Migraine in the Adult Patient

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Disclosures

- **Consultant**
  - Upsher Smith, SK Life, Lilly, Allergan, Biohaven

Objectives

- At the end of this session, the participant should be able to
  - Describe the major clinical features of migraine
  - Explain the principles of acute and prophylactic therapy for migraine headaches
  - Recognize common migraine subtypes
  - Formulate a treatment plan for migraine patients

What is Migraine

Bolay H. Reuter U, Dunn AK, Huang Z, Boas DA, Moskowitz MA. Intrinsic brain activity triggers trigeminal meningeal afferents in a migraine model. *Nat Med*. 2002;8(2):136-142.
Iadecola C. From CSD to headache: a long and winding road. *Nat Med*. 2002;8(2):110-112.
HadjikhaniN,SanchezDelRioM,WuO,etal.Mechanisms of migraine aura revealed by functional MRI in human visual cortex. *Proc Natl Acad Sci USA*. 2001;98(8):4687-4692.

- Common Neurobiological syndrome
  - Largely inherited (mostly polygenic; FHM is monogenic)
- **Pathophysiology**
  - Once thought to be a vascular disorder
  - Currently, mechanism of migraine is not well understood
  - Occipital hyperexcitability
    - Cortical spreading depression
    - Cellular depolarization causes the primary cortical phenomenon or aura phase
      - Leads to activation of trigeminal fibers
        - Headache phase

Phases of Migraine

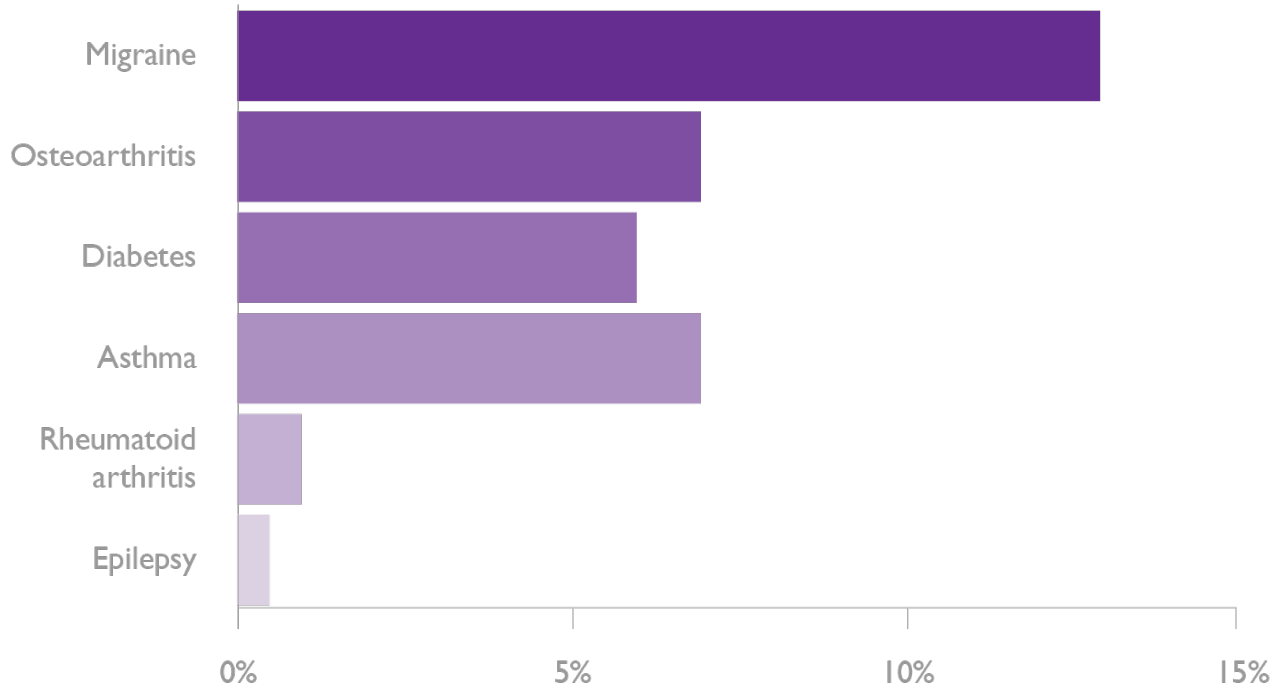
Prodrome	Aura	Headache	Postdrome	Interictal
2-48 hrs prior to HA	5-60 min	4-72hrs	24-48hrs	Period between attacks
Affects 60% of those with migraine	30% of those with migraine	Head pain ranging from mild to severe/ often unilateral	Fatigue, mood changes, hypersensitivity, impaired thinking	Not always symptom free
Neck stiffness, food cravings, fatigue, mood changes	Transient focal neurological symptoms – visual, sensory, speech changes	Usually disrupts normal activity		May have anxiety about next attack/ avoidance of activities
		Associated symptoms: nausea, photophobia, phonophobia, osmophobia, allodynia		
		Often resolves during sleep		

