Pediatric Migraine

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Disclosures

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Objectives

- List clinical criteria for migraine diagnosis.
- Describe how migraine can manifest from infancy to adolescence.
- Initiate treatment for migraines with nutraceuticals.
- Initiate treatment for migraines with medications.

Migraine Without Aura Criteria

ICHD-3 Classification

- At least 5 headaches
- Lasts more than 1 hour
- Moderate to severe
- Pulsatile quality
- Bifrontal or bitemporal
- Associated with nausea and vomiting and/or sensory phobias
- Worsens with activity

Pediatric Migraine Nuances

- Pediatric migraine can be **bilateral**
- Severity can be **low to moderate**
- It can be as short as **1 hour**
- It can be **occipital**

- When these deviations from the original migraine criteria were included, the **sensitivity of the criteria increased from 71% to 84%.**

Use of the ICHD-II criteria in the diagnosis of pediatric migraine

Andrew D Hershey [1], Paul Winner, Marielle A Kabbouche, Jack Gladstein, Marcy Yonker, Don Lewis, Eric Pearlman, Steven L Linder, A David Rothner, Scott W Powers

Pediatric Migraine

Migraine and childhood periodic syndromes in children and adolescents

Amy A Gelfand [1]

Migraine is a primary headache disorder that is inherited and can manifest without headache in the pediatric population.

- Colic
- Benign paroxysmal torticollis
- Benign paroxysmal vertigo of childhood
- Cyclical vomiting syndrome
- Abdominal migraine
- Classic migraine headache

Colic

Before the headache: infant colic as an early life expression of migraine

Amy A Gelfand [1], Katherine C Thomas, Peter J Goadsby

- Infant colic is characterized by excessive and often inconsolable crying in an otherwise healthy and well-fed infant.
- A survey study of ~1400 babies and found that mothers with migraine are more likely to have a baby with colic.
- A smaller multicenter study showed that the presence of migraine in children and adolescents between ages of 6 to 18 years was associated with history of infantile colic.
- A metanalysis of 7 studies showed migraine was associated with increased incidence of infantile colic while tension headache was not.

Benign Paroxysmal Torticollis of Infancy

- Benign paroxysmal torticollis (BPT) is characterized by attacks of head tilt associated with vomiting, irritability, and/or ataxia in early childhood.
- 19% of children with BPT may develop migraine or other episodic syndromes associated with migraine.
- Children with BPT often have a family history of migraine,and mutations in genes associated with familial hemiplegic migraine including CACNA1A, PRRT2, and ATP1A27 have been identified in families with BPT.

Benign paroxysmal migraine variants of infancy and childhood: Transitions and clinical features

Jacob Brodsky [1], Karampreet Kaur [2], Talia Shoshany [3], Sophie Lipson [4], Guangwei Zhou [5]

Benign Paroxysmal Vertigo of Childhood

- Benign paroxysmal vertigo (BPVC) presents as sudden attacks of vertigo, accompanied by inability to stand without support, and lasting seconds to minutes.
- A prospective study of BPVC showed 27 patients who had a higher diagnosis of migraine in those with history of this migraine precursor.
- Small study with 15 year follow up found that average age of onset was 3 years old and spontaneous resolution occurred around 5 years of age.
- Prevalence of migraine in the same population of patients was higher in those patients with BPVC.

Benign paroxysmal vertigo of childhood

Joshua Gurberg [1], Kinga K Tomczak [2], Jacob R Brodsky [3]

Cyclical Vomiting Syndrome

- Cyclic vomiting syndrome is characterized in young infants and children by repeated stereotyped episodes of intense nausea and vomiting, usually stereotypical in the individual with predictable timing of episodes.
- Attacks may be associated with pallor and lethargy.
- There is complete resolution of symptoms between attacks.
- CVS attacks respond well to migraine abortive therapy such as sumatriptan and rizatriptan.
- Frequency of attacks can be decreased with migraine prophylaxis such as amitriptyline, cyproheptadine, and propranolol.

Cyclic vomiting syndrome: A narrative review and guide to management

Katja Kovacic [1], B U K Li [1]

Abdominal Migraine

- Abdominal migraine presents in childhood with repeated stereotyped episodes of unexplained abdominal pain, attacks of moderate to severe midline abdominal pain.
- It is associated with nausea and vomiting
- Lasts 2-72 hours with normality between episodes
- Headache does not occur during these episodes.
- Also called “chronic abdominal pain, functional abdominal pain, functional dyspepsia, irritable bowel syndrome, and functional abdominal pain syndrome.”
- Abdominal migraine respond well to migraine abortive therapy such as sumatriptan and rizatriptan.
- Frequency of attacks can be decreased with migraine prophylaxis such as amitriptyline, cyproheptadine, and gabapentin.

