Pediatric Migraines in the ED

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Clinical Scenario

- *A 12-year-old girl reports a severe headache over the left side of her head for the past 4 hours that has not been relieved with acetaminophen and ibuprofen at home. According to the patient, this headache "gets worse when my brother talks to me," "makes me squint my eyes," and "makes me feel like I'm going to throw up." This is her first headache like this in her entire life. The patient's examination is unremarkable with a completely normal neurological examination. She rates her headache a 9 out of 10. On further history, her mother reports that both the mother and the patient's older sister have a diagnosis of migraine headaches. The mother states, "I know she's having a migraine, but I couldn't fix it at home." Although you agree with the mother's assessment, you aren't sure if you can classify her daughter as a migraineur just yet…*

Approach

- Definition of migraine, differential diagnosis
- Consistent with previous presentations?
- Evaluate for alarming signs: history of trauma, different type of headache, additional signs/symptoms, exam findings*
- Limited pharmacotherapy evidence in pediatrics

Table 1 *2004 International Headache Society classification of headache disorders: Criteria for pediatric migraine without aura*[1]

A. ≥5 attacks fulfilling features B–D

B. Headache attack lasting 1 to 72 hours

C. Headache has at least 2 of the following 4 features:

1. Either bilateral or unilateral (frontal/temporal) location
2. Pulsating quality
3. Moderate to severe intensity
4. Aggravated by routine physical activities

D. At least 1 of the following accompanies headache:

1. Nausea and/or vomiting
2. Photophobia and phonophobia (may be inferred from their behavior)

Cyclical vomiting

A. At least 5 attacks fulfilling criteria B and C

B. Episodic attacks, stereotypical in the individual patient of intense nausea and vomiting lasting from 1 hour to 5 days

C. Vomiting during attacks occurs at least 4 times/hour for at least 1 hour

D. Symptom-free between attacks

E. Not attributed to another disorder. Note that, in particular, history and physical examination do not show signs of gastrointestinal disease.

Abdominal migraine

A. At least 5 attacks fulfilling criteria B–D

B. Attacks of abdominal pain lasting 1 to 72 hours (untreated or unsuccessfully treated)

C. Abdominal pain has all of the following characteristics:

1. midline location, periumbilical, or poorly localized
2. dull or 'just sore' quality
3. moderate or severe intensity

D. During abdominal pain, at least 2 of the following:

1. anorexia
2. nausea
3. vomiting
4. pallor

E. Not attributed to another disorder. Note that, in particular, history and physical examination do not show signs of gastrointestinal or renal disease or such disease that has been ruled out by appropriate investigations.

