Headache Highlights

H. Alexander Krob, M.D.
Headache Program Director
Providence Brain and Spine Institute
Clinical Assistant Professor of Neurology
Western University of Health Sciences
Disclosures

• Dr. Krob has no financial or intellectual conflicts of interest
• Dr. Krob may discuss off-label uses
Learning objectives:

• Efficiently and reliably recognize the most common primary headache syndromes
• Quickly screen for dangerous secondary / symptomatic headaches
• Deliver the best acute treatment for migraine using latest guidelines
• Effectively employ preventive treatments for migraine using an evidence-based approach
Headache epidemiology

- Lifetime prevalence > 90%
- During 2016, one-half of the world’s population will have at least one headache
- Second most common chronic disease worldwide\(^1\)
- 3\(^{rd}\) leading cause of disability worldwide\(^1\)
- 1.5% to 4% of all PCP visits

References
Case 1:

- 48 year old man
- “It’s like my head is in a vise... or a tight band...”
- “Worst pain is in my sinuses...”
- “I take whatever, and try to push through it...”
- “The pain eases then comes back several times a day, sometimes several days in a row, in clusters...”
Diagnosis?

• Tension Headache
• Migraine Headache
• Sinus Headache
• Cluster Headache
• Symptomatic / Secondary Headache
Choices

1. Migraine
   1.1 Migraine without aura
   1.2 Migraine with aura
   1.3 Chronic migraine
   1.4 Complications of migraine
   1.5 Probable migraine
   1.6 Episodic syndromes that may be associated with migraine

2. Tension-type headache
   2.1 Infrequent episodic tension-type headache
   2.2 Frequent episodic tension-type headache
   2.3 Chronic tension-type headache
   2.4 Probable tension-type headache

References
3. Trigeminal autonomic cephalalgias
   3.1 Cluster headache
   3.2 Paroxysmal hemicrania
   3.3 Short-lasting unilateral neuralgiform headache attacks
   3.4 Hemicrania continua
   3.5 Probable trigeminal autonomic cephalalgia

4. Other primary headache disorders
   4.1 Primary cough headache
   4.2 Primary exercise headache
   4.3 Primary headache associated with sexual activity
   4.4 Primary thunderclap headache
   4.5 Cold stimulus headache
   4.6 External-pressure headache
   4.7 Primary stabbing headache
   4.8 Nummular headache
   4.9 Hypnic headache
   4.10 New daily persistent headache

References
...and then there’s the symptomatic headaches¹...

5. Headache attributed to trauma or injury to the head and/or neck

5.1 Acute headache attributed to traumatic injury to the head

5.2 Persistent headache attributed to traumatic injury to the head

5.3 Acute headache attributed to whiplash

5.4 Persistent headache attributed to whiplash

5.5 Acute headache attributed to craniotomy

5.6 Persistent headache attributed to craniotomy

6. Headache attributed to cranial or cervical vascular disorder

6.1 Headache attributed to ischaemic stroke or transient ischaemic attack

   • 6.1.1 Headache attributed to ischaemic stroke (cerebral infarction)
   • 6.1.2 Headache attributed to transient ischaemic attack (TIA)
   • 6.2 Headache attributed to non-traumatic intracranial haemorrhage
       • 6.2.1 Headache attributed to non-traumatic intracerebral haemorrhage
       • 6.2.2 Headache attributed to non-traumatic subarachnoid haemorrhage (SAH)
   • 6.3 Headache attributed to unruptured vascular malformation
       • 6.3.1 Headache attributed to unruptured saccular aneurysm
       • 6.3.2 Headache attributed to arteriovenous malformation (AVM)
       • 6.3.3 Headache attributed to dural arteriovenous fistula (DAVF)
       • 6.3.4 Headache attributed to cavernous angioma
   • 6.4 Headache attributed to ependymal or leptomeningeal angiomatosis (Sturge Weber syndrome)
   • 6.4.1 Headache attributed to giant cell arteritis (GCA)
   • 6.4.2 Headache attributed to primary angitis of the central nervous system (PACNS)
   • 6.4.3 Headache attributed to secondary angitis of the central nervous system (SACNS)
   • 6.5 Headache attributed to carotid or vertebral artery disorder
       • 6.5.1 Headache or facial or neck pain attributed to cervical carotid or vertebral artery dissection

References

Diagnostic criteria (ICHD-3 Beta)¹

1.1 Migraine without aura (G43.0)

A. At least 5 attacks fulfilling criteria B-D

B. Attacks last 4 – 72 hr

C. At least 2 of:
   1. Unilateral
   2. Pulsating
   3. Moderate to severe
   4. Aggravated by or causing avoidance of routine physical activity

