Topic: Recurrent Pain Syndromes: Headache in Children and Adolescents

Learning Objectives: After reviewing the following educational materials, viewers will be able to:

1. Distinguish primary headaches from secondary headaches.
2. Apply pediatric-specific criteria to arrive at a correct diagnosis of migraine headache.
3. Understand the importance of lifestyle modification and the potential use of complementary and alternative medical therapies for the treatment of headaches.
4. Identify children who may benefit from symptomatic and prophylactic therapy for migraine.
5. List drugs frequently prescribed for abortive and prophylactic therapy of migraines by age group.


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Case 1:
During a well child visit, the mother of Elijah, an 11 year-old boy, raises concerns about his headaches.

Question 1: What is the prevalence of pediatric headaches?
Question 1: What is the prevalence of pediatric headaches?

Headaches in the pediatric population are surprisingly common and therefore have a public health impact. Prevalence rates vary depending on the classification system used; in one study, 26% of 12-13 year olds and 31% of 14-15 year olds reported experiencing at least one headache in the previous week. Headaches that begin in childhood can significantly affect a child’s quality of life, can be a cause of school absence and negatively impact school performance, and have a high likelihood of persisting into adulthood. (Brna et al 2006).

Question 2: Headaches can be classified into Primary Headache (without underlying condition) or Secondary Headache (due to an underlying condition). What are some common types of Primary Headaches in children and adolescents? What are some common types of Secondary Headaches in children and adolescents?
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Primary Headaches
1. Migraine headaches
   a. Migraine without aura
   b. Migraine with aura
   c. Episodic syndromes that may be associated with migraine (abdominal migraine, cyclical vomiting, benign paroxysmal vertigo of childhood, and benign paroxysmal torticollis)
2. Tension headaches
3. Trigeminal Autonomic Cephalgias
   a. Cluster headaches
   b. Paroxysmal hemicranias
   c. Short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing (SUNCT)

Secondary Headaches
1. Infection
   a. Acute febrile illness
   b. Group A Strep pharyngitis
   c. Meningitis
   d. Many others
2. Post-traumatic
3. Medications/drug intoxication (including alcohol)
4. Medication overuse headache
5. Brain tumor
6. Idiopathic intracranial hypertension (pseudotumor cerebri)
7. Hydrocephalus
8. Intracranial hemorrhage (“thunderclap” headache)
9. Carbon monoxide poisoning
10. Systemic disease with headache
    a. Metabolic/endocrine disorders
    b. Epilepsy
    c. Mitochondrial disease
    d. Sickle cell disease
    e. Systemic hypertension
    f. Dental (TMJ dysfunction and dental abscess)
    g. Rheumatologic disease
    h. Psychiatric disorders

Question 3: The most important clues that will lead to the correct diagnosis of headaches are found in the patient’s history. What are some of those important questions?
**Question 3:** The most important clues that will lead to the correct diagnosis of headaches are found in the patient’s history. What are some of those important questions?

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Important Questions to Ask Patients Presenting with Headaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Question</td>
</tr>
<tr>
<td>Nature</td>
<td>Are there different types of headaches?</td>
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<tr>
<td></td>
<td>How would you describe the headaches?</td>
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<tr>
<td></td>
<td>Are the headaches getting worse, same, or improving?</td>
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<td></td>
<td>Are the headaches more or less frequent?</td>
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<td></td>
<td>Are the headaches more or less intense?</td>
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<tr>
<td>Timing</td>
<td>When did the headaches begin?</td>
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<td></td>
<td>How long do the headaches last?</td>
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<tr>
<td>Location</td>
<td>Where are the headaches located?</td>
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<tr>
<td>Triggers</td>
<td>Are there triggers that set the headache off?</td>
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<tr>
<td>Associated symptoms</td>
<td>Is there anything associated with the headache such as photosensitivity, phonosensitivity, nausea or vomiting?</td>
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<tr>
<td></td>
<td>Are there warning signs such as an aura?</td>
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<tr>
<td></td>
<td>Have there been any personality changes or change in mental status?</td>
</tr>
<tr>
<td>Sleep</td>
<td>Does the headache awaken you from sleep?</td>
</tr>
<tr>
<td></td>
<td>Does sleep make it better?</td>
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<tr>
<td>Improving or worsening activities</td>
<td>What makes it better?</td>
</tr>
<tr>
<td></td>
<td>What makes it worse?</td>
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<tr>
<td></td>
<td>Does exercise help or make it worse?</td>
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<tr>
<td></td>
<td>Does defecation or micturition worsen the headache?</td>
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<tr>
<td></td>
<td>Does sitting up from bed make it better or worse?</td>
</tr>
<tr>
<td>Family history</td>
<td>Does any family member suffer from any type of headache?</td>
</tr>
</tbody>
</table>

**Question 4:** Lifestyle factors can exacerbate headaches. What are some of the lifestyle factors you should ask about?
Question 4: Lifestyle factors can exacerbate headaches. What are some of the lifestyle factors you should ask about?