Benign paroxysmal vertigo of childhood

A. At least 5 attacks fulfilling criterion B

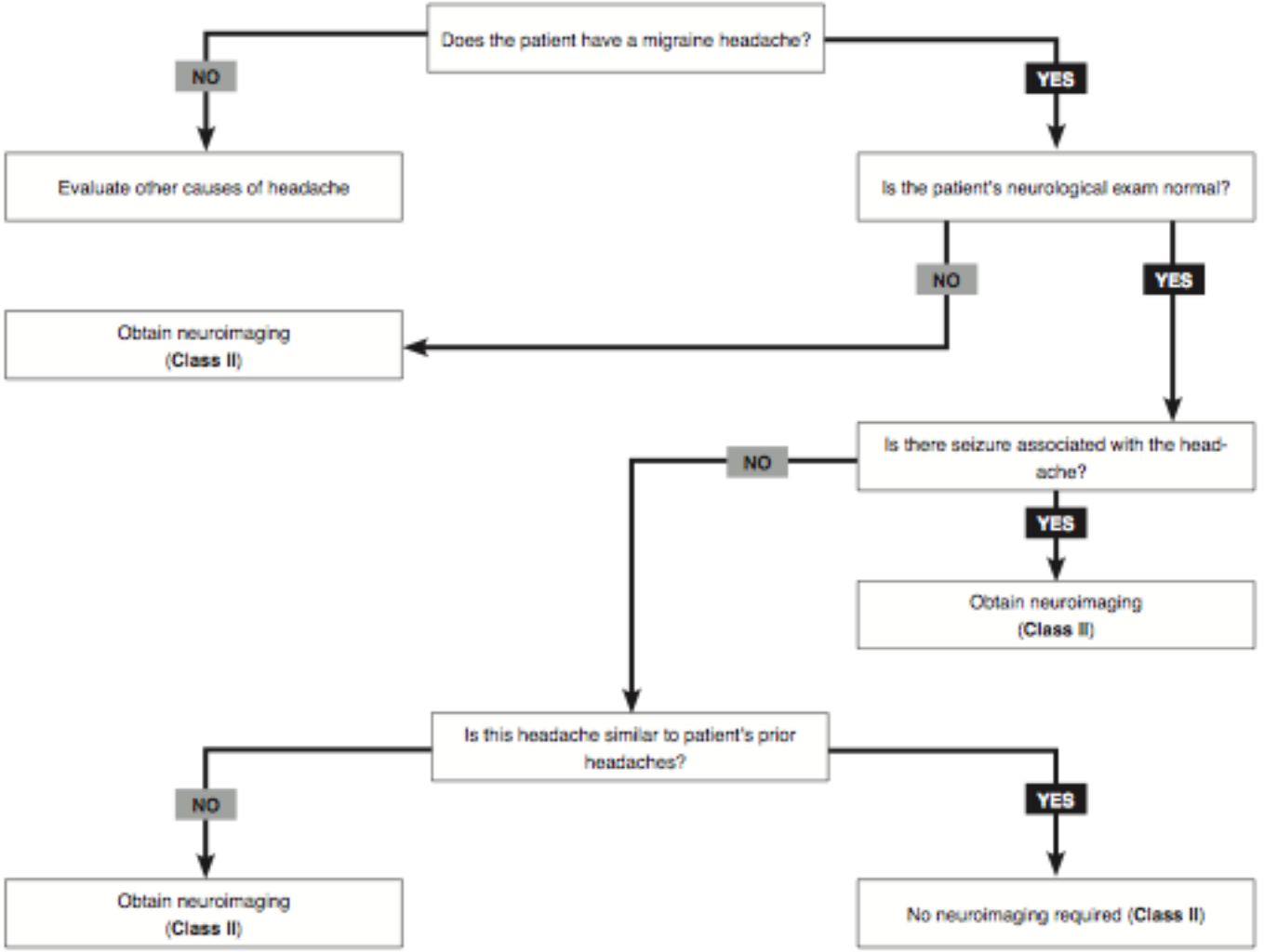
B. Multiple episodes of severe vertigo, occurring without warning and resolving spontaneously after minutes to hours

C. Normal neurological examination and audiometric and vestibular functions between attacks

D. Normal electroencephalogram

* Adapted from the ICHD-II'