- 1. Cutrer FM, et al. (2017). In: Dalkara T, Moskowitz MA, eds. *Neurobiological Basis of Migraine*. Hoboken, NJ: John Wiley and Sons; 2017:189-200. 2. Lampl C, et al. *J Headache Pain*. 2016;17(1):9.

Epidemiology

- Migraine is common
  - Globally
    - Is the 3rd most common disease
    - Affects about 1 in 7 people
    - 3X more common in women than men

According to US data, migraine is more common than diabetes, epilepsy and asthma combined



Refs: Steiner TJ et al. J Headache & Pain 2013, 14:1; World Health Organization. Atlas of headache disorders and resources in the World 2011. Headache Disorders – not respected, not resourced. All-Party Parliamentary Group on Primary Headache Disorders. 2010; www.cdc.gov/nedss; www.arthritis.org; www.census.gov; Hauser WA et al. Epilepsia 1993;34:453.

Migraine is disabling

- Ranked 6th by WHO for years lost to disability
- 5% of an average person's life
- Depression 3 X more common
- Headache is 4th leading cause of visits to the emergency department
  - 3.1% of all visits to emergency departments
- $27 billion annual cost in US

Refs: Steiner TJ et al. J Headache & Pain 2013, 14:1; World Health Organization. Headache disorders. Fact sheet no.277, 2012; Burch RC et al. Headache 2015;55:21, Raval AD, Shah A. J Pain. 2017;18:96-107

Case 1

- 24 yo single f with recurrent headaches
  - She is an underwriter at a bank
- Dx at 22 years old after first child migraine w/aura
  - Pounding HA preceded by 15-20 minutes “zig-zag lines of light”
  - Associated with photo, phono, and osmophobia; nausea
  - Severe intensity; lasting 12-24 hours
  - No focal symptoms
- No other significant PMHx
- FHx mother, sister, and maternal uncle

Case 1

- Managed by PCP
  - Initial Rx sumatriptan 50 mg for acute treatment
    - Insufficient response; sumatriptan increased to 100 mg
- Sumatriptan works “pretty well most of the time”
  - Limit 9 per month
- Averaging 2-3 mod-to-severe migraine/month, and 1-2 less severe headaches per week (11-13 HA days/month)
- Saves sumatriptan out of fear of running out
- Less severe episodes w/OTC analgesics

Case 1

- She requests increased quantity to 18 tablets/month
- No preventive treatment
- No change in her general health
- No new triggers

Vitals and PE are normal

Current Medications: sumatriptan 100 mg for acute treatment of migraines

Migraine without aura Diagnostic Criteria

International Classification of Headache Diseases 3rd edition (ICHD-3)

Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1-211. doi:10.1177/0333102417738202.

A) At least five attacks fulfilling criteria B through D

B) Headache attacks lasting 4 to 72 hours (untreated or unsuccessfully treated)

C) Headache has at least two of the following characteristics:

1. Unilateral location
2. Pulsating quality
3. Moderate or severe pain intensity
4. Aggravation by or causing avoidance of routine physical activity

D) During headache at least one of the following:

1. Nausea, vomiting, or both
2. Photophobia and phonophobia

Migraine with aura Diagnostic Criteria

International Classification of Headache Diseases 3rd edition (ICHD-3)

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A) At least two attacks fulfilling criterion B and C

B) One or more of the following fully reversible aura symptoms:

1. Visual
2. Sensory
3. Speech and/or language
4. Motor
5. Brainstem
6. Retinal

C) At least three of the following six characteristics:

1. At least one aura symptom spreads gradually over ≥5 minutes
2. Two or more symptoms occur in succession
3. Each individual aura symptom lasts 5 to 60 minutes
4. At least one aura symptom is unilateral
5. At least one aura symptom is positive
6. The aura is accompanied, or followed within 60 minutes, by headache

D) Not better accounted for by another ICHD-3 diagnosis

Migraine with typical aura Diagnostic Criteria

International Classification of Headache Diseases 3rd edition (ICHD-3)

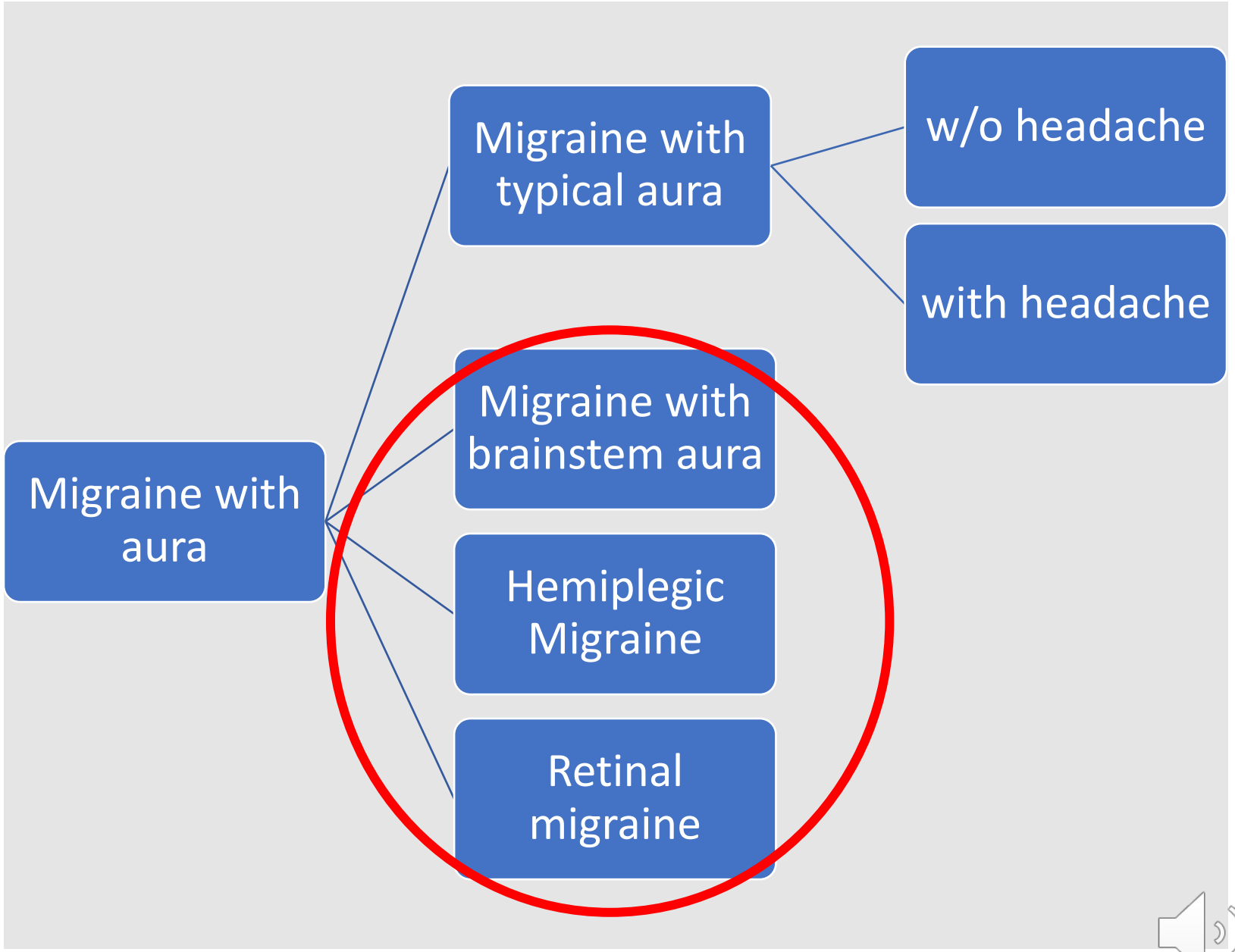
A) Attacks fulfilling criteria for migraine with aura and criterion B below

B) Aura with both of the following:

1. fully reversible visual, sensory and/or speech/ language symptoms
2. no motor, brainstem or retinal symptoms

Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1-211. doi:10.1177/0333102417738202.