Table 2

<table>
<thead>
<tr>
<th>Factor</th>
<th>Questions</th>
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<tbody>
<tr>
<td>Sleep</td>
<td>What is the patient’s sleep hygiene? Bedtime, bedtime struggles, sleep</td>
</tr>
<tr>
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<td>quality, number of hours of sleep?</td>
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<td></td>
<td>Does the patient have a bedtime routine?</td>
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<td></td>
<td>Is there a television, computer, or cell phone in the bedroom?</td>
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<tr>
<td>Meals</td>
<td>Does the patient eat breakfast every day before school?</td>
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<td></td>
<td>Is there food insecurity in the household?</td>
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<tr>
<td>Caffeine</td>
<td>Does the patient take more than 2-3 servings per week of caffeine-</td>
</tr>
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<td></td>
<td>containing drinks, including sweet tea, energy drinks and cola? Chocolate?</td>
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<tr>
<td>Hydration</td>
<td>How much water does the patient drink every day?</td>
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<tr>
<td>Exercise</td>
<td>Does the patient participate in regular exercise?</td>
</tr>
<tr>
<td>Stress</td>
<td>How does the patient respond to tests? Are there excessive extra-</td>
</tr>
<tr>
<td></td>
<td>curricular activities? Is there parental separation or divorce?</td>
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<td></td>
<td>Is there bullying, a break-up with a friend or significant other?</td>
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<tr>
<td>Menstrual periods</td>
<td>Are headaches associated with periods?</td>
</tr>
<tr>
<td>Second hand smoke</td>
<td>Is the patient exposed to smokers in the home?</td>
</tr>
<tr>
<td>Depression</td>
<td>Is the patient depressed?</td>
</tr>
</tbody>
</table>

Question 5: What features on history will suggest a more ominous, pathologic cause of headache?
Question 5: What features on history will suggest a more ominous, pathologic cause of headache?

“Red Flag” signs and symptoms include:
- Chronic headache due to increased intracranial pressure (hydrocephalus with or without tumor, subdural hematoma)
  - Gradually progressive head pain over weeks or months
  - Worse at night, immediately after waking, after lying flat, and during maneuvers that increase venous pressure (coughing, sneezing, straining to stool, vomiting)
  - Persistent vomiting
  - Lethargy
  - Personality changes
- Subarachnoid hemorrhage
  - Instantaneously excruciating at its outset
- Meningitis/Encephalitis
  - History of fever
  - Photophobia
  - Nausea and vomiting
  - Pain with eye movements
  - Stiff neck
  - Altered mental status
- Drugs
  - History of current medications or illicit drug use
- Idiopathic intracranial hypertension (pseudotumor cerebri)
  - Transient vision changes (diplopia, strabismus)
  - Tinnitus
  - Stiff neck
  - Irritability
  - Apathy or more sleepy
  - Dizzy or ataxic
- Lack of positive family history for headaches or migraines
- Risk factors such as immunosuppression, hypercoagulability, cancer, genetic, neurocutaneous or rheumatologic disorders.

Question 6: What features on physical exam will suggest a more ominous, pathologic cause of headache?
Question 6: What features on physical exam will suggest a more ominous, pathologic cause of headache?

