



# Headaches: When to Worry and How to Treat

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## Conflicts of interest

- The Planning Committee and Faculty have no relevant financial relationships with commercial interests to disclose.





## A 16 year old girl presents with headaches

- Healthy 16 year old
- At 4 years of age she started getting headaches
- At that time, headaches were happening every other month
- She also had a lot of stomach upset, not always with headache
- Medicine never seemed to work
- Her headaches improved in kindergarten, and after that happened about once a year



## A 16 year old girl presents with headaches

- Two years ago she had a mild concussion and started getting monthly headaches
  - Visual scotoma, followed by severe, throbbing, pounding pain
  - Nausea and vomiting
  - Photophobia/phonophobia
- Sometimes she woke up with the headache
- Headaches lasted all day, improved with sleep
- She took Tylenol or Advil sometimes, but she doesn't like to take medicine and it didn't help
- She went to the ED twice and got IV medications, which were helpful



## A 16 year old girl presents with headaches

- Now she has a headache all the time, every day, but sometimes it gets worse
- No nausea or vomiting
- No aura
- Minimal photophobia/phonophobia
- No changes in vision when she bends over or uses the toilet
- She just had a dilated eye exam and she doesn't have papilledema

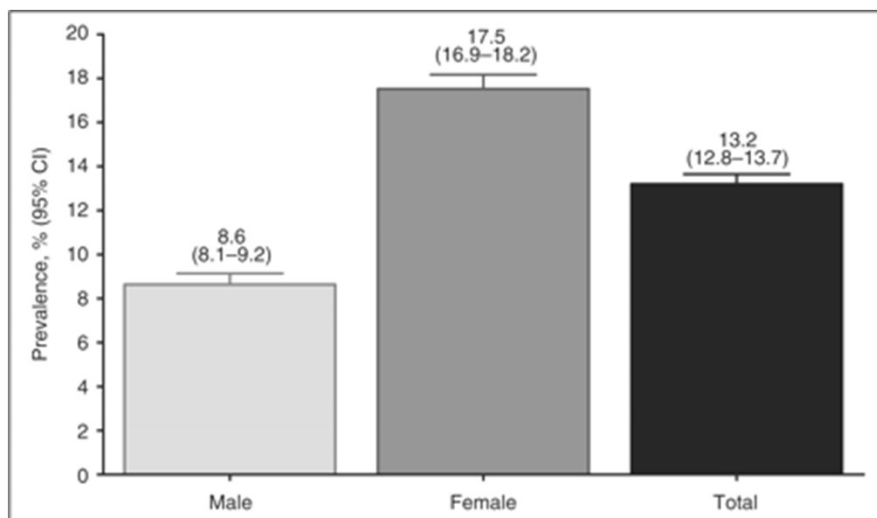


## A 16 year old girl presents with headaches

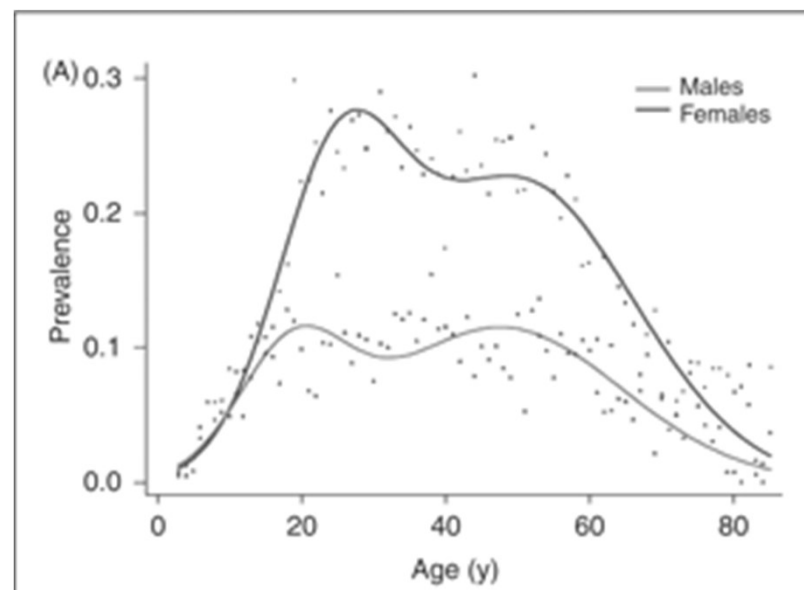
- When we ask our patient about her lifestyle:
  - She goes to bed at 9 but lies awake for hours
  - Then she has to get up for school
  - She doesn't feel hungry in the morning, sometimes she'll have a piece of toast
  - She used to play soccer but stopped due to headaches
  - She drinks peppermint mochas with her friends sometimes, sometimes sodas, sometimes energy drinks
  - She is really, really stressed: about her family, about school, about missing school due to headache



# Headaches



One-year period prevalence (95% CIs) of self-reported, physician-diagnosed migraine in the US population.



Age-specific, 1-year period prevalence of self-reported, physician-diagnosed migraine.



