Pattern Recognition in Headache

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Disclosures

DR. KROB HAS NO DISCLOSURES
Case 1  EMILY
Case 1

- Emily is a 29-year-old mother of 2, teacher at local private school
- Reports recurrent headaches over the past few years, since starting a stressful job
- Headaches happen 2 times a month on average, each lasting most of the day or, sometimes, bridging 2 consecutive days
- They tend to start without warning on one side of her head, and usually gradually worsen to become severe, throbbing pain “all over” her head
- Fluorescent lights and playground noise “drive me crazy”
Case 1

- “When they are really bad, I get sick to my stomach, but I don’t vomit”
- She treats headaches with “3 or 4 Motrin, which usually works”, but she misses a day of work every 1 or 2 months because of her headaches
- She is seeking treatment because missed work has become an issue with her employer
Case 1

- MFSHx: s/p tubal ligation
- ROS: fatigue, poor sleep, cold intolerance
- ALL: NKDA
- Rx: None
- BP 134/76, P 76, R 10, BMI 26, afebrile

- General: Dental attrition, neck and shoulder muscles TTP. Otherwise normal.
- Neuro: Hoffman sign on left, otherwise unremarkable.
- Sinus CT from 2005 “negative”
- CBC, CMP, TSH normal
Diagnosis
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
Pattern Recognition

- CC: “headache”
- Disability + Nausea + Light Sensitivity

**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.*
Preventive treatment
- 4+ attacks / month
- Disability / consequences
- Acute treatment failures
- Analgesic overuse

Acute treatment
- Triptans, DHE, ergots
- NSAIDs
- Metoclopramide
Case 2
Case 2

- Lee, age 32, is seeing you for “frequent headaches”
- Headaches started in high school, and got more frequent in college
- For the past several years, he has had a headache “most days... except on vacation”
- Typical attacks are diffuse, dull pain
- “I grab a bottle of water, take some aspirin, grab something to eat”
- “If I’m at work or coaching my kids' soccer, I just keep going”
Case 2

- “They can be for a couple hours or a couple days”
- “My wife and I were talking to a friend who said his brother had headaches before he was diagnosed with a brain tumor…”
Case 2

- MFSHx: Last visit was 3 years ago for tinea cruris, nonsmoker
- ROS: Neck and shoulder pain, mild L ear hearing loss from HS
- ALL: NKDA
- Rx: Benadryl PRN insomnia
- BP 139/85, P 60, R 12, BMI 32.1, afebrile.

- General: Muscular and obese habitus, Mallampati III
- Neuro: Trace reflexes, absent Babinski
- No imaging
- No labs
- ECG from 2013 “atypical chest pain” event NSR
2.2 Frequent episodic tension-type headache (G44.209)

A. At least 10 episodes of headache occurring on 1-14 days per month on average for >3 months (≥12 and <180 days per year) and fulfilling criteria B-D
B. Lasting from 30 min to 7 days
C. At least two of the following four characteristics:
   1. bilateral location
   2. pressing or tightening (non-pulsating) quality
   3. mild or moderate intensity
   4. not aggravated by routine physical activity such as walking or climbing stairs
D. Both of the following:
   1. no nausea or vomiting
   2. no more than one of photophobia or phonophobia
E. Not better accounted for by another ICHD-3 diagnosis.
Pattern Recognition

- “Not” + “No” + “Non-”
Approach

- Nonpharmacological
  - EMG biofeedback
  - Sleep hygiene
  - Time management
  - Relaxation techniques
  - Manual therapies

- Pharmacological
  - Simple analgesics
  - TCA
Case 3
Case 3

- Scott is a 29-year-old chef, single, no children
- CC: “antibiotics for sinuses”
- 3 days of right eye redness, nasal congestion, runny nose
- “Excruciating pain in my right sinuses like someone put a red-hot chef’s knife in my eye socket and left it there”
- “I want to scream and bang my head against the wall... If I smoke a dab, it will go away for a few hours and I can get back to sleep”
- “Seems like I get this every year, but I take antibiotics and it’s gone in a couple of weeks”
MFSHx: Last visit was 1 year ago for STD check, smokes tobacco and cannabis, 6+ cups of coffee a day