“Red Flag” findings include:
- Chronic headache due to increased intracranial pressure (hydrocephalus with or without tumor, subdural hematoma, pseudotumor cerebri)
  - 85% exhibit at least 1 abnormal finding on neurologic exam within eight weeks of the onset of headache, and virtually all children have one of these findings by six months:
    - Papilledema
    - Strabismus
    - Weakness
    - Ataxia
    - Palsies of CN III, IV, or VI
  Note: Craniopharyngiomas are an exception because the mass may irritate the underlying dura and cause headache while the mass is still too small to cause neurologic signs. Affected children usually have other findings, including short stature, visual loss, and endocrinopathies.
- Hypertension – elevated blood pressure (>95th percentile for age, gender, and height)
- Meningitis – positive Kernig’s and Brudzinski signs, neck stiffness, fever

Case 1 continued:

You obtain more history. Elijah has had headaches off and on for the past couple of years but they have become more of a problem recently. Headaches used to occur once every few months, but, in the past year, they have been occurring 2-3 times a month. The pain is bilateral in the frontal and temporal areas. He has photophobia and phonophobia with headaches; he denies an aura. Movement of any kind aggravates the pain, and he prefers to lie in a quiet room during headaches. The pain lasts for hours or until he falls asleep. “Sleeping it off” provides relief. He occasionally becomes nauseated and vomits in association with the headaches. There is a family history of migraines in his mother and older sister. He is starting the 6th grade and is stressed about a new school and all the homework. He has irregular bedtime, going to sleep usually around midnight, after falling asleep to the TV in his bedroom. He wakes up at 6 am to take the bus to school. He occasionally misses breakfast because he wakes up late and rushes to the bus stop.

Question 7: What are the criteria for the diagnosis of pediatric migraine?
Question 7: What are the criteria for the diagnosis of pediatric migraine?

Migraines in the pediatric population are different from adult migraines in that they are less likely to occur with an aura. Also, adult migraines are more likely unilateral, whereas pediatric migraines may be bilateral or unilateral.

2004 International Headache Society criteria for Pediatric Migraine WITHOUT Aura

A. At least five attacks fulfilling criteria B-D (below)
B. Headache attacks lasting 1 to 72 hours
C. Headache having at least two of the following characteristics:
   1. Location: Unilateral or bilateral, fronto-temporal (not occipital)
   2. Pulsing quality
   3. Moderate or severe pain intensity
   4. Aggravation by or causing avoidance of routine physical activity (e.g., walking, climbing stairs)
D. During the headache, at least one of the following:
   1. Nausea and/or vomiting
   2. Photophobia and phonophobia, which may be inferred from behavior
E. Not attributed to another disorder

2004 International Headache Society criteria for Pediatric Migraine WITH Aura

A. At least two attacks fulfilling the criteria B-D (below)
B. Aura consisting of at least one of the following, but no motor weakness:
   1. Fully reversible visual symptoms, including positive features (e.g., flickering lights, spots, or lines) or negative features (e.g., loss of vision)
   2. Fully reversible sensory symptoms, including positive features (e.g., pins and needles) or negative features (e.g., numbness)
   3. Fully reversible dysphasic speech disturbances
C. At least two of the following:
   1. Bilateral, homonymous visual symptoms (present in the same halves of the visual fields) or unilateral sensory symptoms
   2. At least one aura symptom develops gradually over ≥ 5 minutes or different aura symptoms occur in succession over ≥ 5 minutes
   3. Each symptom lasts ≥ 5 minutes or ≤ 60 minutes
D. Headache that fulfills criteria B-D for migraine without aura (above) that begins during aura or follows aura within 60 minutes
E. Not attributable to another disorder

Question 8: Elijah’s headaches meet criteria for pediatric migraine without aura. How common are pediatric migraines? And what is the mean age of onset in boys and girls?
Question 8: Elijah’s headaches meet criteria for pediatric migraine without aura. How common are pediatric migraines? And what is the mean age of onset in boys and girls?

Table 3

<table>
<thead>
<tr>
<th>By Age</th>
<th>3 to 7 y</th>
<th>Adolescence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>1 to 3%</td>
<td>8 to 23%</td>
</tr>
<tr>
<td>Gender Ratio</td>
<td>Boys &gt; girls</td>
<td>Girls &gt; boys</td>
</tr>
</tbody>
</table>

Adapted from Blume HK. Pediatric Migraine. Pediatrics in Review. 2012; 33;562.

Mean age of onset is 7.2 years for boys and 10.9 years for girls.

Question 9: What historical features would lead you to obtain an imaging study for evaluation of headache?
Question 9: What historical features would lead you to obtain an imaging study for evaluation of headache?

In 2002 (and reaffirmed in 2013), the American Academy of Neurology reviewed the evidence for the role of diagnostic studies in the evaluation of migraines and published a practice parameter on this subject. The recommendations were:

1. Obtaining a neuroimaging study on a routine basis is NOT indicated in children with recurrent headaches and a normal neurologic examination.