Abdominal migraine and cyclical vomiting syndrome

Sanjay Cheema [1], Manjit Matharu [2]

Lifestyle Modifications

- Increase water intake: 4 to 8 cups of water a day (1 oz per kg)
- Limit caffeine – no more than 1-2 servings a week
- Optimize sleep – need 8 to 10 hours a night, 9-11 for prepubertal kids
- Reduce stress – counseling to help with anxiety and depression
- Stay active – 30 minutes a day at least 3 times a week
- Regular meals and snacks – 3 meals a day, no skipping breakfast

When to Start Prophylaxis?

- **4 or more** headaches day a month indicates a benefit from prophylactic therapy
- More than **1 school day** missed per month
- Can consider prophylaxis if the patient had a **hemiplegic migraine**, or if their headache is debilitating enough and refractory enough to require **ED visit**

Starting Prophylaxis

- Nutraceuticals
- Medications
- PT
- Psychology
- Biofeedback
- Neuromodulation

Nutraceuticals

- Magnesium oxide – 400 or 500 mg a day (9 mg/kg/day)
- Riboflavin – 400 mg a day
- Feverfew – 6.25 mg a day
- Butterber – 100 mg a day
- Coenzyme Q10 – 100 mg a day
- Migrelief – 2 tablets a day
- Melatonin -3 mg a night

Classes of Migraine Medications

- Antihistamines
- Cardiac medications
- Antiseizure medications
- Antidepressants
- Anti CGRP medications

Black box warnings and risk

- All medications used for migraine can affect mood and have the potential side effect of suicidal ideation.
- ALWAYS counsel on this!

Antihistamines

- Cyproheptadine
  - Causes sedation and increased appetite/weight gain
  - Should be considered in patients with predominantly abdominal pain or nausea and vomiting as their symptoms
  - Should be considered in patients with seasonal allergies

Cardiac Medications

- Propranolol
  - Causes decreased stamina, depression, hypotension
  - Should be considered if POTS is a comorbidity
  - Should be considered in anxiety or tremor

Antiseizure medications

- Topiramate
  - Decreased appetite and weight loss
  - Dysguesia, paresthesias
  - Nephrolithiasis, pancreatitis, anhidrosis
  - Should be considered in patients with tics

Antiseizure medications

- Valproic acid
  - Increased appetite and weight gain
  - Sedation
  - Acne and alopecia
  - Liver failure, pancreatitis, thrombocytopenia
  - Should be considered in patients with epilepsy and mood disorders

Antiseizure medications

- Gabapentin
  - Dizziness
  - Sedation
  - Should be considered in patients with nerve pain, abdominal pain, nausea, vomiting
  - Should be considered in patients with restless leg syndrome or sleep onset difficulty

Antidepressants

- Amitriptyline
  - Dizziness
  - Sedation
  - Should be considered in patients with neuropathic pain or occipital neuralgia
  - Should be considered in patients with anxiety or depression

Anti Cgrp medications

- Aimovig
- Emgality
- Nurtec

- Side effects: Constipation, hypertension

MEDICATIONS LIST

Medication	Side effects	Dosing	Max dose
Cyproheptadine	Sedation, increased appetite	2 mg QHS 4 mg QHS	4 mg TID, 8 mg TID 0.4 mg/kg/day
Propranolol	Hypotension, decreased stamina, depression	Extended 60 mg QD 10 mg BID to TID	40 mg TID 3 mg/kg/day
Topiramate	Decreased appetite, anhidrosis, renal stones, pancreatitis, paresthesias	15 mg QHS 50 mg BID	100 mg BID 2 mg/kg/day
Valproic acid	Increased appetite, liver failure, pancreatitis, thrombocytopenia, sedation	125 mg QHS 250 mg QHS	500 mg BID 20 mg/kg/day

MEDICATION LISTS

Medication	Side effects	Dosing	Max dose
Gabapentin	Sedation, dizziness	50 mg QHS 100 mg QHS	250 mg QHS, 400 mg QHS
Amitriptyline	Sedation, dizziness, suicidal thoughts	10 mg qhs	75 mg QHS 1 mg/kg/day
Aimovig/Emgality	Constipation	1 injection q month	1 injection q month
Nurtec	Constipation	1 tab QOD	1 tab QOD

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