Primary care management of headaches in pediatric patients

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February 26, 2014
Disclosures

• No financial disclosures
• Very limited evidence-based data
• Some off-label medication discussion
• I may use some brand names for medications; generics are fine for everything I mention
Why am I doing this webinar?

- Headache is common
- Long, long wait times
- Seeking better patient care
  - I’m NOT looking for more referrals (and longer wait times)
  - You should be able to
    - manage most of your own patients with headaches
    - know when to worry
    - know when to image
    - know when to refer
## Schedule for today

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>30 min</td>
<td>Informal talk – <em>to be interrupted with questions!</em></td>
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<tr>
<td></td>
<td>- Headaches that are and aren’t concerning</td>
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<td>- When to do tests, when to refer</td>
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<td></td>
<td>- How to treat</td>
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<td>- Sample cases</td>
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<td>30 min</td>
<td>Your questions</td>
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Red flags!

**Primary headaches**
- Migraine
- Tension-type headache
- Cluster — rare in children!

**Secondary headaches**
- Tumor or other mass lesion
- Hydrocephalus, pseudotumor
- Depression
- Sleep disturbances
- Subarachnoid hemorrhage
- Meningitis
- Sinus disease
- Visual problems (very rare cause)
- TMJ dysfunction / teeth clenching
- Seizures
- Hypertension
- Caffeine withdrawal
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Increased intracranial pressure

- Progressive headache
- Worsens with recumbency
- Wakes at night, present 1st thing in the a.m.
- Mental status changes
- Nausea and vomiting
- Papilledema
- VIth nerve palsies (false localizing)
- Infants: macrocephaly, bulging fontanelle
- "Sunsetting"
Other specific concerns

- Focal neurological deficit
- Analgesic overuse
- Excessive school absence
Diagnosis of migraine

• Headache
  – Usually throbbing, classically unilateral, and frontal or temporal, but….
  – Gradual onset (minutes to an hour)
  – Duration usually 1-6 hours (can last days)
  – Increased by activity

• Sleep (even brief nap) relieves

• Anorexia, nausea, vomiting

• Photophobia, phonophobia
Migraine with aura

- 10-15% of migraineurs have aura
- Not consistently present
- Usually 10-25 minutes
- Headache usually contralateral to side of symptoms
- Visual symptoms most common, but can be sensory, motor, language, cognitive, or cerebellar/cranial nerve
Migraine variants

- Complicated migraine (migraine w/ nonvisual aura)
- Ocular migraine
- Ophthalmoplegic migraine
- Basilar migraine
- Acute confusional migraine
- Migraine aura without headache
- Hemiplegic migraine
- Trauma-induced migraine
- Benign paroxysmal vertigo
- Paroxysmal torticollis
- Cyclic vomiting
Chronic headaches

- 20% of migraineurs develop chronic headaches
Chronic headaches

- Often tension-like or mixed tension-type and migrainous
- Postconcussive syndrome
- Dizziness, myalgia, and fatigue common
- May be accompanied by nausea and vomiting
- Increased by stress
- School absence a big problem
- Look for abuse, depression, psychosocial stress
- Rx: psychologic counseling (individual and family), prophylactics, biofeedback
- Avoid analgesics
Evaluation of headache

- Blood-pressure
- Head circumference
- Sinus, temporalis tenderness
- Neurological examination, including funduscropy
- Evaluation for depression
- Rarely need to do EEG, imaging
- LP
  - Image 1st (and check!)
  - When not to do: focal findings, mass lesion
When to image?

- Abnormal neurological examination
- Headaches improve with sitting up
- Headaches frequently wake at night or are present first thing in a.m.
- Rapidly progressive course
- Change in severity or quality of headache (migraineurs can have tumors!)
When to refer to neurologist?

- Abnormal neurological examination
- Associated seizure
- Associated change in mental status
- Progressive headache not responding to routine Rx
- Headaches commonly at night or present upon awakening
- Headaches worsening with recumbency
- Onset after traumas
- Analgesic abuse
Treatment

- Natural history
- Reassurance
- Avoidance of precipitants
- Sleep
- Abortive
- Prophylactic
- Behavioral

- Evidence-based assessment limited by high rate of response to placebo
Abortive medications

- Better if used at onset of headache
- Acetaminophen, ibuprofen, naprosyn, ASA, caffeine, combinations (good for tension-type headaches)
- Midrin (isometheptene, acetaminophen, caffeine)
- Fioricet (butalbital, acetaminophen, caffeine)
- Dihydroergotamine (DHE) (Migranal)
- Narcotics: risk of addiction in patients with chronic or frequent headaches, but occasionally useful in selected patients with infrequent migraines
Triptans

