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Medi Quest BRS Hospital

A monthly News letter from BRS Hospital

MIGRAINE IN CHILDREN

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Migraine is the most common primary headache that occurs in children and adults.

It is characterized by headache that is throbbing in character and accompanied by symptoms such as photophobia, phonophobia, nausea and vomiting

Clinical Features:
Episodic migraine is a disorder of recurrent attacks while chronic migraine is headache that occurs > 15days / month for > 3months with > 8days /month meeting criteria for migraine.
Migraine attacks consists of a cascade of events that occurs a period of hours to days
Migraine has been traditionally differentiated into
Migraine with Aura
Migraine without Aura

Migraine without Aura: Goes through the following phases
a) premonitory phase
b) headache phase
c)recovery phase

Migraine with aura : Aura is the additional phase . Aura is present before or appears with the headache.

Premonitory phase :
Symptoms appear hours or even a day before headache. It is characterized by euphoria, fatigue , irritability, social withdrawal, food craving, urinary or bowel changes, neck stiffness.

Migraine Aura: Aura must be for a minimum of 5minutes and may last up to 60minutes
When it occurs it is mostly visual

The Commonly occuring Visuals auras are
a) Scotomas
b) Scintillating scotomas – appearing as Zig Zag lines typically black and white and crescent shape
The most typical duration of aura is 5 - 60minutes . A migraineur who sees a flash of light for a few seconds would not be considered to have aura

A visual representation of Scotoma

Visual impression of Scintillating Scotoma with Fortification Spectra

Sensory Aura - Manifests as a tingling in one limb or one side of face
Tingling may be followed by numbness
Dysphasic aura – range from wording difficulty to frank dysphasia

Motor Aura : The limbs on one side become weak classified as hemiplegic migraine

Aura and Headache :Can be present before, during and after headache

Most commonly headache is already present during aura

Headache phase :
Headache is throbbing or pulsatile in character

In children headache is more often bifrontal, bitemporal or generalized than unilateral

Headache is associated with nausea, vomiting and sensitivity to light and sound

Cranial autonomic symptoms occur in headaches up to 70% . They include, Rhinorrhoea / Nasal congestion, Lacrimation , conjunctival injection, facial sweating / flushing

It is important to be aware of these symptoms to avoid an erroneous diagnosis of sinus headache

Migraine postdrome :
Once the migraine headache resolves the child may experience a post dromal phase during which patients feel exhausted or drained

Diagnosis :
The diagnosis of migraine is made on basis of a careful history and neurologic examination, the child is normal between episodes.

The child should have normal general, physical and neurologic examination. Children with established history (more than 6months) of typical intermittent headache and a normal examination usually do not need Neuro imaging.

Laboratory evaluation:
The indication for Neuro imaging have been covered in the earlier bulletin
Laboratory testing is rarely helpful

EEG is not indicated in the routine evaluation of headache. A EEG is performed if seizures are suspect

Differential Diagnosis :
The differential diagnosis are the other causes of primary headache

Tension headache type headache,Trigeminal autonomic cephalgias (Cluster headache) and secondary headache.
The differential diagnosis for aura is TIA , Seizure, syncope and vestibular disorder.

The symptoms of TIA and Migraine are reversible
TIA has sudden onset of symptoms rather than gradual progressive spread of one aura symptom after another
TIA is less likely to have visual symptoms ,vomiting photophobia and phonophobia

Rarer forms of Migraine
Basillar Migraine : Vertigo, dizziness, vision change double , lack of co-ordination, ataxia, diplopia pain headache is in the occipital region. The symptoms arise from Brainstem .

Hemiplegic Migraine:
The primary feature is the presence of moto weakness as a manifestation of aura

Vestibular Migraine
Associated with dizziness

Retinal Migraine:
Associated with sudden loss of vision or the loss of perception of bright light in one eye only

Childhood periodic syndromes:
There are a group of potentially related syndromesthat occur in increased frequency in children with migraine

They include
1. Cyclical vomiting syndrome (May respond to migraine specific therapies)
2. Abdominal Migraine

Abdominal Migraine:
Migraine without the headache

Mid abdominal pain with pain free periods between attacks

Pain dull, moderate to severe persists for 1-72hours
To meet criteria of abdominal migraine child must complain at the time of abdominal pain of at least 2 of the following:

* Anorexia
* Nausea
* Vomiting
* Pallor

Acute treatment of Migraine in children

General principles of treatment
• Educate child and family about migraine headache, the triggering factors, clinical features and help evaluate effectiveness of treatment.