Migraine with aura ICHD-3



Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1-211. doi:10.1177/0333102417738202.

Retinal Migraine Diagnostic Criteria

International Classification of Headache Diseases 3rd edition (ICHD-3)

Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1-211. doi:10.1177/0333102417738202.

A. At least 2 attacks fulfilling criteria B and C

B. Aura of fully reversible monocular positive and/or negative visual phenomena confirmed during an attack by either or both of the following:

1. clinical visual field examination
2. patient's drawing of a monocular field defect

C. ≥2 of the following 3 characteristics:

1. aura spreads gradually over ≥5 min
2. aura symptoms last 5-60 min
3. aura accompanied or followed in <60 min by headache

Migraine w/ brainstem aura Diagnostic Criteria

International Classification of Headache Diseases 3rd edition (ICHD-3)

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A. At least 2 attacks fulfilling criteria B and C below, and criteria C and D for 1.2.1 Migraine with typical aura
B. Aura of fully reversible visual, sensory and/or speech/language symptoms, but not motor or retinal
C. ≥2 of the following brainstem symptoms:
    1. Dysarthria
    2. Vertigo
    3. Tinnitus
    4. Hypacusis
    5. Diplopia
    6. Ataxia
    7. decr level of consc

Migraine aura

- 25% experience aura
  - Aura is unlikely to occur in every headache
    - Many patients experience migraine with and without aura.
  - Classical, slow progression of symptoms
  - Not well understood, however, likely associated with cortical spreading depression
  - Can occur for 5-60 minutes prior to or during a migraine attack
  - Visual auras
    - Blind spots, colored spots, flashes of light, sparkles and stars, tunnel vision , zigzags
  - Other auras
    - Confusion, difficulty understanding people, movements you can't control, muscle weakness, audial hallucinations, paresthesias, speech problems
- Aura is followed by typical migraine symptoms described earlier

Migraine History – Red Flags

- First or worse headache ever
- New onset headache
- Onset after age 50y
- Change in pattern of headache
- Worsening headache
- Acute or sudden onset
- Sudden onset during exertion, coughing, sneezing, sex-related
- Headache with postural link
- Headache in the setting of malignancy or HIV
- Systemic symptoms (wt loss, fever, cough)
- Neurologic symptoms or signs

Treatment Decisions: What to consider?

- Individualize Tx Plan
  - Patient preference
  - Pregnancy/lactation/plans to conceive?
  - Frequency/severity
  - Associated symptoms
  - Prior treatment response
  - Comorbid and coexistent illness;
  - Contraindications/cautions (eg, cardiovascular disease, nephrolithiasis)
  - Body habitus and physiological measures (eg, blood pressure, heart rate);
  - Concomitant medications.
- **A process of trial and error is often necessary before treatment can be optimized**

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

Treatment Decisions: AHS Guideline Update:

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

- Preventive Treatment Goals
  - Reduce attack frequency, severity, duration, and disability
  - Improve responsiveness to and avoid escalation in use of acute treatment
  - Improve function and reduce disability
  - Reduce reliance on poorly tolerated, ineffective, or unwanted acute treatments
  - Reduce overall cost associated with migraine treatment
  - Enable patients to manage their own disease to enhance a sense of personal control
  - Improve health-related quality of life (HRQoL)
  - Reduce headache-related distress and psychological symptoms

Indications for preventive treatment

- Attacks interfere with patients' daily routines despite acute treatment
- ≥4 MHDs
- CI to, failure, or overuse of acute treatments, with overuse defined as:
  - 10 or more days/mth for ergot derivatives, triptans, opioids, combination analgesics, and a combination of drugs from different classes that are not individually overused
  - 15 or more days/mth for nonopioid analgesics, acetaminophen, and nonsteroidal antiinflammatory drugs (NSAIDs [including aspirin])
- AEs with acute treatments
- Patient preference
- Hemiplegic mig, mig w/brainstem aura, prolonged aura, Hx of migrainous infarction
  - Regardless of low frequency