D. At least 1 of:
   1. Nausea and / or vomiting
   2. Photophobia and phonophobia

E. Not better accounted for by another ICHD-3 diagnosis

2.2 Frequent episodic tension-type headache (G44.2)

A. At least 10 attacks occurring on 1-14 days per month on average for > 3 months and fulfilling criteria B-D

B. Lasting from 30 min to 7 days

C. At least 2 of:
   1. Bilateral
   2. Pressing or tightening (non-pulsating) quality
   3. Mild or moderate intensity
   4. Not aggravated by routine physical activity

D. Both of:
   1. No nausea or vomiting
   2. No more than one of photophobia or phonophobia

E. Not better accounted for by another ICHD-3 diagnosis

References
KEEP CALM AND ASSUME IT'S MIGRAINE
Don’t buck the odds

• 29% of patients (any complaint) in primary care waiting rooms
• 76% of patients seeing PCP for headache

References
ID Migraine™ Screener

During the last 3 months, did you have any of the following with your headaches?*

1. You felt **nauseated** or sick to your stomach when you had a headache?  
   - Yes  
   - No

2. **Light bothered you** (a lot more than when you don’t have headaches)?  
   - Yes  
   - No

3. Your headaches **limited your ability** to work, study, or do what you needed to do for at least 1 day?  
   - Yes  
   - No

*An affirmative response on 2 of 3 questions yields a sensitivity and specificity of 81% and 75%, respectively.*

References
SNOOP4\(^1\) symptomatic headaches

- Systemic symptoms / signs / disease (fever, myalgia, weight loss, malignancy, immunosuppression / HIV, anticoagulation / coagulopathy)
- Neurologic symptoms or signs (level of consciousness, cranial nerves, motor function, coordination / cerebellar)
- Onset sudden (thunderclap) or recently (< 6 months)
- Onset after age 40
- Pattern change (progressive, phenotype)
- Pregnancy
- Papilledema
- Precipitated by position or by Valsalva

References
It’s not sinus headache

• 90% (n=2991) of self- or physician diagnosed “sinus headache” is migraine²

• 3% headache secondary to rhinosinusitis¹

References
Acute treatment
2015 AHS Guidelines Migraine Acute Treatment

- Level A = 2+ RCTs = Effective = Should be offered
  - APAP 1000 mg (mild attacks)
  - APAP / ASA / caffeine 50/50/130 mg (Excedrin)
  - DHE nasal spray 2mg / inhaler 1 mg
  - NSAIDS
    - ASA 500 mg
    - Diclofenac 50 mg – 100 mg
    - Ibuprofen 200 mg – 400 mg
    - Naproxen 500 mg – 550 mg
  - Triptans (all)
  - Butorphanol nasal spray 1 mg (habitation and MOH risk)

References
2015 AHS Guidelines Migraine Acute Treatment

- Level B = 1 RCT / 2+ lesser studies = Probably effective = Should be considered
  - Antiemetics
    - Chlorpromazine IV 12.5 mg
    - Droperidol IV 2.75 mg
    - Metoclopramide IV 10 mg
  - DHE IV/IM/SC 1 mg
  - Ergotamine/ Caffeine 1/100 mg
  - NSAIDS
    - Ketorolac IV/IM 30-60 mg
    - Flurbiprofen 100 mg
    - Ketoprofen 100 mg

References
Triptans

• Serotonin receptor agonists
• “Constrict blood vessels in the brain”
• Use of migraine specific treatments (triptans) may delay natural progression of disease

References
Optimize triptan effects

• Treat early!
  • < 60 minutes from onset
  • Pain freedom @ 2 hours in 2 of 3 attacks: 52.8% vs 30.2% (p < 0.1)³

• Treat when mild!
  • Pain freedom @ 2 hours: 67% vs 31% (p < 0.05; sumatriptan)²
  • Pain freedom @ 2 hours: 53% vs 38% (p < 0.03; almotriptan)¹

References
Optimize triptan effects

t$_{1/2}$ can be your friend$^1$

- Short (1 hr)
  - Sumatriptan (Imitrex)
- Mid (several hours)
  - Eletriptan (Relpax)
  - Rizatriptan (Maxalt)
  - Almotriptan (Axert)
  - Zolmitriptan (Zomig)
- Long (about a day)
  - Naratriptan (Amerge)
  - Frovatriptan (Frova)

Capitalize on routes of administration

- Nasal, inhaler, IM, SQ when N/V early / prominent

References
Optimize triptan effects

• Combine with metoclopramide 10 mg PO¹
• Combine with NSAID²
  • e.g. sumatriptan + naproxen 500 mg

References
Prevention
Prevention

• Decreases attack frequency, intensity, duration²
• Improves acute treatment response²
• Improves function / reduces disability¹

References
Prevention impact

• Office / outpatient visits reduced by 51.1%
• Emergency department visits reduced by 81.8%
• CTs reduced by 75%
• MRIs reduced by 88.2%
• Acute medication dispensing reduced by 14.1%

References
Prevention

• 38.8 % of patients with migraine need preventive treatments

• 13% of patients with migraine get preventive treatments

References
Prevention candidates

• Frequent headaches
• Treatment failure, contraindication, side-effects, intolerances
• Overuse
• Disability / consequences
• Pregnancy
Prevention

• At what frequency should prevention be considered?
  • 2 headaches per month
  • 4 headaches per month
  • 15 headache days per month
  • Daily headache
  • Depends on patient preference
Prevention

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Attack Frequency at Baseline Predicts CDH at Follow-Up

Predicted 1-year Incidence

Baseline Headache Frequency

Intermediate (105 to 179)

CDH (180+)

*Top line predicted incidence of intermediate frequent headaches (105 to 179 days/year)
Bottom line shows predicted incidence of CDH (180+ days/year).