Clinical Pathway: Migraine Headache Neuroimaging



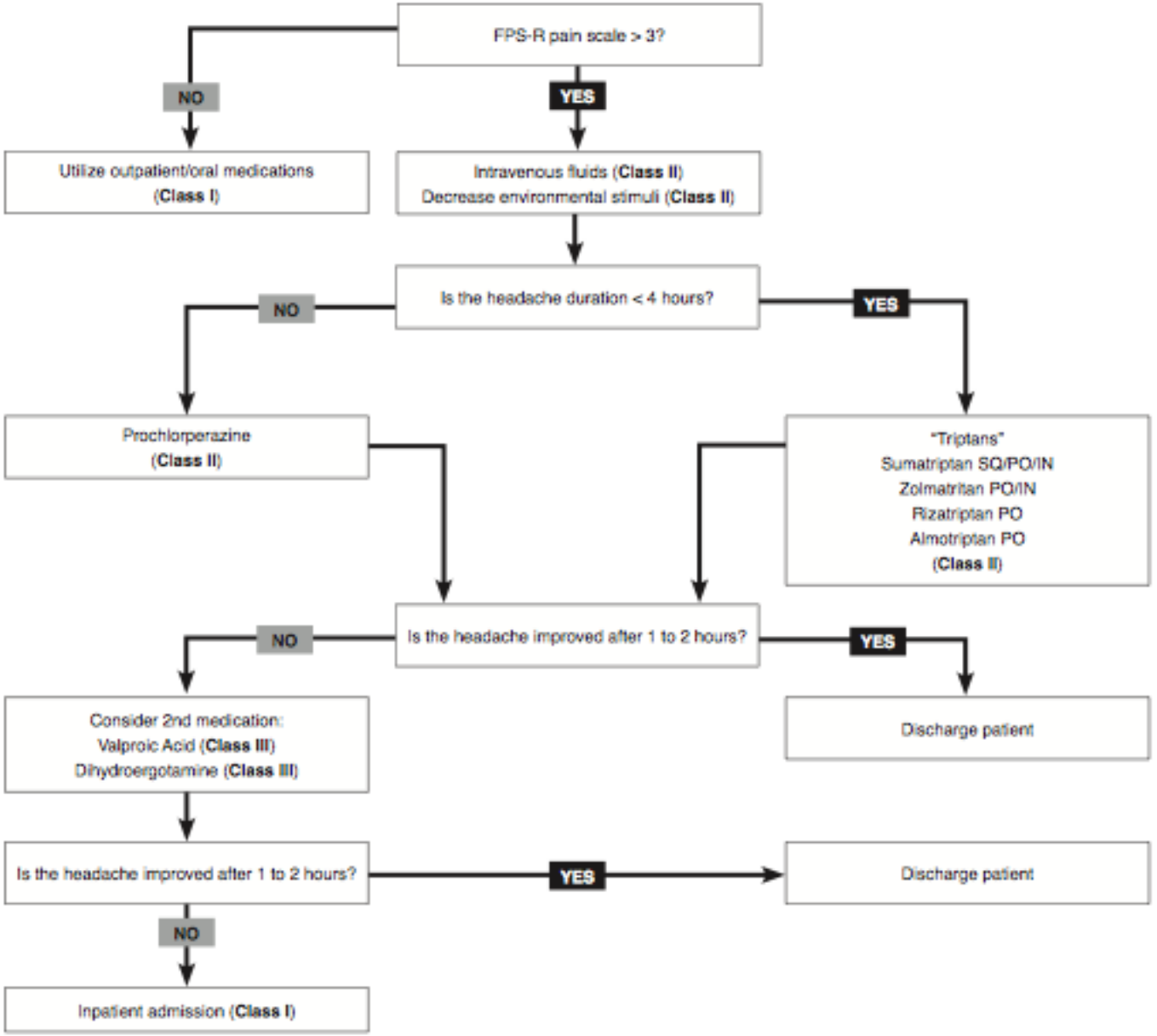
Setting

- Diagnosis and reassurance
- Dark, quiet room
  - Encourage sleep
- Hydration
  - Likely decreased PO intake or vomiting
  - Renal protection

Options

- Ibuprofen, acetaminophen
- Dopamine receptor antagonists
- Triptans
- Ketorolac
- DHE
- Sodium valproate
- Combination therapies

Clinical Pathway: Pediatric Migraine Clinical Treatment Pathway



Practice Question!

- A 12-year-old 40-kg girl presents for a health supervision visit. Physical examination, including vital signs, yields normal results. The mother notes that the girl had to come home from school three times last semester due to headaches. Her typical headaches are bifrontal, with sensitivity to light and sound and often nausea. They last 1 to 6 hours. During the headache, she feels and looks sick and prefers to lie in a dark room. The mother requests an acute treatment plan for her daughter. You provide education about migraine headaches and discuss lifestyle issues, including good sleep hygiene, exercise, diet, hydration, and stress management. For abortive headache treatment, you explain that it is ideal to treat within 30 minutes, even at school.

- Of the following, the PREFERRED abortive treatment for this girl is

A. butalbital (50 mg), acetaminophen (325 mg), caffeine (40 mg) orally
B. ibuprofen (400 mg) orally
C. promethazine (12.5 mg) rectally
D. sumatriptan (5 mg) intranasally
E. topiramate (25 mg) orally

References

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- AAN 2010 Practice Parameter: Pharmacologic Treatment of Migraine Headache in Children and Adolescents
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  - Gelfand AA, Goadsby PJ. Pediatric Neurology 2012; 47: 233-241.
- Effectiveness of Standardized Combination Therapy for Migraine reatment in the Pediatric Emergency Department
  - Leung S, Bulloch B, Young C, Yonker M, Hostetler M. Headache 2013; 53:491-497.