The medications useful in acute treatment of migraine:
1. Paracetamol
2. NSAIDS – Iburprofen / Naproxen

3. Triptans
4. Antiemetics

Medication over use should be avoided by limiting specific analgesics to no more than 2days/week

Acute treatment of Migraine

Mild to moderate attacks

Paracetamol 15mg/kg Max 1gm Not more than 3doses in 24hrs (can repeat in 2-4hours)

Ibuprofen 10mg/kg Not more than four doses should be given in 24hrs

Early use of antiemetic promethazine 0.25 to 0.5mg /kg Q6H for children who have nausea and vomiting

Moderate to severe attacks (not responding to analgesics)

Commence Triptans - Sumamtriptan
Sumatriptan Dosing
> 10years > 50kg
Start at 25mg repeat in 2hrs if needed can go up to adult dose of 100mg

6-10years < 50kg use 25mg Sumamtriptan

Combination Triptan + Naproxen 5mg/kg can also be tried

To avoid Medication Overuse Headache limit use of analgesic medication to 10days a month or 15days in case NSAID use

Note: Extreme caution should be used in migraine with brainstem aura and in hemiplegic migraine in prescribing Sumatriptan because of the theoretical concern about aggravating symptoms that may be caused by vasospasm

Emergency settings

In children who have unusually severe or long lasting attacks who fail to improve with oral analgesics or Triptans the following measures can be tried

1. IV Fluids 20ml/kg of NS given with IV Prochloperazine (0.15mg/kg) to a maximum dose of 10mg followed by IV Ketorolac 0.5mg /kg to a maximum of 30mg (In India IM preparation available). Pre treatment with diphenhydramine may prevent potential dystonic reaction due to prochloperazine

2.Sumatriptan 3-6mg administered by SC injection

Preventive treatment of Migraine

Lifestyle measures
- Good sleep hygiene
- Exercise
- Routine meal schedule
- Adequate fluid intake
- Avoidance of migraine trigger

Indication for preventive therapy of migraine

* Frequent or long lasting migraine headache > 1headache /week > than one debilatating headache/month
* Failure and contra indication to acute therapies
* Risk of medication overuse headache

Prophylactic agents should be give for 4-6months at an adequate dose and tapered over several weeks

Evidence in adult studies has demonstrated that persistent frequent headache foreshadow an increased risk of progression decreased responsiveness and refractoriness.

The following drugs have been and as preventive therapy in Migraine

1.Flunarazine a calcium channel blocking agent is considered to be the most effective

Flunarazine is typical started at 5mg orally daily and increased after 1month to 10mg daily with a month off the drug every 4-6months

2.Amitriptyline 1mg/kg at dinner time
This dose is to be reached slowly over week with increase every 2weeks till goal is reached
Adverse effects of Amitriptyline
- Sleepiness
- Weight gain
- Prolongation of QT interval
- withdraw if patient complains of Tachycardia or irregular heart beat

Commence at 0.25mg to 0.5mg/kg and advance to usual dose of 1mg / kg

Dosing Max dose 2mg/kg or 100mg daily

3. AED`s Valproate, Topiramate and Levetiracetam have demonstrable efficacy in adults
- Valproate dose 10mg/kg orally twice a day
- Levetiracetam > 12years 125mg to 250mg bd
- Topiramate – widely used in Migraine prophylaxis

In adolescents 50mg BD was superior to 25mg BD
However the dose to be reached slowly to minimize cognitive slowing associated with Topiramate use.
Additional side effects include weight loss, paresthesia, kidney stones
Dosing 1mg – 2mg/kg/day
For children aged 12years and above commenced with 25mg once daily at night for one week and dosage increased by 25mg/day increments up to 100mg/day
4.B Blockers- Propranolol
Effective for a mixed type of migraine started at

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1mg/kg in three divided dose and titrated up to maximum dose of 3mg/kg

Heart rate and Orthostatic blood pressure should be monitored every 3months or after increasing the dose

The heart rate must be > 60 beats /min after 1minute of exercise
Dose 1mg/kg/day in 3 divided doses maximum 3mg/kg/day

5. In very young children
Cyproheptadine can be used. Typical dose is 0.1 to 0.2mg /kg orally twice a day

Nutraceuticals
Have became popular over the past few years

1.Riboflavin doses ranging from 25-400mg is most widely studied with good results
Side effects are minimal and include bright coloured urine, diarrhea and polyuria

2.Co enzyme Q 10 Supplementation at 1-2mg/kg/day

Emerging Therapy
Ona botulinum Toxin A is the first medication
FDA approved for chronic migraine in adults
Use in children is considered off label

Behavioral intervention:
Cognitive behavioral therapy, including bio feedback training and fixation techniques, may be beneficial in reducing headache symptoms.

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