

Migraine Headaches in children

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Headaches in Children

- Common complaint in pediatric population.
- All age groups.
- 2-3 years old.
- Teenagers/Adolescents.
- <2 years: uncertain diagnosis.

Headaches in Children

- Prevalence:
 - 7 years old: 35-50%
 - 15 years old: 60-80%

Headaches in Children

- Common referral to Pediatric Neurologists.
- Relieve pain/discomfort.
- Relieve parental anxiety/fears.
- Exclude intracranial disease: Brain tumors, Aneurysm.
- Misinterpreted by PCP/families: Allergies, sinusitis, eye sight.

Headaches in Children

- Challenging diagnosis in young children.
- Limited verbal, language abilities.
- Poor localization, quality.
- Non-specific complaint.
- Pain rating scale: not helpful.
- Associated with other illnesses.

Headaches in Children

- Serious impact:

- Physical*

- Emotional*: stress, anxiety, anger.

- Social*: parents, employments.

- Academic*: absenteeism, grades.

- Financial*: medications, jobs.

Evaluation of Headaches

- Onset: new or chronic
- Location
- Quality
- Frequency
- Severity
- Duration
- Pattern
- Triggering factors
- Function
- Impact

Migraine Headaches

- 75% of all headache referrals.
- Hereditary disorder.
- Family history: 70-90%
- All races and ethnic groups.

Migraine Headaches

- **Prevalence:**
 - < 7 years: 2.5%
 - 7 years-puberty: 5%
 - Postpubertal: 10%
- ❖ **Gender:** Female to Male
 - Same: < 7 years
 - 3:2 > 7 years
 - Estrogen Factor

Migraine Headaches

- *Triggering Factors:*

- Stress

- Exercise

- Foods: Chocolate, Caffeine, Cheese, MSG, Nitrites, Aspartame, Nuts, Alcohol.

Migraine Headaches

- *Triggering Factors:*

- Sleep deprivation

- Head Trauma

- Oral contraceptives

- Allergies

- Environmental pollution.

Migraine Headaches: Clinical Syndromes

*International Headache Society (IHS)
classification:

A) Migraine without Aura (Common)

B) Migraine with Aura (Classic)

-Complicated migraines

C) Childhood Periodic Syndromes

Migraine With Auras

□ Biphasic Event:

a) Auras:

- Cortical Spreading depression
- Neuronal depolarization (Ca⁺ channels)
- Waves of cortical excitation.
- Back to front.
- Transient neurological disturbances.

Migraine with Auras

- *Auras:*

- Visual:

- Dots, spots, colored/sparkling lines,
Hemianopia, Transient blindness.

- Others:

- Paresthesia, Aphasia, Confusion, Weakness.

Migraine with Auras

b) Increased Blood flow:

- Trigeminovascular system activation

- Substance P, Calcitonin gene related peptide

- Serotonin: low levels

Trigger vasoconstriction and vasodilation

Migraine with Auras

* Headache: dull, intensifies.

Forehead, temples, eyes, diffuse.

Unilateral or Bilateral.

-Nausea, Vomit, Photophobia, Phonophobia

-Sleep: helpful.

• Attacks:

-Auras alone.

-Headaches alone.

-Both.

Migraine without Auras

- Common Migraine (more common type)
- Monophasic.
- No auras.
- Headache, nausea, vomit, photophobia, phonophobia.
- Sleep: helpful.

Migraine Equivalent Syndrome

- Now under Migraine with Aura.
- Term is no longer used.
- Focal, complicated migraine patterns.

- Familial Hemiplegic Migraine
- Sporadic Hemiplegic Migraine
- Basilar Migraine.

IHS Classification of Migraines

■ Ophthalmoplegic Migraines:

- Omitted
- Under Cranial Neuralgias
- CN III, IV, VI palsies; headaches.

❖ Confusional Migraines:

- Omitted
- Overlap of hemiplegic and basilar types.

IHS Classification of Migraines

■ Childhood Periodic Syndromes:

*Precursors of Migraine:

-Cyclic Vomiting

-Abdominal Migraine

-Benign Paroxysmal Vertigo of childhood

-Benign Paroxysmal Torticollis

Migraine Headaches

- Diagnosis:
 - History
 - Physical Exam: general, neurological
 - Neuroimaging:
 - Not routinely recommended.

Migraine Headaches

□ Neuroimaging: CT, MRI of brain

Abnormal exam

Atypical features

Progressive symptoms

Seizures

Uncertain diagnosis

Management of Migraine

- Education
- Acute Attacks
- Prophylaxis

Education

- Reassurance
- Lifelong condition
- Hope/Optimism
- Avoid narcotics, addictive drugs, triggers:
Stress, sleep deprivation, diet, alcohol, pollution,
allergies, exertion.

Acute Attacks

- Ibuprofen
- Acetaminophen
- Excedrin
- Indomethacin.
- Antiemetics:
 - Prochlorperazine (Compazine)
 - Metochlopramide (Reglan)
 - Promethazine (Phenergan): hypnotic

Triptans

- Selective Serotonin Agonists
- Not FDA approved in children.
 - Exception:
 - * Sumatriptan nasal spray: >12 y.o.
- Off label use common.

Triptans

- Safe and effective.
- Non-sedative.
- 5-6 years old.
- Oral, sublingual, nasal sprays, subcutaneous forms.

Common Triptans

- 1) Sumatriptan (Imitrex)
- 2) Zolmitriptan (Zomig)
- 3) Rizatriptan (Maxalt)
- 4) Almotriptan (Axert)
- 5) Frovatriptan (Frova)
- 6) Eletriptan (Relpax)

Common Triptans

- Sumatriptan: tablets, nasal sprays, subcutaneous injections.
- Rizatriptan: oral or sublingual tablets.
- Zolmitriptan: oral or sublingual tablets, nasal sprays.

Acute Attacks

■ Intravenous Valproic Acid:

-IV load: 20-30 mg/kg

-Continuous IV infusion: 1-2 mg/kg/hour

-24 to 48 hours.

-Decrease in severity and intensity (65-70%)

Migraine Prophylaxis

- Increasing severity
- Increasing frequency: $> 3-4$ per month.
- School absenteeism.
- Effective: 4-6 weeks

Migraine Prophylaxis

■ Beta Blockers:

- Propranolol (Inderal): 20-80 mg/day.
- CNS effects: Serotonin agonist (5-HT_{1B})
- Avoid in Asthma, CHF, Depression

* Antihistamines:

- Cyproheptadine (Periactin)
- 4 to 8 mg/day.

Migraine Prophylaxis

* Tricyclic antidepressants:

- Amitriptyline (Elavil): 10-50 mg/day.
 - Serotonin/Norepinephrine reuptake inhibitor.
 - Na, Ca blocker.
- Nortriptyline (Pamelor): 10-50 mg/day.

Migraine Prophylaxis

* Antiepileptic Drugs:

- Valproic Acid (Depakote): GABA, Na, Ca
- Topiramate (Topamax): GABA, Na, Ca
- Gabapentin (Neurontin): GABA, Ca
- Levetiracetam (Keppra): binds SV2A
- Zonisamide (Zonegran): GABA, Na, Ca

Migraine Prophylaxis

- Calcium channel blockers:

- Nimodipine

- Not as effective.

- Beneficial for Familial Hemiplegic migraines.