


Pediatric migraine
Outpatient and ED Management

Lawrence Richer MD, MSc, FRCPC
Associate Professor
Division of Neurology
Department of Pediatrics
University of Alberta



Disclosures

- Have attended an ad-board for Topamax (Janssen-Ortho) for use in migraine prophylaxis
- Have participated in recruitment randomized-controlled trial of rizatriptan (Merck)
- No direct financial interests in any product or company related to the treatment of migraine
- Some medications reviewed are not approved to treat migraine in children or adolescents

Objectives

- Review of clinical pearls in the evaluation and treatment of children with migraine and other headache disorders.
- Review evidence and emerging options for acute migraine therapy and prophylaxis in children and adolescents.

Headache and migraine are common

- Canadian children/adolescents frequently experience headache
 - 25% report headache at least once per week
- Migraine prevalence
 - 5% in children < 12 years
 - 10%-15% > 12 years
 - Females > males post-puberty

Diagnosis associated with better outcomes

Diagnosis of Migraine

- With or without aura
 - Gradual onset; < 60 mins
- Frontal (unilateral/bilateral)
- Recurring moderate to severe headache
 - Enough to stop usual activity, +/- pulsatile
- Nausea and/or vomiting
- Preference for quiet and dim light
 - Can be assessed by preference or avoidance





ICHD - 3 *beta* highlights

- Duration 2-72 hours (previously 1 hour)
 - Duration of attack includes sleep
- Very frequent migraine attacks --> chronic migraine
- Migraine with brainstem aura (formerly basilar-type migraine)
- Reclassification of childhood periodic syndromes

Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd edition (beta version). Cephalalgia. 2013 Jun 14;33(9):629-808.

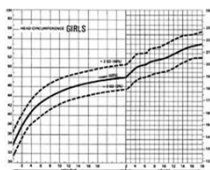
Red Flags



- Short history (first or worst)
- Accelerated course (days – weeks)
- Symptoms of raised intracranial pressure
- Personality changes, weakness, seizures or fever
- Neurocutaneous syndrome or systemic illness
- Young age of child (<3 years)

Minimum Examination

- BP and temperature
- Head circumference
- Fundoscopy
- Examination of gait
- Palpation of head and neck
- Skin



Secondary causes

1. Fever (e.g. URTI)
2. Trauma (mTBI)
3. Meningismus
4. Other extracranial infections
5. Papilledema and other neurological sign/symptom



How likely are you to miss something?

- With the following criteria:
 - Clinical features of migraine present
 - Normal neurological examination
 - Well in between attacks

... the diagnostic yield on imaging is < 1%

Lewis DW, et al. Headache. 2000 Mar;40(3):200-3.
 Kan L, et al. Headache. 2000 Jan;40(1):25-9.
 Burton LJ, et al. Ped Emerg Care. 1997 Feb;13(1):1-4.

MANAGEMENT



Reported triggers

Common

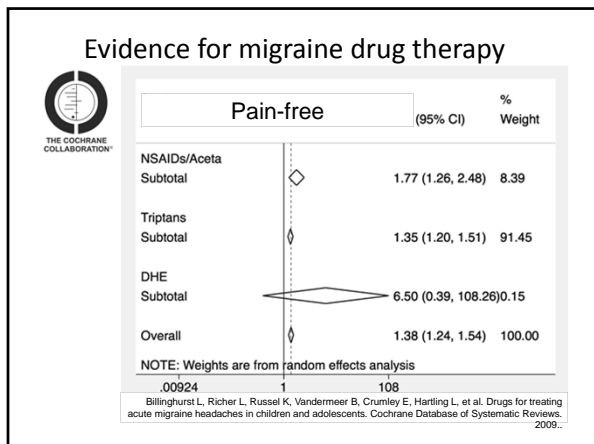
- stress (48 %)
- few hours of sleep (25 %)
- school work (19 %)
- too few beverages (14 %)
- weather changes (11 %)
- psychol. problems (7 %)
- too much alcohol (7 %)
- electronic media (6 %)

Less Common

- loud music (4 %)
- perfume or air (4 %)
- menstrual pain (4 %)
- muscle pain (4 %)
- unhealthy diet (3 %)
- eyes (2 %)
- physical activity (2 %)
- other movements (2 %)
- sensibility to light (1 %)

Non-specific

Milde-Busch A, et al. J Headache Pain. 2012;13(8):639-43.



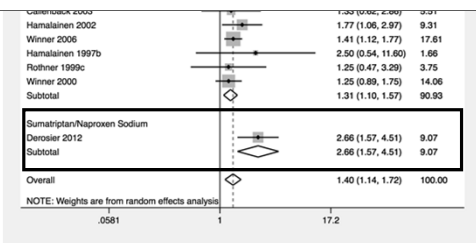
Oral analgesics for migraine

Drug	T _{max} (mins)	Potency	Dose
Ibuprofen	45	++	10 mg/kg (max 800 mg)
Acetaminophen	45-60	++	15 mg/kg (max 1000 mg)
Naproxen sodium	60	++	> 12 years: 220 mg or 275 mg (generic); not controlled release
Diclofenac potassium (Cambia)*	15-30	+++	> 12 years: 50 mg oral solution (safety and effectiveness not established in pediatrics)

*Not approved for pediatric patients

- ### Triptans for migraine
- **Oral**
 - Approved for use in 12 – 17 year olds
 - Almotriptan 6.25 mg or 12.5 mg
 - Not yet approved
 - Rizatriptan wafer 5 or 10 mg
 - **Intranasal**
 - Sumatriptan 5 mg or 20 mg IN
 - Zolmitriptan 5 mg IN
 - **Subcutaneous**
 - Sumatriptan 6 mg SC

Combination of medications with different mechanisms



Best practices

- Best drug / Right dose / Right time
 - Early treatment (15 to 30 mins from onset)
 - Include school letter
 - Appropriate dose
 - Use rapidly absorbed preparation
- Combine with metoclopramide
- No opioids or butalbital-containing meds

Avoid medication overuse (< 2-3 doses/wk)

Azzopardi TD, et al. Annals of Pharmacotherapy. 2008 Mar 1;42(3):397-401

Establish clear treatment expectations

- **Ideal = no headache at 2 hours**
- Acceptable = much less headache at 2 hours
- *Unacceptable = multiple doses over 24 hours (really means medication NOT working)*



Consider prophylaxis early!