2. Neuroimaging should be considered in children with an abnormal neurologic examination, the coexistence of seizures, or both.

3. Neuroimaging should be considered in children in whom there is a history to suggest the recent onset of severe headache, change in the type of headache, or if there are associated features that suggest neurologic dysfunction.

These recommendations are based on 6 pediatric studies in which 605 of 1275 children had neuroimaging tests performed. CT scans were performed in 116, MRI in 483, and both in 75 patients. Five studies used clinic-based populations, and one used only children referred for neuroimaging. Those not imaged were followed clinically and no long-term problems were found for the 1- to 2-year follow-up time period reported in several studies. Imaging abnormalities were identified in 97 children (16%); in 79 of them, findings were considered to be incidental.

Most importantly, in all 14 children with CT- or MRI-identified lesions that were considered surgically treatable, abnormalities were described on neurologic examination, including papilledema, abnormal eye movements including nystagmus, and motor or gait dysfunction.

No patient with a normal examination had a brain lesion that required surgical treatment.

In addition, consider neuroimaging in the following situations:

- **The absence of a family history of:** migraine, ice-pick headache, cluster headache, menstrual headache, motion-sickness, sleepwalking, cold food headache, benign torticollis of infancy, benign paroxysmal vertigo, Alice-in-Wonderland syndrome, transient scotoma without headache.

- **The historical presence of focal neurological deficits:**
  - focal deficits lasting more than 15 minutes
  - transient blindness associated with the headaches
  - confusion

- **The presence of headache upon awakening that gets better once the upright posture is assumed.**

- **The patient with headache that consistently awakens him out of a sound sleep.**

- **The patient with nuchal rigidity associated with headache or between headaches.**
• Headache of less than 6-month duration.

• The headache presumed to be migraine that does not get better after adequate trials of two antimigraine medications (prophylactic or symptomatic, depending on the clinical circumstance).

• A patient who has any other concerning features on history or physical exam.

Question 10: How would you treat Elijah’s headaches?
Question 10: How would you treat Elijah’s headaches?

The four cornerstones of headache management are
1. Lifestyle modification
2. Treatment of acute headache
3. Complementary treatments
4. Preventive treatment

Lifestyle Modification

Keeping a headache diary can help identify headache patterns and evaluate response to treatment.

There are a few options available as apps (iHeadache, for example, is free, others have minimal cost). See the Headache Foundation Headache Diary on the following page:
A headache diary consists of tracking the following information:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time (start/finish)</th>
<th>Intensity rate 1-10 (most severe being 10)</th>
<th>Preceding Symptoms</th>
<th>Triggers</th>
<th>Medication (and dosage)</th>
<th>Relief (complete/moderate/none)</th>
</tr>
</thead>
</table>

For more information about headache causes and treatments, visit the NHF web site at [www.headaches.org](http://www.headaches.org) or call 888-NHF-5552.
Table 4

<table>
<thead>
<tr>
<th>SMART Headache Management</th>
</tr>
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<tbody>
<tr>
<td><strong>Sleep</strong></td>
</tr>
<tr>
<td><strong>Meals</strong></td>
</tr>
<tr>
<td><strong>Activity</strong></td>
</tr>
<tr>
<td><strong>Relaxation</strong></td>
</tr>
<tr>
<td><strong>Trigger avoidance</strong></td>
</tr>
</tbody>
</table>

In addition, children who suffer from anxiety, depression or other mental health disorders should be referred to a mental health provider.

**Treatment of Acute Headache**

Pharmacologic treatment for pediatric migraines encompasses symptomatic and prophylactic therapy. Generally, symptomatic therapy is used for patients with headaches occurring less than once a week. Patients should not use acute treatments more than 2-3 days/week. NSAIDS should be limited to fewer than 15 days/month; triptans should be limited to fewer than 10 days/month.

Prophylactic therapy is used for patients with more frequent headaches or headaches that, although infrequent, are protracted or accompanied by systemic difficulties (see Case 2).