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

Indications for Initiating Treatment With Monoclonal Antibodies to Calcitonin Gene-Related Peptide or Its Receptor

- Use is approved when **ALL** of the following are met
  - A. Prescribed by a licensed medical provider
  - B. Patient is at least 18 years of age
  - C. Diagnosis of ICHD-3 migraine with or without aura‡ (4–7 monthly headache days) and both of the following:
    - a. Inability to tolerate (due to side effects) or inadequate response to a 6-week trial of at least 2 of the following:
      - Topiramate, Divalproex sodium/valproate sodium, Beta-blocker: metoprolol, propranolol, timolol, atenolol, nadolol, Tricyclic antidepressant: amitriptyline, nortriptyline, Serotonin-norepinephrine reuptake inhibitor: venlafaxine, duloxetine, Other Level A or B treatments (established efficacy or probably effective) according to AAN-AHS guideline
    - b. At least moderate disability (MIDAS>11, HIT-6>50)

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

Indications for Initiating Treatment With Monoclonal Antibodies to Calcitonin Gene-Related Peptide or Its Receptor

- Use is approved when ALL of the following are met - CONTINUED
  - D. Diagnosis of ICHD-3 migraine with or without aura‡ (8–14 monthly headache days) and inability to tolerate (due to side effects) or inadequate response to a 6-week trial of at least 2 of previously mentioned medications according to AAN-AHS guideline
  - E. Diagnosis of ICHD-3 chronic migraine‡ and EITHER a or b:
    - a. Inability to tolerate (due to side effects) or inadequate response to a 6-week trial of at least 2 of previously mentioned medications according to AAN-AHS guideline
    - b. Inability to tolerate or inadequate response to a minimum of 2 quarterly injection (6 months) of onabotulinumtoxinA

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

Choosing Preventive Treatment for Episodic Migraine

- Beta blockers
  - Metoprolol, propranolol, timolol, atenolol
- CCB
  - Verapamil
- Antidepressants
  - Amitriptyline, venlafaxine, SSRIs
- Anticonvulsants
  - Valproate, topiramate, gabapentin
- CGRP monoclonal antibodies
  - Erenumab, fremanezumab, galcanezumab, eptinezumab (IV)

Treatment Decisions: AHS Guideline update:

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

- Acute Migraine Treatment Goals
  - Rapid and consistent freedom from pain and associated symptoms without recurrence
  - Restored ability to function
  - Minimal need to repeat dosing or rescue medications
  - Optimal self-care and reduced subsequent use of resources (e.g., ER visits)
  - Minimal or no AEs

Treatment Decisions: AHS Guideline update:

- Indications for Acute Treatment
  - All patients with migraine should be offered a trial of acute treatment.

(2019), The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice. Headache: The Journal of Head and Face Pain, 59: 1-18. doi:10.1111/head.13456

Developing Treatment Plans

- Use Evidence-Based Treatments
- Choose a Nonoral Route of Administration for Severe Nausea or Vomiting
- Account for Tolerability and Safety Issues
- Consider Self-Administered Rescue
- Avoid Medication Overuse

Case 2

- 31-year-old woman with recurrent headaches
- Onset during adolescence
- HA only around menstruation
- PMHx: asthma, hx of nephrolithiasis, and depression
- FHx: mother and maternal grandfather with migraine
- Migraines improved during her two pregnancies
- Otherwise, migraines occur around most menstrual cycles
- HA typically occurs during the 5-day perimenstrual period from day -2 through day +3 (day 1=first day of flow)
- First symptoms is HA
  - pounding in nature
  - associated with photophobia, phonophobia, osmophobia, and nausea
  - +made worse with activity
  - the pain is severe

Case 2

- SHx: She works as a real estate agent
- Past acute migraine meds: OTC analgesics provided no reliable benefit; she experienced SE to triptan medications
- She has never tried preventative therapy
- Vitals and PE are normal
- Current medications: verapamil, venlafaxine, Fioricet (prn)