ROS: Reflux, poor sleep

ALL: Sulfa

Rx: Prilosec OTC
Case 3

- BP 130/80, P 70, R 12, BMI 28, afebrile.
- General: Unremarkable
- Neuro: (see photo)
- No imaging
- No labs
Diagnosis
3.1 Cluster headache (G44.01)

A. At least five attacks fulfilling criteria B-D

B. Severe or very severe unilateral orbital, supraorbital and/or temporal pain lasting 15-180 min (when untreated)

C. Either or both of the following:
   1. at least one of the following symptoms or signs, ipsilateral to the headache:
      a) conjunctival injection and/or lacrimation
      b) nasal congestion and/or rhinorrhea
      c) eyelid edema
      d) forehead and facial sweating
      e) forehead and facial flushing
      f) sensation of fullness in the ear
      g) miosis and/or ptosis
3.1 Cluster headache (G44.01)

2. a sense of restlessness or agitation

D. Attacks have a frequency between one every other day and 8 per day for more than half of the time when the disorder is active

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

- Autonomic symptoms

Trigeminal autonomic cephalalgias:
- Cluster headache
- Paroxysmal hemicrania
- SUNCT & SUNA
- Hemicrania continua
Case 4

- Sophie is a 50-year-old surgical RN
- CC: “headache for 9 months”
- Daily, mild - moderate, dull pain on left side of forehead, temple, back of the head, and neck
- Brief jabs of pain from left eye “out the back of my head” 2-3 times a day
- Pain present “from the moment I wake up to the moment I go to bed”
- Not alleviated by APAP, ibuprofen, sumatriptan, Fioricet, Excedrin Migraine, sinus spray, sinus ABX
- Naproxen “might take the edge off a bit”
Case 4

- MFSHx: G2P2, in menopause, DM2, HTN, HLD, L knee replacement last year, NS, relocated to PDX last month
- ROS: Fatigue, low back pain, constipation, sinus congestion
- ALL: NKDA
- Rx: Atenolol, glipizide, simvastatin, azithromycin x 1, amox-clav x1

- VS: BP 124/74, P 68, R 12, BMI 26, afebrile
- General: Unremarkable
- Neuro: Unremarkable
- MRI Brain, MRI C spine, CT sinuses, CTA head and neck, EEG, EMG, LP all normal
- CBC, CMP, CRP, TSH, CSF all normal
Diagnosis
3.4 Hemicrania continua (G44.51)

A. Unilateral headache fulfilling criteria B-D
B. Present for >3 months, with exacerbations of moderate or greater intensity
C. Either or both of the following:

1. at least one of the following, ipsilateral to the headache:
   a) conjunctival injection / lacrimation
   b) nasal congestion / rhinorrhea
   c) eyelid edema
   d) forehead / facial sweating / flushing
   f) fullness in the ear
   g) miosis / ptosis

2. a sense of restlessness or agitation, or aggravation of the pain by movement

D. Responds absolutely to indomethacin
E. Not better accounted for by another ICHD-3 diagnosis
Pattern Recognition

Sidelocked Headaches
- Cluster headache
- Paroxysmal hemicrania
- SUNCT & SUNA
- Hemicrania continua
- Cranial neuralgias
- Secondary / symptomatic headaches
Approach

Indomethacin 75 mg TID

Indomethacin-responsive headaches:
- Hemicrania continua
- Paroxysmal hemicrania
- Primary stabbing headache
- Primary cough headache
- Primary headache associated with sexual activity
Case 5

TATIANA
Case 5

- Tatiana is a 27-year-old real estate agent and mom, seeing you for “a lot of headaches”
- Encounter is facilitated by a Ukrainian interpreter
- Headaches are “once a week”, “all over the head”, “in neck and shoulders”, feel “heavy” and last “a few hours”
- Takes “medicine from Ukraine... Advil... Excedrin... When it gets bad”
Case 5

- MFSHx: G3P2, nonsmoker, FHX no headache
- ROS: negative
- ALL: NKDA
- Rx: OCP, Concerta, Ambien, Sudafed, cyclobenzaprine
- BP 118/60, P 90, R 29, BMI 23.4, afebrile

- General: Slight tachycardia with standing
- Neuro: Slight sensory loss in R (dominant) median n pattern
### Case 5