Table 5

<table>
<thead>
<tr>
<th>Acute Treatment of Migraine in Children and Adolescents</th>
</tr>
</thead>
<tbody>
<tr>
<td>(As per the American Academy of Neurology and the AAP; adapted from Blume HK. Pediatric Headache: A Review. Pediatrics in Review 2012:33:562.)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
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<tbody>
<tr>
<td>Acetaminophen</td>
<td>10-12.5 mg/kg q 4-6 hr prn or 650-1000 mg q 6 hr prn in adults; max &lt;4000 mg/day</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>10 mg/kg q 4-6 hr prn or 400-800 mg q 6 hr prn in adults; max 3000 mg/day</td>
</tr>
<tr>
<td>Naproxen sodium</td>
<td>5-7 mg/kg q 8-12 hrs prn or 250-500 mg q 8 hr prn in adults; max 1250 mg/day</td>
</tr>
<tr>
<td>*Sumatriptan, nasal spray or po</td>
<td>Off label: 4-6 y: 5 mg Off label: 7-11 y: 10 mg &gt;12 y: 20 mg</td>
</tr>
</tbody>
</table>

*Triptans are generally approved for children age 12 and above and are commonly used “off-label” for children as young as 8 or 10 years. Contraindications to triptan use include hemiplegic migraine, past history of a stroke or transient ischemic attack, and coronary artery disease.

Often, neurologists will use oral instead of nasal sumatriptan for adolescents first. If the patient is vomiting, use nasal sumatriptan or rizatriptan (Maxalt) melt tabs. Sumatriptan IM can be used for fast acting relief.
Sumatriptan nasal spray comes in 3 doses (5, 10, and 20 mg). The initial single dose is administered in one nostril, given immediately after onset of headache; may repeat after 2 hours with a maximum dose of 40 mg/day (you may give 10 mg dose as 5 mg in each nostril). Some specialists will treat younger children "off-label" with lower doses (e.g., 4-6 y: 5 mg, 7-11 y: 10 mg, >12 y: 20 mg). See references under Blume HK.

Complementary Treatments**

According to expert opinion and some research evidence, complementary medicine can help with the management of chronic headache. Stress (either physical or psychological) can trigger migraines and stress management has been shown to reduce headaches safely in 50-75% of those experiencing headaches.

**Biofeedback** has been extensively studied in the reduction of migraine. Controlled trials have concluded that biofeedback has a "moderately strong treatment effect" that persists at least 17 months after training.

**Self-hypnosis, autogenic training (repeating a set of soothing phrases), and guided imagery relaxation techniques** can be very effective in preventing migraines and can result in the use of less medication.

**Cognitive Behavioral Therapy (CBT)** coaches the patient to change the mental response to certain triggers or situations and has been used successfully to help manage not only headache, but depression and anxiety as well.

**Exercise and yoga** can help relieve stress and have been shown to reduce frequency of headaches. However, exercise should not be used once the migraine has started, as activity can often worsen symptoms.

The use of **essential nutrients** such as Vitamin B2 (riboflavin), magnesium oxide, calcium (especially for menstrual-related migraines) has been found to help reduce the frequency of migraines. Some studies have found fish oil supplements rich in omega-3 fatty acids and even olive oil many help headache frequency and severity.

**Other therapies**, including butterbur, HTP, co-enzyme Q10, massage, osteopathy, acupuncture and homeopathy have limited pediatric trials but have been used successfully in some instances to help migraine sufferers.

**For references and a more comprehensive discussion of complementary and alternative medical therapies, please refer to Kemper KT and Breuner CC. Complementary, Holistic, and Integrative Medicine: Headaches. Pediatrics in Review. 2010; 31;e17.
Case continued:

Elijah has headaches 2-3 times per month and thus meets criteria for symptomatic treatment of migraines without aura. You decide to discuss lifestyle changes, symptomatic treatment with acetaminophen or ibuprofen and stress reduction.

Case 2:

Elijah's mother is happy with your evaluation and treatment of his headaches. She brings in his 14-year-old sister, Kayla, for an evaluation the following week. Kayla has suffered from migraines since the age of 10. Her headaches have gotten progressively worse over the past year, occurring at least 5 days of the week. She uses acetaminophen, ibuprofen or nasal sumatriptan at least 5 days of the week. She does not endorse any “red flag” signs or symptoms.

Question 11: How would you manage Kayla's headaches?
Question 11: How would you manage Kayla's headaches?

You again take a careful history including lifestyle factors, do a thorough physical exam and conclude she likely suffers from medication overuse headache (formerly known as rebound headaches), which are chronic headaches that follow a course of migraine treated inappropriately with excessively frequent symptomatic therapy (e.g., more than 2-3 days per week, or greater than 15 days/month of over-the-counter medications or greater than 10 days of prescription medication).