Headache and mTBI

- Almost 50%; may be classified as:
 - Post-traumatic migraine
 - Post-traumatic headache
- Post-traumatic migraine => longer recovery
- Risk factors include:
 - Pre-injury chronic pain
 - LOC with amnesia
 - Female or family history of headache



Blume HK, et al. Cephalalgia. 2013 Aug 23;33(Suppl 8):244-5.
Mihalik JP, et al. Am J Sports Med. 2013

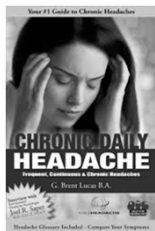
Post-traumatic migraine

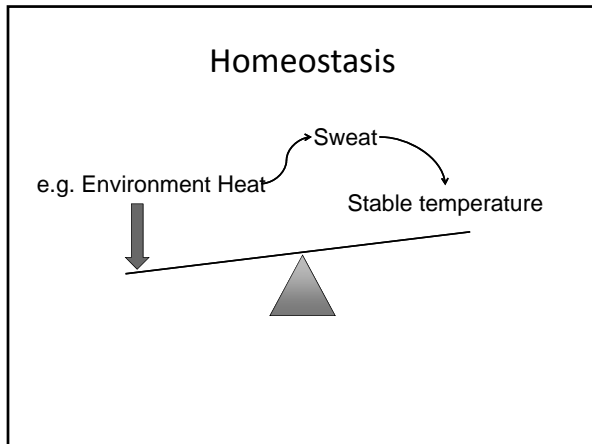
- Rest is good, but to a point
- Avoid medication overuse; no opioids!
- Dizziness is often postural
- Prophylaxis – no evidence
 - Vitamin B2, melatonin
 - Amitriptyline
- Manage expectations

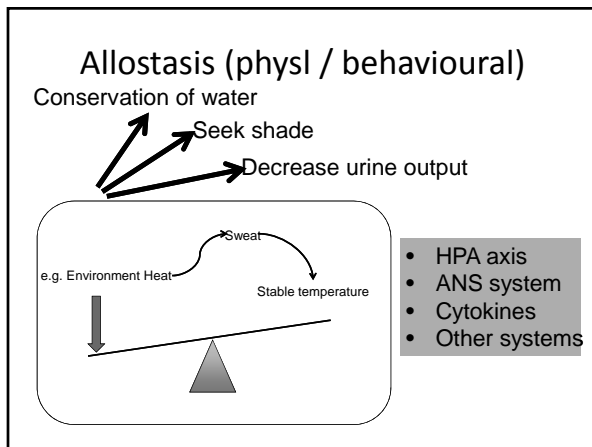


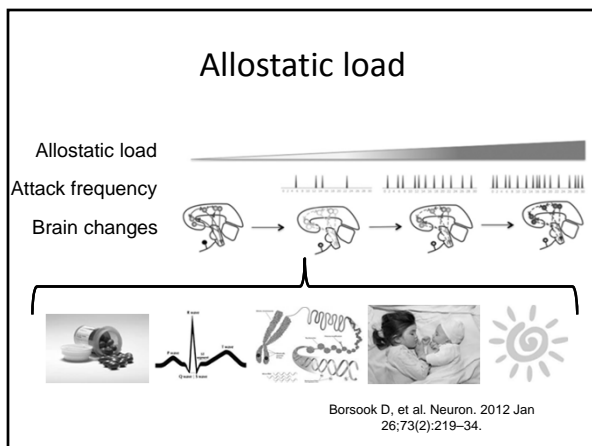
Chronic Headache

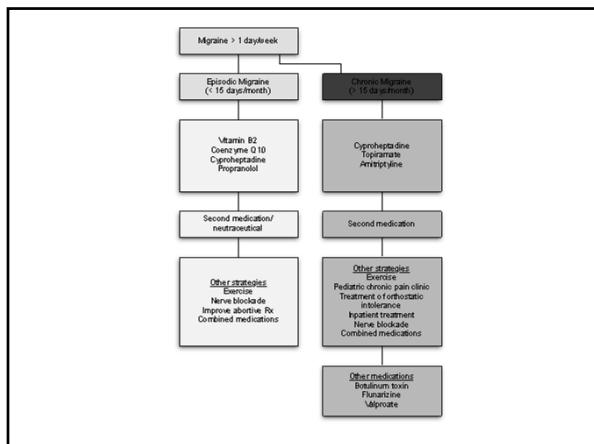
- Chronic migraine
- Chronic post-traumatic headache/migraine
- Less common:
 - New daily persistent headache
 - Hemicrania continua
 - Chronic tension-type headache











- ### Rational Medication Choices
- Cyproheptadine
 - < 12 years; poor appetite
 - Propranolol
 - Small doses may help with anxiety
 - Amitriptyline
 - May help with sleep, anxiety, mood disorder
 - Topiramate
 - May help with weight loss
 - Botulinum toxin
 - Those who do not tolerate oral medication

- ### Acknowledgements
- Pediatric Emergency Research Canada (PERC)
 - Stollery Children’s Hospital Foundation
 - Women and Children’s Health Research Institute
 - Canadian Headache Society (CHS)