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<td>05/22/2015</td>
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<td>05/22/2015</td>
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<tr>
<td>02/06/2015</td>
<td>MRI Brain wo Contrast</td>
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<td>XR CERVICAL SPINE 2 OR 3 VIEWS</td>
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<table>
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**GENERAL CHEMISTRY**

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<td>CRP</td>
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Diagnosis
Pattern Recognition

Unclear picture
- Effects of therapy
- Recall limitations
- Cultural perspectives on health and disease
- Linguistic limitations
- Missing data
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
Case 6

- Erica is a 49-year-old pediatrician
- CC: “bad headache on the right side of my head”
- Long history of migraine without aura
- Typical attacks start on the left side, gradually escalate to severe and bilateral, throbbing, with nausea and photophobia, and last “all day”

- Yesterday, had sudden onset of severe head pain “like a lightning bolt behind my right ear”, associated with R face and arm tingling
- Pain resolved with zolmitriptan and naproxen, but recurred and was “unbearable for a few minutes” in the waiting room
Case 6

- MFSHx: HTN, migraine without aura, R hearing loss, OSA
- ROS: Negative
- ALL: NKDA
- Rx: topiramate, amitriptyline, Nuvaring, zolmitriptan, metoclopramide, naproxen
- BP 171/117, R 16, P 86, afebrile
- General: Unremarkable
- Neuro: Inaccurate finger count in L upper visual quadrant, no drift, L position sense decrement
Diagnosis
6.2.1 Headache attributed to non-traumatic intracerebral hemorrhage

A. Any new headache fulfilling criterion C

B. Intracerebral hemorrhage (ICH)1 in the absence of head trauma has been diagnosed

C. Evidence of causation demonstrated by at least two of the following:

1. headache has developed in close temporal relation to other symptoms and/or clinical signs of ICH, or has led to the diagnosis of ICH

2. headache has significantly improved in parallel with stabilization or improvement of other symptoms or clinical or radiological signs of ICH

3. headache has at least one of the following three characteristics:
   a) sudden or thunderclap onset
   b) maximal on the day of its onset
   c) localized in accordance with the site of the hemorrhage

D. Not better accounted for by another ICHD-3 diagnosis
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
Approach

- Hospitalize for workup and acute management
- Stop triptans / DHE / ergots
- Emphasize prevention
Case 7
Case 7

- Michael is a 55-year-old college professor
- CC: “another TIA”
- Onset 2 hours ago while teaching a class
- Suddenly aware that his R hand was “asleep”, sensation spread over 15 minutes to involve RUE and R side of face
- About 30 minutes after he first felt his hand, he was no longer able to continue his lecture because he couldn’t get his words out
- Now, his sensory and speech problems are gone, but he has a slight headache
- He has had 4 or 5 similar “TIAs” over the past 10 years
Case 7

- MFSHx: No DM, no HTN, no HLD, no AFIB, no DVT; doesn’t smoke; bikes 10 miles to work 5/365; parents A&W in late 80’s
- ROS: Negative
- ALL: NKDA
- Rx: ASA 162 mg daily, red yeast rice, fish oil, B complex, MVI

- BP 128/70, R 10, P 64, BMI 22, afebrile
- General: Unremarkable
- Neuro: Unremarkable
- ECG, Holter, TEE, stress echo, CTA, FLP, hypercoag panel, A1C all normal
Case 7

“A few scattered T-2 / FLAIR hyperintense lesions in the bilateral cerebral white matter. Differential diagnosis includes ischemic, demyelinating, or inflammatory. Clinical correlation required.”
Diagnosis
1.2.1 Migraine with typical aura (G43.009)

- A. At least two attacks fulfilling criteria B and C
- B. Aura consisting of visual, sensory and/or speech/language symptoms, each fully reversible, but no motor, brainstem or retinal symptoms
- C. At least two of the following four characteristics:
  - 1. at least one aura symptom spreads gradually over ≥5 min, and/or two or more symptoms occur in succession
  - 2. each individual aura symptom lasts 5-60 min
  - 3. at least one aura symptom is unilateral
  - 4. the aura is accompanied, or followed within 60 min, by headache
- D. Not better accounted for by another ICHD-3 diagnosis, and transient ischemic attack has been excluded.
Pattern Recognition
Migraine with aura: subtypes

Brainstem Aura
- 1. dysarthria
- 2. vertigo
- 3. tinnitus
- 4. hypacusis
- 5. diplopia
- 6. ataxia
- 7. decreased level of consciousness

