Original Research Article

A study on the clinical profile and treatment outcome of childhood migraine

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Abstract

Non-pharmacological measures that have been proven effective in migraine relief include biofeedback programs and relaxation training, aiming to reduce both the frequency and severity of migraine attacks. Avoiding known triggers also maybe practised if possible. Children of the age group of 3-15 years who had attended the OPD/IP with complaints suggestive of primary head ache satisfying ICHD –III criteria were included in the study. The age group was chosen above 3 years so as to ensure the children to reliably communicate their symptoms to care givers. Out of forty, 26 of them received migraine prophylaxis medication, of which 23 had symptom relief with medication (88.4%). 14 patients opted for non-pharmacologic interventions like avoidance of trigger factors, of which only 4 had complete symptom relief on follow up (28.6%). Outcome with prophylaxis is statistically significant (p value <0.001).
Key Word: Migraine, ICHD –III Criteria, Clinical Profile

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INTRODUCTION

Migraine is the most frequent type of recurrent head ache in children that is brought to the attention of parents and primary care providers, but is often under diagnosed and under treated[1]. Compared to adults, pediatric migraine is shorter in duration and can have bilateral, bifrontal location. Migraine can be associated with an aura which can be typical (visual, sensory, dysphasic) or atypical (hemiplegic)[1]. Management of migraine can be divided into acute management and prophylaxis. Acute management is with analgesics[2], antiemetics[3], ergot derivatives and triptans[4]. The usual drugs used for prophylaxis are beta blockers[4], antihistaminic drugs like cyproheptadine[4], tricyclic antidepressants like amitryptiline[4] and antiepileptic drugs like sodium valproate and topiramate[5]. Calcium channel blockers like cinnarizine[6], on abotulinumtoxin A[4]. The indications of prophylaxis is outlined by US head ache consortium[7] Non-pharmacological measures that have been proven effective in migraine relief include biofeedback programs and relaxation training, aiming to reduce both the frequency and severity of migraine attacks. Avoiding known triggers also maybe practised if possible.

This study aims to bring out the clinical profile of migraine in childhood and try to find out the effectiveness of pharmacological intervention in controlling migraine attacks.

AIMS

1. Describe the clinical profile of migraine in children.
2. Follow up the response to treatment for a minimum period of 6 months

METHODOLOGY

Study period: 12 months (November2016- October 2017)
Study design: prospective observational study
Study setting: paediatric OP, Paediatric ward and paediatric neurology OPD of Pushapagiri Institute of Medical Sciences and Research Centre, Tiruvalla, Kerala

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Subjects and method: Children of the age group of 3-15 years who had attended the OPD/IP with complaints suggestive of primary head ache satisfying ICHD –III criteria were included in the study. The age group was chosen above 3 years so as to ensure the children to reliably communicate their symptoms to care givers.

Inclusion criteria:

1. Children age group 3-15 years with primary head ache
2. Frequent symptoms/other indication for prophylaxis as per standard guidelines

Exclusion criteria:

1. Those outside the age range
2. Any possibility of secondary head ache
3. Those already getting treatment

Complete history was taken in these children including family history and recorded in the proforma. Detailed physical examination was done and necessary investigations were done to rule out any secondary causes of head ache if indicated.

Primary head ache was defined satisfying ICHD –III (International Classification of Headache Disorders) criteria

1. Head ache attacks lasting 4-72 hours
2. Head ache has at least 2 of the following 4 characteristic
3. Unilateral location
4. Pulsating quality
5. Moderate/severe pain intensity
6. Aggravation by or causing avoidance of routine physical activity
7. During head ache, at least 1 of the following
8. Nausea/vomiting
9. Photophobia/phonophobia

Children requiring prophylaxis depending on standard guidelines only was included in the study.

US headache consortium guidelines: circumstances warranting preventive medications in migraines

1. Recurring migraine that significantly interferes with the patient's daily routine despite acute treatment (eg, two or more attacks a month that produce disability that lasts at least 3 days or headache attacks that are infrequent but produce profound disability);
2. Failure, contraindication to, or troublesome side-effects from acute medications;
3. Overuse of acute medications;
4. Special circumstances, such as hemiplegic migraine or attacks with a risk of permanent neurological injury;
5. Very frequent headaches (more than two a week), or a pattern of increasing attacks over time, with the risk of developing medication overuse headache or rebound with acute attack medicines;
6. Patient preference, i.e, the desire to have as few acute attacks as possible

The enrolled children were followed up for a minimum period of 6 months to find out the requirement of prophylactic medications and the response to such medications. Outcome is defined as complete recovery of symptoms with treatment during the follow up period. Data was entered in a pre-structured proforma. The necessary data was finally entered in Microsoft excel worksheet and statistical methods applied to find out any significant correlation with patient characteristics, clinical type of migraine and treatment response