Menstrual Migraine

- Pure Menstrual Migraine
  - migraine without aura
  - 2/3 of menstrual cycles during the 5-day perimenstrual period from day -2 through day +3 (day 1=first day of flow)
  - Headache diaries are helpful
- Menstrually related migraine
  - migraine without aura
  - occurs during the 5-day perimenstrual window of -2 through +3
    - but occurs at other times of the cycle as well
- >50% of female migraine patients
- **Menstrual migraine is not listed in the ICHD3 – considered a trigger**

Menstrual Migraine

- Treatment
  - Acute
    - Mild-moderate menstrual migraine: OTCNSAID/combination product; Rx NSAID, e.g. Naproxen 500 mg prn
    - Moderate-severe: triptan+/-NSAID
    - Rescue: Sumatriptan 4-6 mg sq; Ketorolac 30-60 mg IM; DHE .5 mg NS each nostril; repeat in 15 minutes; DHE-45 .5-1 mg IM or IV every 8 hours
    - Consider small molecule CGRP receptor antagonist for acute therapy (rimegepant and ubrogepant)
  - Preventative (Pure menstrual migraine)
    - Short term strategies
      - Magnesium oxide 250-500 mg qd; Naproxen 500 mg bid; begin day 14 of cycle; continue through completion of menses
      - Triptan for 5-6 days; e.g. Frovatriptan (Frova) 5 mg loading dose followed by 2.5 mg bid for 5 days; begin -2 of cycle
      - Consider small molecule CGRP receptor antagonist

Menstrual Migraine

- Treatment
  - Preventative (menstrually related migraine)
    - Long term strategies
      - Magnesium oxide 250-500 mg qd
      - Approved preventative therapies
        - AEDs, TCAs, betablockers,
          - SSRIs, CCB, ACEI, ARBs
      - Consider CGRP monoclonal antibodies
    - Hormonal preventative regimens (Consult OBGYN)
      - Continuous oral contraceptives
      - Ethinylestradiol15mcg/etonogestrel120mcg(Nuvaring)
      - Ethinylestradiol20mcg/norelgestromin150mcg(OrthoEvra)
      - Ethinylestradiol30mcg/levonorgestrel.15mg(Seasonale)

Case 3

- 24-year-old m presents to the UC with acute HA X 4 days
- PMHx: PCP Dx 18 yo
- FHx: No known FHx
- typical HA
- Prodrome stiffness in his neck
  - HA started after working outside next day. It was hot and humid
    - tingling in his LUE “queasiness”
    - Left work
    - Over the next hour he dev progressive tingling of LUE and LLE
    - Has happened before
- HA Left occ area > left retroorbital area and temple
  - pounding
  - associated with photophobia and nausea
  - - visual changes or muscle weakness
  - paresthesias subsided after about 1 hour from onset

Case 3

- Day 4 continued HA
  - Maxalt has not helped
  - He has not taken anything today
- Current symptoms include a pounding holocranial headache, +photophobia, phonophobia, and nausea
- No focal symptoms, including hemisensory changes
- typical headache; it “just won’t go away”
- Freq: 1-2 migraines per 3-4 months

Vital signs and PE are normal

Acute migraine treatment

- 2016 American Headache Society (AHS) guidelines for the management of adults with acute migraine in the ED
  - IV metoclopramide, IV prochlorperazine, and SQ sumatriptan (level B recommendation)
    - IV metoclopramide 10 mg + IV diphenhydramine 25 mg
  - Dexamethasone (10-24mg) to prevent recurrence of headache (level B)
  - Opioids (injectable morphine and hydromorphone) should be avoided

Orr, S. L., Friedman, B. W., Christie, S., Minen, M. T., Bamford, C., Kelley, N. E., & Tepper, D. (2016). Management of adults with acute migraine in the emergency department: The American headache society evidence assessment of parenteral Pharmacotherapies. *Headache: The Journal of Head and Face Pain*, *56*(6), 911-940. https://doi.org/10.1111/head.12835

Case 3 - Acute migraine treatment PCP Follow Up

- PCP FU 2 days later
- No symptoms
- Rizatriptan has not been as reliable
  - SE chest tightness
    - Similar SE w sumatriptan
- Requiring acute therapy 2-3 times every two months
- OTC analgesics are not effective
- Has missed a couple of days of work over the past 6 months from his migraines

