symptomatology.

This study shows that reducing the time duration to less than one hour would considerably increase the number of children diagnosed with migraine. One can argue that this time reduction might increase the overlap between the diagnostic criteria of migraine and tension type headaches but it can be easily overcome by adding one common migraine trigger and one family member suffering from IHS migraine to the present diagnostic features. One cannot consider any other diagnosis in these children. Other short duration activity affected headaches like cluster headaches and paroxysmal hemicranias, though reported in children, are very rare.

DIAGNOSTIC CRITERIA of

Migraine without aura

IHS R (Revised) or ICHD 2

5 attacks

Duration 1 to 48 hours

Pain characteristics (2 of 4)

Either bilateral or unilateral

Pulsating quality

Moderate to severe intensity

Aggravated by routine activities

Autonomic symptoms (associated features)

(1 of 4) Nausea / vomiting / Photophobia / phonophobia

(ICHD 2 recommends both photophobia and phonophobia for diagnosis and for untreated duration of less than 2 hours, corroboration by prospective diary studies. No significant differences between ICHD 1 and 2 in migraine without aura diagnostic criteria)

Episodic tension type headache (ICHD 2)

10 episodes

Duration -30 minutes to 7 days

2 of 4 pain characteristics

Bilateral location

Non pulsating quality

Mild or moderate intensity

Not aggravated by routine physical activities symptoms or associated features

Both of the following

No nausea or vomiting

No more than one of phonophobia or photophobia

Many headache specialists all over the world have accepted the concept that primary headache is a spectrum, where migraine is at one extreme and pure tension type headache is at the other, with most patients having both at times. Another opinion is that they are both the same disease when it is mild it is tension type headache and when it gets bad it is migraine¹⁶

A critical analysis of the IHS diagnostic criteria for migraine and tension, exposes more than one overlapping statements. In this study majority of the children presented with bilateral(68%) non throbbing (63%) headaches (this fulfills two diagnostic pain features for tension type headaches) and with the duration of more than 30 minutes and one associated feature (phonophobia or photophobia) one tends to diagnose episodic tension type headaches in these children. At the same time migraine too can be diagnosed because of moderate to severe intensity with activity affected head pain and one associated feature. In these clinically confusing situations the following three features clearly differentiate migraine from tension type headaches. 1) activity affected (motionless) head pain 2) one common migraine trigger precipitating pain 3) one family member suffering from IHS migraine (definite or probable).

Thus this study shows that both migraine and tension are different and can be distinguished easily from a thorough clinical history. Therefore it is proposed that brief or early migraine attacks to be diagnosed in children and adolescents with less than one hour duration and must be differentiated from episodic tension type headaches. IHS R and ICHD2 to be modified as - if duration of head pain is less than one hour, two additional features to be added to diagnose

migraine in children.

1. One common migraine trigger precipitating the attacks
2. One parent or sibling (first or second degree relative) suffering from I H S migraine.

END NOTE

Author Information

Dr. M V Francis, MS, Chief Consultant,
Eye and Migraine Centre, Cherthala,
Alleppey 688527. Phone: 0478 2821091.
E-mail: mvfrancis@rediffmail.com

Conflict of Interest: None declared

Cite this article as: M V Francis. Early or Brief Migraine in Children or Adolescents – A Modification to International Headache Society Pediatric Migraine Diagnostic Criteria. Kerala Medical Journal. 2008 Dec 30;1(2):45-48

REFERENCES

1. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Headache Classification Committee of the International Headache Society. *Cephalalgia*. 1988;8 Suppl 7:1-96.
2. Vahlquist B. Migraine in Children. *International Archives of Allergy and Immunology*. 1955;7(4-6):348-55.
3. Deubner DC. An epidemiologic study of migraine and headache in 10-20 year olds. *Headache*. 1977 Sep;17(4):173-80.
4. Prensky AL, Sommer D. Diagnosis and treatment of migraine in children. *Neurology*. 1979 Apr;29(4):506-10.
5. Seshia SS, Wolstein JR. International Headache Society classification and diagnostic criteria in children: a proposal for revision. *Dev Med Child Neurol*. 1995 Oct;37(10):879-82.
6. Metsähonkala L, Sillanpää M. Migraine in Children—An Evaluation of the IHS Criteria. *Cephalalgia*. 1994 Aug 1;14(4):285-90.
7. Mortimer MJ, Kay J, Jaron A. Epidemiology of headache and childhood migraine in an urban general practice using Ad Hoc, Vahlquist and IHS criteria. *Dev Med Child Neurol*. 1992 Dec;34(12):1095-101.
8. Wöber-Bingöl C, Wöber C, Wagner-Ennsgraber C, Karwautz A, Vesely C, Zebenhoizer K, et al. IHS criteria for migraine and tension-type headache in children and adolescents. *Headache*. 1996 Apr;36(4):231-8.
9. Francis MV. Brief migraine episodes in children and adolescents—a modification to International Headache Society pediatric migraine (without aura) diagnostic criteria. Springerplus [Internet]. 2013 Mar 4 [cited 2015 Oct 1];2.
10. Winner P, Martinez W, Mate L, Bello L. Classification of pediatric migraine: proposed revisions to the IHS criteria. *Headache*. 1995 Aug;35(7):407-10.
11. Olesen J, Steiner TJ. The international classification of headache disorders, 2nd edn (ICDH-II). *J Neurol Neurosurg Psychiatry*. 2004 Jun 1;75(6):808-11.
12. Maytal J, Young M, Shechter A, Lipton RB. Pediatric migraine and the International Headache Society (IHS) criteria. *Neurology*. 1997 Mar;48(3):602-7.
13. Mortimer MJ, Kay J, Jaron A. Childhood migraine in general practice: clinical features and characteristics. *Cephalalgia*. 1992 Aug;12(4):238-43; discussion 186.
14. Gherpelli JL, Nagae Poetscher LM, Souza AM, Bosse EM, Rabello GD, Diament A, et al. Migraine in childhood and adolescence. A critical study of the diagnostic criteria and of the influence of age on clinical findings. *Cephalalgia*. 1998 Aug;18(6):333-41.
15. M V Francis Modified diagnostic low chart to differentiate episodic tension type headaches from episodic migraines in children and adolescents. *Journal of headache and pain* 2004 vol5 No 1 page 59 (abstract of oral presentation in Vienna in the VI international congress on headache in children and adolescents)
16. Lewis DW, Winner P. Migraine, migraine variants and other primary headache syndromes. In: Winner P, Rothner AD, editors. *Headache in children and adolescents*. Hamilton: B C Decker Inc; 2001. pp. 60-86.