Management includes withdrawal of overuse medication, limiting abortive medication use to once or twice weekly and starting prophylactic medications.

Preventive Treatment

Consider daily, preventive therapy when a patient has 4 or more disabling headaches per month. Although there are almost no good studies of the efficacy of prophylactic medications in migraine in children and adolescents, there (a) is ample experience with these same medications in children and adolescents with other conditions; (b) are exceptionally good studies in adults with migraine to demonstrate efficacy and safety; and (c) is overwhelming clinical practice evidence for efficacy with a favorable therapeutic index in children and adolescents.

Remind patients and parents that preventive therapy usually takes 8-12 weeks before any effects take place.

Prophylactic Agents

Prophylactic agents typically prescribed by a neurologist* that can be used according to age and based on co-morbid factors:

- **For younger children:**
  - Cyproheptadine (Periactin) in antihistaminic doses (best at bedtime)

- **For pre-school through young school-aged children:**
  - Propranolol (Inderal) (do not use in children with asthma, diabetes or heart disease, including low blood pressure or low heart rate)

- **For older school-aged children and adolescents:**
  - Propranolol (Inderal) (do not use in children with asthma, diabetes or heart disease, including low blood pressure or low heart rate)
  - Amitriptyline (Elavil)—a void in children on neuroleptics, MAO inhibitors and/or stimulants; may cause sedation, weight gain and risk for overdose in suicidal or depressed patients as well as prolongation of QT interval (ECG is recommended prior to initiation of this medication)
  - Topiramate (Topamax)—side effects include renal stones, glaucoma and appetite suppression, with occasional cognitive slowing, although not common in the lower doses used to treat migraines
✓ Valproic acid (Depakote)—avoid in adolescent girls or obese adolescents; side effects include teratogenic effects, weight gain, alopecia, poor dentition among others
✓ Venlafaxine (Effexor) or Duloxetine (Cymbalta)—could be helpful in patients with fibromyalgia (Cymbalta) or depression (Effexor, Cymbalta)
✓ Magnesium oxide
✓ Riboflavin (Vitamin B2)
✓ Melatonin

**Case continued:**

You decide to discontinue her use of ibuprofen, acetaminophen and nasal Sumatriptan as soon as possible. Transitional therapy with a NSAID (Naproxen 250 mg daily) may be helpful during the period of drug withdrawal. You also start her on magnesium oxide 400 mg and riboflavin 100 mg daily for initial prophylaxis and refer her to neurology. Because she has chronic daily headaches, the neurologist will probably start her on one of the prophylactic medications such as Topamax or Elavil, depending on the side effects and the patient.

(*We would like to thank Sarah Chagnon, MD, for her help on the topic of prophylactic treatment of migraines.*)

Note: This information is provided for general medical education purposes only and is not meant to substitute for the independent medical judgment of a physician or other health professional relative to diagnostic and treatment options of a specific patient's medical condition. The viewer should supplement this information with consultation from preceptors, additional readings, other educational materials and discussion.
Take Home Points:

1. The etiology of a patient’s headache is often discovered with a thorough history and physical examination.

2. A patient must have a minimum of five attacks that meet certain criteria to be categorized as a migraine without aura, and a minimum of two attacks with aura.

3. Neuroimaging is indicated when there is an abnormality on neurologic exam, a seizure history, a change in headache type, a recent onset of severe headache, a feature that suggests neurologic dysfunction, headache that awakens one from sleep and/or improves in the upright position, no family history of migraines, or the presence of nuchal rigidity.

4. Lifestyle factors and triggers, including stress, exacerbating headaches should be addressed and modified.

5. Ibuprofen and acetaminophen are medications that can be used for the acute treatment of migraine in children. Sumatriptan nasal spray may also be used in the adolescent population. There are numerous other prophylactic medications commonly prescribed by neurology for patients who have 4 or more disabling headaches per month.

6. Consider starting Magnesium Oxide (400 mg adult dose, 200 mg for small children) and Riboflavin (100 mg adult dose, 50 mg for small children) for intermittent migraine headaches. However, for patients that are having more than 5-10 headaches/month and have to wait months to be seen by a neurologist, the PCP can start prophylactic medications beyond vitamins to control migraines.
References


