



# Pediatric Clips

## *Chronic Headaches in Children and Adolescents*

By Daniel J. Lacey, MD, PhD

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Pediatric Clips from The Children's Medical Center of Dayton are quick reviews of common pediatric conditions.

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Just Right for Kids

### CASE STUDY

Kristin, a 15 year old, has had headaches off and on for over 10 years, averaging two to three per week. Most had occurred when she was physically active. She is sensitive to light and sound during the headaches, often nauseous and has occasionally vomited. Sleep has helped. Pain has been diffuse and sometimes involved her neck. She had taken amitriptyline to prevent

headaches. It seemed to help somewhat, but she gained weight and stopped the medication a few years ago.

Kristin also has more frequent, milder headaches for which she has taken ibuprofen. She rarely missed school or sports because of headaches. A CT of the brain done years ago was normal according to mom. Past medical history is significant for

abdominal pain, constipation, episodic musculoskeletal pain (sports-related) and esophageal reflux. There is a strong family history of headaches on maternal and paternal sides. When recently seen in the neurology clinic, her neurologic exam was normal. Since most of her headaches are triggered by intense physical activity, she was started on propranolol and told to take naproxen prior to track meets.

### CASE DISCUSSION

Headache is the most common chronic pain disorder in children and teens. Worldwide, the prevalence of headache by age 5 is 20 percent, age 7 is 37-50 percent and age 15 is 57-82 percent. In the United States, the prevalence of migraine in boys 12-17 years is 5 percent and girls 12-17 years 7.7 percent.<sup>1</sup>

### MIGRAINE HEADACHES

Migraine in children is defined as episodic headaches which are accompanied by autonomic symptoms such as light/sound sensitivity, dizziness, nausea and/or emesis. Almost all recurrent headaches in young children and most in teens are migraine. Kristin's duration of symptoms is very typical. When teens present for specialty consultation because of chronic headaches, they often have had untreated migranous headaches for many years. The headaches have recently become more severe and disabling, prompting the referral. Teens often describe two types of headaches: their more disabling migraines and other headaches which are less severe and not disabling. Almost all of the latter headaches turn out to be migraines when the patients are pressed for the presence of accompanying autonomic features.

Head trauma may trigger a migraine disorder in children who have a

strong family history of migraine. More teens are now presenting who have developed new, severe and persistent daily headaches (NDPH) after sports-related concussions, especially girl soccer players. Stress, sleep loss, odors, bright lights and weather changes may be triggers of recurrent headaches. Occasionally, as in Kristin's case, intense physical activity may trigger migraine attacks. Neuroimaging (MRI, CT) is usually not diagnostic in children and teens who have chronic stable headaches and a normal neurologic exam. Clinical red flags that warrant consideration for imaging can be found at childrensdayton.org. Pseudotumor cerebri should be considered, especially in patients who are obese. A thorough eye examination should be performed. A lumbar puncture with opening pressure measurement and appropriate CSF drainage as needed should be considered even in non-obese patients with refractory and disabling chronic daily headaches.

### CHRONIC HEADACHES

Chronic daily headaches (CDH) are defined as headaches being present for at least two to three months and occur at least 15 days per month. They may evolve from less frequent migraine headaches which occur more often, begin as NDPH or progress from episodic to chronic tension-type headaches. These are not mutually exclusive categories.

Earlier studies that reviewed prevalence data for CDH in children have underestimated the true prevalence because they used very restrictive criteria. Recent data in 5-12 year olds report the prevalence in girls to be 2 percent and boys 1 percent. In teens, about 2.5 percent of girls and 1 percent of boys have CDH. Overall, chronic migraine accounts for less CDH in teens than adults, while NDPH and tension-type headaches are more common. Adolescents with chronic migraine have more frequent migraines than adults. Teens with CDH often have chronic pain in other regions as well.

As in adults, significant co-morbidities are often present in children and teens with headaches; these most commonly include anxiety, depression and sleep disturbances.<sup>2</sup> Approximately 40 percent of teen female migraineurs have more intense migraines just before or during menses. In young children, who later develop more typical migraines, other periodic symptoms without headaches may be present. These include motion sickness, vomiting, ataxia, abdominal pain, recurrent limb pain and parasomnias. Medication overuse is far more common in adults than teens.<sup>1</sup> Opiates and barbiturates are the most common medication "offenders" in contributing to medication overuse headaches.

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## TREATMENT

Treatment of frequent pediatric headaches should consist of a combination of medical and non-medical therapies. Acute and preventive management may be necessary. Most medication studies have primarily included only adults, although ongoing pediatric trials are underway. Over-the-counter medications such as ibuprofen, other NSAIDs and combination aspirin/acetaminophen/caffeine tablets may abort an acute episode if given early.

Acutely, teens and even younger children respond to triptans in a fashion similar to adults. Triptans most effectively abort a migraine when taken early in the attack, before pain becomes moderate to severe. Relaxation and imaging can be useful in reducing pain during an acute migraine. If a severe headache cannot be successfully treated as an outpatient, a trip to the emergency room may be necessary. If the headache persists, admission to the hospital for a more aggressive intravenous protocol may be required.

Daily preventive medication should be strongly considered to minimize development of a more chronic disease if migraine headaches occur more than three to four per month. If the patient has only a couple migraine episodes per month, but each lasts four to five days or more and is associated with significant school absences, preventive medication would be indicated. Selecting which preventive medication to start depends upon the presence or absence of other comorbid conditions. There are no drugs FDA-approved specifically for children's headaches. More common medications include antihistamines (cyproheptadine), antidepressants (amitypyline, fluoxetine), antiepileptics (topiramate, valproate, gabapentin) and

the beta blocker propranolol. The latter is particularly useful for exercise-induced migraines. It and topiramate are the least likely to cause significant weight gain, often an issue for teens. Newer therapies include BOTOX injections and oral tizanidine.<sup>3</sup>

Nonpharmacologic treatments are also important for the long-term prophylaxis of disabling headaches. Lifestyle changes are usually necessary to promote restorative sleep, maximize adherence to the treatment regimen, stop smoking, lose weight if applicable and learn new ways of coping and reducing acute/chronic pain. Cognitive behavioral training seems to be the most useful of these methods. Some patients find herbal remedies to be useful, such as vitamin D, coenzyme Q10, magnesium, riboflavin and butterbur.

The long-term outcome of most children treated for episodic migraine headaches has been good. Patients have reported a significant improvement in up to 90 percent. Adolescents treated for CDH may still have episodic migraine and

tension headaches up to eight years later, and one quarter will still have significant disability. It is hoped that earlier and more aggressive treatment will prevent chronification, disease progression and disability.<sup>4</sup>

## REFERENCES

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## FEATURED SPECIALISTS



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