• Block release of inflammatory peptides into walls of dural vessels

• Avoid in
  • basilar and other complicated migraines – risk of stroke??
  • Hypertension
  • Pregnancy
  • Hx of stroke or MI
Tritptans

• 7 triptans
• Oral, melts, nasal sprays, injections
• 2 FDA-approved for kids
  • Rizatriptan (Maxalt) 6-17 y.o.’s
  • Almotriptan (Axert) 12-17 y.o.’s
• Generically available
  • Sumatriptan
• Side effects
  • Chest, throat tightness
  • Drowsiness, dizziness, nausea
  • Bad taste (nasal spray)
Prophylactic medications

- Indications: frequency >1-2 times/week; severity; complicated migraines
- Often use for 6-12 months, then attempt taper
- Amitriptyline, nortriptyline
- Cyproheptadine (Periactin)
- Calcium channel blockers
- Anticonvulsants (valproate, topiramate)
- ß-adrenergic antagonists
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Nortriptyline

• Brand name: Pamelor
• Tricylic antidepressant
• Dosage forms:
  – 10 mg capsule
  – 25 mg capsule
  – 50 mg capsule
  – 75 mg capsule
  – 10 mg/5 cc (liquid)
Nortriptyline

- Effective at much lower doses than used for depression
  - Typically 10 → 20 → 30 mg Qhs
  - Occasionally 25 → 50 → 75
- 1-2 month latency
- Baseline EKG?
- Interactions with SSRI’s
Nortriptyline

• Potential side effects
  – Sleepiness
  – Dry mouth
  – Orthostatic lightheadedness
  – Weight gain (5% of patients)
  – Arrhythmias
    • Trachycardia
    • Increased PR interval, QRS duration, QT interval
  – Mood changes
Cyproheptadine (Periactin)

• Drug of choice for young children
• Also for thin teens who cannot sleep
• Dosage forms
  – 2 mg/5 mL liquid
  – 4 mg tablet
• Typical dosage
  – 2-4 mg/day ÷ BID (occasionally all HS)
  – Advance slowly as tolerated up to 8-16 mg/day if needed
Cyproheptadine (Periactin)

- Common side effects
  - Sleepiness
  - Weight gain
Topiramate

- Brand name: Topamax
- Anti-epileptic
- Dosage forms
  - 25, 50, 100, 200 mg tablets
  - 15, 25 mg sprinkle capsules
  - 6 mg/ml suspension (by pharmacy)
Topiramate

• Effective at much, much lower doses than typically used for seizures
  – Typical adult dose 50 mg BID (reasonable AED for 18 mo boy)
  – Fewer side effects
• Build up gradually over one month
• Usually ÷ BID; occasionally, just HS
Topiramate

- **Side effects**
  - “Body”
    - ↓ appetite, weight
    - ↓ sweating
    - Paresthesias
    - Metabolic acidosis
    - Kidney stones
    - Acute glaucoma
  - “Brain”
    - Sleepiness
    - Confusion, word-finding difficulty
    - Mood changes
Which preventative? First line

- Notriptyline – 1st choice, daily headaches
- Amitriptyline – thin, insomnia
- Cyproheptadine – young, thin, insomnia
- Topiramate – overweight
- Verapamil – complicated migraine (e.g., basilar)
Which preventative? Backup

- Propranolol (Inderal)
- Gabapentin (Neurontin)
- Valproate (Depakote)
- Alternative meds
  - Butterbur (Petadolex)
  - Magnesium, riboflavin, feverfew (MigreLief)
  - Melatonin
Nonpharmacological treatment

• Go to school! Live your life as if you don’t have headaches!
• Exercise
• Fluids
• Biofeedback / relaxation / hypnosis
How would you evaluate and treat?

• 12 y.o. girl with bad migraines every 3 weeks
How would you evaluate and treat?

- 5 y.o. boy with migraines 2-3 times per week
How would you evaluate and treat?

• 15 y.o. girl with basilar migraines, syncope every 2 weeks
How would you evaluate and treat?

• 15 y.o. girl with menstrual migraines, regular menses
How would you evaluate and treat?

- 9 y.o. boy with infrequent migraines, suddenly worse and now almost daily x 2 weeks
How would you evaluate and treat?

- 13 y.o. girl with 6 months of daily headaches with migrainous features; depression; school absence