Acute migraine treatment PCP Follow Up

- New acute therapies
  - Nasal zolmitriptan or sumatriptan
  - Lasmiditan (November 2019) (50 mg, 100 mg, 200 mg)
    - Selective 1F receptor agonist
    - No vasoconstriction
    - SE
      - Dizziness and somnolence
    - Contraindications
      - No driving for at least eight hours after taking the medication
    - Good option for patients with relative CI to triptans due to CV risks
  - Ubrogepant (December 2019) and Rimegepant (February 2020)
    - CGRP antagonists
    - Ubrogepant 50 mg, 100 mg
      - May repeat after 2 hours if needed
    - Rimegepant 75 mg
      - QD dosing
    - MC SE nausea, somnolence, dry mouth
    - No vasoconstriction

Case 4

- 34-year-old mother of 3 (12f, 10m, 6f) presents for evaluation of frequent headaches
- PMHx: Migraine without aura at age 16 and depression
- FHx: Maternal and paternal history of migraine
- Increased frequency over the past 3-4 years
- Increased stress level
- Pounding HA
- Associated with photophobia, phonophobia, osmophobia, allodynia, and nausea
- Made worse w/ activity
- No diplopia, tinnitus, muscle weakness, paresthesias, or other focal neurological symptoms

Case 4

- Triggers: red wine, processed meats, and weather changes.
- Attacks tend to last 2-3 days each
- 16-20 MHA
- Current medications: topiramate, venlafaxine, sumatriptan
- Past preventative medications: gabapentin, propranolol, amitriptyline, citalopram
- Past acute medications: sumatriptan, rizatriptan, nasal zolmitriptan, nasal dihydroergotamine.

Chronic Migraine

- **Criteria**
  - ≥15 headache days/month for more than 3 months
  - +features of migraine at least 8 days/month
- **Management**
  - Avoid triggers
  - Prophylactic treatment
    - Episodic prophylactic treatment trial
    - onabotulinimtoxinA
    - CGRP antagonists
      - Erenumab, fremanezumab, galcanezumab, and eptinezumab
    - Other prophylactic options
      - Feverfew, tizanidine, memantine, pregabalin, cyproheptadine, zonisamide

Case 5

- 36-year-old schoolteacher mother of 3 (12f, 10m, 6f) presents for evaluation of frequent episodes of visual disturbances
- No significant PMHx
- Onset adolescence
- FHx: maternal and paternal history of migraine
- Increasing frequency
- No abnormal gustatory, olfactory, or abdominal symptoms; No déjà vu or jamais vu; No alteration of awareness; No postictal state.
- No HA
- PCP ordered a head CT and EEG, which were both normal

Case 5

- ED 3 years ago - Dx TIA; Rx aspirin 81 mg daily; No RF for stroke
- carotid ultrasound, echocardiogram, and bloodwork - unremarkable
- Ophthalmology eval unremarkable
- She has continued having stereotypical episodes averaging approximately 3 per 2 weeks

Case 5 - Discussion

What is the differential Dx?

- Transient ischemic attack
- Epilepsy
- Migraine aura without headache
- Inflammatory cerebrovascular disease

Migraine aura without headache

- Diagnosis of exclusion
- Previously referred to as migraine equivalents, acephalgic migraine, and “ocular migraine”
- Treatment
  - Calcium channel blockers (verapamil)
  - Amitriptyline
  - Topiramate
  - Potential utility for CGRP monoclonal antibodies
- Acute therapy is usually not warranted due to short duration of symptoms

Case 6

- 19-year-old f presents for ED w/ hemiplegia and severe pulsatile head pain
- PMHx: Migraine since 12 years old
- FHx: Maternal history of migraine
- On several occasions, she has experienced migraine with a sensory aura (numbness/tingling up one arm and into her face).
- Rare episodes she experienced pronounced weakness/paralysis involving left leg, arm, and face; +numbness/tingling involving the left side of the body
- Typical presentation:
  - weakness lasts 1-2 hours
- Most recent episode:
  - Weakness lasted 7 hr – ED
    - CT scan; MRI brain wo contrast = no acute intracranial abnormality, ultimately ruling out a stroke
    - echocardiogram and carotid ultrasound = normal
    - Sx subsided after 10 hr
    - Dx TIA and referred to neurology clinic for FU

Case 6

- Neuro FU 7 days post discharge
- No recurrence of symptoms
- Vitals and PE normal
- FHx: mother and maternal grandmother had similar symptoms as adolescents and young adults
  - With age, attacks were less frequent
  - disappeared after menopause

Hemiplegic Migraine

Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1-211. doi:10.1177/0333102417738202.