RESULTS

Total number of children included in this study was forty. Out of this 22 male (55%) and 18female(45%) children with male: female ratio being 1.2:1.Migraine without aura(50%),migraine with typical aura(visual aura) (12.5%),migraine with brainstem aura(27.5%),abdominal migraine(10%). Out of forty children 4 had chronic migraine(10%). The mean age of onset being 9yrs3months. The most common symptom other than primary headache (ICHD-III criteria)being vomiting(35%), nausea(32%), photophobia(27%), phonophobia(15%)visual aura(12.5%), vertigo(12.5%), abdominal pain(10%), diplopia (7.5%), ataxia(2.5%), dysarthria (2.5%), transient loss of consciousness (2.5%). 17children had a positive family history (42.5%). Out of forty, 26 of them received migraine prophylaxis medication, of which 23 had symptom relief with medication(88.4%). 14 patients opted for non pharmacologic interventions like avoidance of trigger factors, of which only4 had complete symptom relief on follow up (28.6%).Outcome with prophylaxis is statistically significant (p value <0.001). Among the prophylactic medications, use of flunarizine showed improvement in symptoms than other agents (propranolol, to piramate, divalproate), but the difference was not statistically significant.

Table 1: Clinical classification of children with migraine

Type of migraine	No. of patients (n=40)	%
Migraine without aura	20	50%
Migraine with typical visual aura	5	12.5%
Migraine with brainstem aura	11	27.5%
Abdominal migraine	2	5%
Chronic migraine	2	5%

Table 2: Common accompanying symptoms other than head ache

Symptoms	No. of children	%
Vomiting	14	35%
Nausea	13	32.5%
Photophobia	11	27.5%
Phonophobia	6	15%
Visual aura	5	12.5%
Vertigo	5	12.5%
Abdominal pain	4	10 %
Diplopia	3	7.5%
Ataxia	1	2.5%
Dysarthria	1	2.5%
Transient loss of consciousness	1	2.5%

Table 3: Symptom relief

Intervention	No of responders	Non responders
Pharmacologic prophylaxis (n=26)	23 (88.4%)	3 (11.5%)
Non pharmacologic methods (n=14)	4 (28.6%)	10 (71.4%)

P <0.001 statistically significant

DISCUSSION

Migraine is an idiopathic headache disorder with a high prevalence globally[8]. Head ache can be preceded by premonitory symptoms known as aura like fatigue, mood changes, yawning, visual and sensory disturbances. Uncommon symptoms can be weakness, loss of consciousness etc. As observed in other studies[9], our study also found similar results. The goals of acute treatment are to treat each attack as it occurs and allow the return to normal activities. This type of treatment is needed by all patients. Analgesics and antiemetics were advised to all children to manage acute attacks of migraine head ache. All the children included had indications for prophylactic medications as per US headache consortium guidelines. Propranolol, flunarizine, topiramate and divalproate were used as prophylactic medication. The choice of drug was according to preference of treating doctor considering other factors. n adult population, beta-blockers (especially propranolol) have shown good efficacy in some studies[10], but in children there have been inconsistent results in other studies. When introducing propranolol, heart rate and orthostatic pressure was monitored every three months and each time when the dose was increased. The starting dose was 1mg/kg divided in three doses without exceeding 4 mg/ kg per day[9]. Flunarizine is a calcium channel blocker used extensively for prophylaxis of migraine at dose of 5mg/day[9]. Valproate is an anticonvulsant, which is effective in migraine prophylaxis. The starting dose is 10 to 15 mg/kg divided in two daily doses. This dose can be increased with 15 mg/kg increments reaching a maximum of 60 mg/kg/day[9]. Topiramate is a relatively new antiepileptic which can be used for migraine prophylaxis. The starting dose in children with migraine is 15mg/day. The dose may be gradually increased to 2-3mg/kg/day[9]. No one developed any significant adverse effects in the given doses and so change of medication was not needed in any patients in the present study, on follow up. Even though non pharmacologic methods like avoidance of trigger factors and psychological support have some influence in symptom control of migraine, as per our study, patients with frequent symptoms do poorly on non pharmacologic methods alone. Among those who used pharmacologic intervention for prophylaxis 88.4% responded on 6 months' follow up, whereas among those who opted for non pharmacologic methods only 28.6% responded. His observation was statistically significant.

LIMITATIONS OF STUDY

- Small sample size
- Short follow up period
- Not randomised or blinded

CONCLUSIONS

Commonest type of migraine in children is migraine without aura Those with frequent symptoms significantly benefit from prophylactic medications compared to non pharmacologic interventions.

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