2012 AHS Guidelines Migraine Prevention

- Level A = 2+ RCTs = Effective = “Should be offered”
  - Beta-blockers (metoprolol, propranolol, timolol)
  - AEDs (topiramate, divalproex / valproate)
  - Butterbur
- Level B = 1 RCT / 2+ lesser studies = “Should be considered”
  - Amitriptyline, venlafaxine, riboflavin (B2), feverfew, etc.
- Level C = 1 lesser study = “may be considered”
  - Carbamazepine, coenzyme Q 10
- Level U = insufficient data
  - Gabapentin, verapamil, fluoxetine, etc.

References
# Common preventive medications

<table>
<thead>
<tr>
<th>Evidence Level</th>
<th>Medication</th>
<th>Usual Daily Dose (mg)</th>
<th>Comments</th>
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<tbody>
<tr>
<td>B</td>
<td>Atenolol</td>
<td>50 – 100</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Propranolol*</td>
<td>80 – 240</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Metoprolol</td>
<td>50 – 150</td>
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<tr>
<td>U</td>
<td>Verapamil</td>
<td>180 – 480</td>
<td>Downgraded, favorable AE profile, good clinical impression of benefit for MwA</td>
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<tr>
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<td>Divalproex sodium*</td>
<td>250 – 1500</td>
<td>Pregnancy category X</td>
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<tr>
<td>U</td>
<td>Gabapentin</td>
<td>300 – 1800</td>
<td>Downgraded, favorable AE profile</td>
</tr>
<tr>
<td>A</td>
<td>Topiramate*</td>
<td>25 – 150</td>
<td>Pregnancy category D</td>
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<tr>
<td>B</td>
<td>Amitriptyline</td>
<td>10 – 150</td>
<td>Downgraded, strong clinical impression of benefit</td>
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<tr>
<td>B</td>
<td>Venlafaxine</td>
<td>37.5 – 150</td>
<td>Favorable AE profile</td>
</tr>
<tr>
<td>C</td>
<td>Cyproheptidine</td>
<td>2 – 8</td>
<td>Pediatric population, sedating</td>
</tr>
</tbody>
</table>
Prevention: How to Choose

• Comorbidities
  • Insomnia (amitriptyline)
  • Anxiety (beta blockers)
  • Depression (venlafaxine)

• SE concerns
  • Weight gain (topiramate)
  • Hypotension (avoid antihypertensives)
  • Cognitive (avoid topiramate)

• Possibility of pregnancy
  • Avoid VPA, TOP, lisinopril, candesartan
Medication overuse headache
Medication overuse headache

- Headache ≥ 15 / 30
- Using acute treatments 2+ days per week, every week for 3+ months
- Headache developed / worsened during overuse
- Headache resolves / reverts within 2 months after stopping overuse

References
“Tried everything... nothing works”
MOH Pitfalls

• You can’t treat your way out using more of an acute treatment
• You can’t treat your way out by substituting a different acute treatment
• MOH doesn’t care if you are taking pain relievers for non-headache indications
“What works for MOH is nothing”
MOH Treatment

• Use appropriate prevention
• Educate patient to improve recognition and avoidance
• Discontinue (without substitution) overused medication(s)

• Ease rebound headache with long acting triptan (frovatriptan / naratriptan 2.5 mg) plus long-acting NSAID (naproxen 220 – 500 mg) bid x 3 days, then qd x 3 days
Case 2

• 36, woman, “frequent headaches”
• “I have three kinds of headache: Sinus headaches, tension headaches in the back of my neck, and migraines.”
• Headache onset in teens, frequency escalated over years, now 12/30
• “it’s the fluorescent lights at work”
Case 2

• “If it’s a sinus headache, I’ll take Advil Sinus™. If it’s a tension headache, I’ll take Excedrin Tension™. When those don’t work, I know it’s a going to be a migraine, and I’ll take an Imitrex™.”

Treatment days 15/30

• Calls in / leaves early 2/30 “Only when nothing else works, then I’ll go home and try to sleep it off.”

• SNOOP4 negative

• BP 134/84, P90, BMI 34, no CAD / CVA risks, s/p tubal ligation, neuro exam normal
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Thanks!