- **Criteria Hemiplegic Migraine**
  - A. Attacks fulfilling criteria for migraine with aura and criterion B below
  - B. Aura consisting of both of the following:
    - Fully reversible motor weakness
    - Fully reversible visual, sensory and/or speech/language symptoms
- **Criteria Familial Hemiplegic Migraine (FHM)**
  - A. Attacks fulfilling criteria for Hemiplegic Migraine
  - B. At least one first- or second-degree relative has had attacks fulfilling criteria for 1.2.3 Hemiplegic migraine
- **Criteria for Sporadic Hemiplegic Migraine**
  - Fulfilling criteria for 1.2.3 *Hemiplegic migraine*
  - No first- or second-degree relative has had attacks fulfilling criteria for 1.2.3 Hemiplegic migraine

No other explanation of the symptoms is available, and stroke and transient ischemic attack have been excluded.

Hemiplegic Migraine

- Treatment
  - No triptans
  - Verapamil
  - Acetazolamide
  - lamotrigine
  - Topiramate
  - Consider CGRP monoclonal antibody

Case 7

- 34-year-old man presents for follow up visit for recent stroke
- ED 1 week ago
  - Left visual field deficit
  - Sx for 3 days before his wife insisted that he get checked out
    - similar episode 3yrs ago
      - Dx: lacunar infarction
  - MRI brain: old and new stroke - right occipital lobe
  - Echocardiogram with bubble study, carotid ultrasound, CBC, and A1C all normal
- PMHx significant for migraine, prior stroke, depression
- Current meds: aspirin, Butal-acet-caff, citalopram
- PSHx: alcohol socially, never smoked, employed as a supervisor at a glass factory

Case 7

- FU: left superior quadrantanopia without improvement
- This episode started like his typical migraine
- Migraine Hx: Onset young child
- Avg 1-3/yr
- Prior stroke occurred similarly with migraine
- Experiences left superior quadrantanopia often with migraine; typically less than 1 hr
- HA 10 hours after his typical 20 minutes of visual aura began; visual deficit did not improve
- No other symptoms including weakness, paresthesia, or speech changes

Case 7

- Managed by PCP for prior stroke and migraines
- Tx: sumatriptan caused side effects; Now taking rizatriptan which he tolerates better
- No preventative treatment
- Hypercoagulable studies were negative
- No identifiable risk for stroke

Migrainous Infarction - Discussion

Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. *Cephalalgia*. 2018;38(1):1-211. doi:10.1177/0333102417738202.

Description:

One or more migraine aura symptoms occurring in association with an ischemic brain lesion in the appropriate territory demonstrated by neuroimaging, with onset during the course of a typical migraine with aura attack.

Criteria:

A. A migraine attack fulfilling criteria B and C

B. Occurring in a patient with 1.2 Migraine with aura and typical of previous attacks except that one or more aura symptoms persists for >60 minutes1

C. Neuroimaging demonstrates ischemic infarction in a relevant area

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

Mostly occurs in the posterior circulation and in younger women.

Migrainous Infarction - Treatment

- Treatment combining stroke risk factor control with migraine prophylaxis
- Avoid:
  - Betablockers in > 60 years of age or smokers
  - Triptans and ergot alkaloids
- Women w/ migraine with aura
  - stop smoking
  - control their blood pressure
  - alternative method of contraception

Complications of migraine

- Status migrainosis
  unremitting for >72 hours
  pain and/or associated sx are debilitating

- Persistent aura without infarction
  >1 week with nl MRI

- Migrainous infaction
  Aura sx >1 hour, MRI shows stroke in approp area
  - **Discussed in previous case**

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Thank you,

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