Hemiplegic
- 1. fully reversible motor weakness
- 2. fully reversible visual, sensory and/or speech/language symptoms
Approach

ASA 81 – 162 mg daily may mitigate the slightly increased risk of stroke in people with migraine with aura
Case 8

REBECCA
Case 8

- Rebecca is a 51-year-old RT and RPST who runs her own DME company
- CC: “referral to another neurologist for a second opinion”
- Migraine without aura since age 12 (menarche)
- Starting years ago, attack frequency gradually increased

- About 15-20 days a month, headaches are “bad, but I can work through them”
- About 5 days a month “I have to go lie down”
- “I never really have a day without a headache”
- “I’ve tried everything and nothing works”
Case 8

- MFSHx: MS, fibromyalgia, IBS, interstitial cystitis, no stroke, no CVD.
- ROS: Fatigue, weight gain, vision loss, cold intolerance, abdominal pain, easy bruising
- ALL: Droperidol, isoflavones, sulfa, tetracycline, fentanyl, NSAIDs, gluten, alprazolam, amitriptyline, gabapentin, tramadol, zolpidem...
<table>
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<tr>
<th>Medication</th>
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<th>Route</th>
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<td>BEL SOMRA 20 MG tablet</td>
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<td>NIGHTLY PRN</td>
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<td>Nasal</td>
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Case 8

- BP 110/72, R 16, P 84, afebrile
- General: Unremarkable
- Neuro: Unremarkable
- MRI “A few scattered, punctate white matter FLAIR hyperintensities not out of proportion to patient age. No lesions are seen on the corpus callosum”
Diagnosis
8.2 Medication-overuse headache (MOH) (G44.41)

A. Headache occurring on ≥15 days per month in a patient with a pre-existing headache disorder

B. Regular overuse for >3 months of one or more drugs that can be taken for acute and/or symptomatic treatment of headache

C. Not better accounted for by another ICHD-3 diagnosis.
Pattern Recognition

- “I am trying everything and nothing works”
- Nothing works
Approach

Stop overuse pattern

- Establish a therapeutic relationship
- Counsel regarding MOH
- Offer appropriate preventive options
- Encourage patient engagement in alternative treatment plan

- Opioids and butalbital may require expert input
- Cessation of simple analgesics can be supported by the “nana” method...
Approach

- Naratriptan 2.5 mg bid x 3 days, then qd x 3 days
  with
- Naproxen 500 mg bid x 3 days, then qd x 3 days
Case 9

STEFFI
Case 9

- Steffi is a 16-year-old high school senior departing to an ivy-league school where she on a full athletic scholarship
- CC: “frequent headaches”
- Infrequent migraine without aura starting with menarche
- 12 weeks ago, at soccer practice, got a grade 1 concussion, sat out the game

- Since then, has had headaches 3-5 days a week, including 1-2 days of migraine; missing school
- Amitriptyline “too sleepy”, topiramate “too dopey”, atenolol “dizzy”
- Takes sumatriptan 1-2 days a week, no other Tx
MFSHx: LMP within past 28 days, vegan; mother with migraine
ROS: negative
ALL: NKDA
Rx: sumatriptan

BP 98/70, R 12, P 60, afebrile
General: Unremarkable
Neuro: Unremarkable
Diagnosis
5.2 Persistent headache attributed to traumatic injury to the head (G44.309)

A. Any headache fulfilling criteria C and D
B. Traumatic injury to the head has occurred
C. Headache is reported to have developed within 7 days after one of the following:
   1. the injury to the head
   2. regaining of consciousness following the injury to the head
   3. discontinuation of medication(s) that impair ability to sense or report headache
   4. discontinuation of medication(s) following the injury to the head
D. Headache persists for >3 months after the injury to the head
E. Not better accounted for by another ICHD-3 diagnosis.
Pattern Recognition

- Headache new or increased after mild or greater head injury
Approach

- Identify and treat other manifestations of postconcussion syndrome
- Treat headache according to the closest-matching primary headache syndrome (usually migraine)

- Prognosis is often poor
- There are no specific treatments for PPTH
- Providence Brain and Spine will soon be enrolling in a phase 2 trial of a novel drug for treatment of PPTH

844-55-CARE4ME
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Thanks!