## Pediatric Headache

- Headaches are common in children and become more frequent in adolescence
- Migraines affect
  - 3% of children age 3 to 7 years
  - 4–11% age 7 to 11 years
  - 8–23% adolescents
- ~25% (boys) and ~15% (girls) of new-onset cases occur before 14 years old
- Peak migraine incidence at 24.1 years (men) and 25.2 years (women)



## Pediatric Headache

- When to worry
- When to image
- How to treat
- ...and then what?

*When Boredom and Emotional Fatigue Bring on*  
**"Housewife Headache"...**

Making beds, getting meals, acting as family chauffeur—having to do the same dull work day after day—is a mild form of torture. This can bring on nervous tension, fatigue and what is now known as 'housewife headache'. For this type of headache you need strong yet safe relief. So next time take Anacin®. Anacin gives you twice as much of the strong pain reliever doctors recommend most as the other leading extra strength tablet.

Minutes after taking Anacin, your headache goes, so does its nervous tension and fatigue. Lets you feel better all over. Despite its strength, Anacin is safe taken as directed. It doesn't leave you depressed or groggy. Next time take Anacin Tablets!



## When to Worry: Is it a TUMOR?

- Up to 2/3 of children with a brain tumor will complain of a headache at some point
- Around 1/5 of children with headache due to brain tumors are first misdiagnosed by doctors as having primary headache
- **But children with headaches from a serious brain pathology have neurological signs on examination (85% in 8 weeks, all in 24 weeks)**



## When to Worry: Is it a TUMOR?

You will need to image 50,000 kids with headache to find one brain tumor, if there are no other signs or symptoms

This is not without risk (radiation, sedation, contrast)

You will also find benign abnormalities (sinus disease, arachnoid cysts, white matter changes, mega cisterna magna)



# Imaging

- Recent onset
- Change in quality or frequency → (chronic progressive)
- Abnormal exam
- Seizures
- Age < 3
- Rule of thumb:
  - if acute, get a CT
  - if more than one month, MRI



# The Headache Visit

- Description of the headache
  - Aura
  - Nausea/vomiting
  - What helps, what makes it worse
- Missing school days? Sports? Social/fun?
- PMHx, family, social, etc.
- Exam
- “This is not a brain tumor and here’s why.”
- Management:
  - Acute symptomatic
  - Daily preventative
  - Lifestyle





# Migraine variants

- Cyclic vomiting syndrome
- Abdominal migraine
- Benign paroxysmal vertigo
- Benign paroxysmal torticollis
- Colic? infants with episodic colic tend to have family history of migraine; increased tendency to develop migraine later in life



# What about the eyes?

- Problems with convergence can cause muscular pain behind the eyes
  - Pain is relieved when the eyes are closed
- Refractive errors generally don't cause eyestrain in children

## Headaches Associated With Refractive Errors: Myth or Reality?

R. Gil-Gouveia, MD; I.P. Martins, MD, PhD



## The correlation between headache and refractive errors

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# Migraine management

The three-legged stool:

- Acute symptomatic treatment
- Preventative treatment
- Lifestyle modifications



# Migraine management: Acute symptomatic treatment

## Non-specific analgesics

Ibuprofen, acetaminophen, naproxen, Excedrin migraine  
Full dose, at headache onset, no more than 3 days a week

## Triptans

Sumatriptan, rizatriptan, almotriptan, frovatriptan

## Anti-emetics

Benadryl  
Ginger  
Ondansetron  
Metoclopramide  
Prochlorperazine

## New! CGRP inhibitors

Ubrelvy (ubrogepant)  
Nurtec (rimegepant)



## Migraine management: Preventative

- **More than two migraines per month that are not fully controlled with acute treatments**
- Amitriptyline
- Cyproheptadine
- Topiramate
- Propranolol
- Botox
- CGRP inhibitors (Aimovig, Ajovy, Emgality)

## Migraine management: Alternative preventative therapy

- Magnesium
- Vitamin B2 (riboflavin)
- Coenzyme Q10
- Migrelief, Migravent, Dolovent
- Acupuncture
- Biofeedback, relaxation, yoga, cognitive behavioral therapy (CBT)
- Breathing, meditation



## Lifestyle factors that influence headache

- Diet
- Hydration
- Sleep
- Exercise
- Caffeine
- Stress
- Electronic screens?



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 3
2	3	4	5	6	7 8	8
9	10	11 3	12	13	14 7	15
16	17	18	19	20	21 10	22
23	24	25	26 6	27	28	29
30	31					

Common patterns:

Monday morning:  
Stress, or changes in  
sleep over the weekend

Association with the  
menstrual cycle

Seasonal patterns,  
indicating changes in  
sleep, stress, etc.

Schedule analgesics to  
be taken on the days  
when headaches are  
likely



## A 16 year old girl presents with headaches

- Does she need an MRI? Lumbar puncture?
- In pediatric neurology clinic, we talk about modifying her lifestyle
  - Sleep, diet, exercise, caffeine and stress
- We decide to try amitriptyline, 10 mg a night, because one of the side effects is sleepiness
  - 4-6 week trial
- We talk about treating her headache aggressively when it gets worse, but no more than 3 days a week
  - Analgesics, triptans and anti-emetics



## Questions?

Thank you!

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