How To Diagnose Migraine
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Migraine: an episodic disorder, most commonly consisting of severe headache, usually with photophobia (light sensitivity), phonophobia (sound sensitivity) and/or nausea (at times vomiting). It is one of the most frequent chief complaints presented to health care providers including neurologists and emergency medicine. Migraine typically affects more women than men, often peaking during 2 phases of life: puberty and/or perimenopause. Migraine can lead to significant amounts of mental, physical, financial, medical, societal and personal burden when not properly addressed.

Migraine, as defined by the International Classification of Headache Disorders, third edition (ICHD-3), should include the following:

1. At least 5 or more attacks in lifetime
2. Headache attack lasting 4-72 hrs
3. At least 2 out of 4 features (unilateral location, pulsating/throbbing quality, moderate-severe intensity, aggravation by/causing avoidance of routine physical activity)
4. At least 1 of the following features (nausea and/or vomiting, photophobia and phonophobia)

Quick screening tool to identify migraine:
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(at least 2 out of 3 positive)
- Disability (limits routine daily activity, work/school, social activity)
- Nausea
- Photophobia

*Sensitivity of 0.81 (95% CI, 0.77 to 0.85), specificity of 0.75 (95% CI, 0.64 to 0.84) in a primary care setting at times mild elation or euphoria.

Migraine Phases:
Prodrôme → Aura → Headache → Postdrome
1. Prodrôme: commonly 24-48 hours prior to headache. Can include yawning, mood changes, food cravings, GI symptoms, increased sensitivities and/or neck stiffness
2. Aura: see list of migraine variants below for descriptions
3. Headache: see typical clinical features listed above; also keep in mind headache location often shifts around the cranium
4. Postdrome: often feeling drained/exhausted, although at times mild elation or euphoria
Important Clinical Pearls to Keep in Mind:

- Rule out secondary headache when diagnosing primary headache disorder (see figure below)
- Neuroimaging not indicated in patients with recurrent headache with clinical features of migraine, normal neurologic examination findings and no red flags
- Neuroimaging, sinus or cervical spine x-ray scans and electroencephalograms (EEG) generally not recommended for routine assessment of patients with headache: clinical history + family history + physical/neurologic examination findings usually sufficient to make a diagnosis of migraine
- Migraine by far the most common headache type in patients seeking help from physicians
- Migraine is frequently underdiagnosed and undertreated
- Patients consulting for bilateral headaches that interfere with daily activities likely to have migraine rather than tension-type headache (might require migraine-specific medication)
- Consider diagnosis of migraine in patients with previous diagnosis of “recurring sinus headache”
- Medication overuse headache (a secondary headache disorder): considered present in patients with migraine (or tension-type headache) using combination analgesics, opioids or triptans ≥ 10 days/month, or acetaminophen/NSAIDs ≥ 15 days/month
- Comprehensive migraine therapy typically includes management of healthy lifestyle modifications, avoiding triggers, prophylactic/acute medications, status migrainosus action plan, non-pharmacologic therapies and/or devices and migraine self-management strategies
- Substantial numbers of patients who might benefit from prophylactic therapy do not receive it
- Keeping a headache diary is helpful to track progress/acute medications

Aura can be disabling; for example, visual aura may obscure most of the visual field (artist’s depiction of aura symptoms)
When ruling out other headache types prior to a migraine diagnosis, consider the following helpful algorithm:

**Red flags**
- **Emergent (address immediately)**
  - Thunderclap onset
  - Fever and meningismus
  - Papilledema with focal signs or reduced LOC
  - Acute glaucoma

**Urgent (address within hours to days)**
- Temporal arteritis
- Papilledema (WITHOUT focal signs or reduced LOC)
- Relevant systemic illness
- Elderly patient: new headache with cognitive change

**Possible indicators of secondary headache**
- Unexplained focal signs
- Atypical headaches
- Unusual headache precipitants: Valsalva, positional, exercise, sex, cough, trauma, etc
- Unusual aura symptoms: Brainstem (dysarthria, vertigo, tinnitus, hypacusis, diplopia, ataxia, decreased LOC), motor, retinal
- Onset after age 50 y
- Aggravation by neck movement; abnormal neck examination findings (consider cervicogenic headache)
- Jaw symptoms; abnormal jaw examination findings (consider temporomandibular joint disorder)

**Medication overuse**
- **Assess**
  - Ergots, triptans, combination analgesics, or codeine or other opioids ≥ 10 d/mo OR
  - Acetaminophen or NSAIDs ≥ 15 d/mo

**Migraine**
- Acute medications
- Monitor for medication overuse
- Prophylactic medication if
  - Headache > 3 d/mo and acute medications are not effective OR
  - Headache > 8 d/mo (risk of overuse) OR
  - Disability despite acute medication

**Behavioural Management**
- Keep headache diary: record frequency, intensity, triggers, medication
- Adjust lifestyle factors: reduce caffeine, ensure regular exercise, avoid irregular or inadequate sleep or meals
- Develop stress management strategies: relaxation training, CBT, pacing activity, biofeedback

**Tension-type headache**
- Acute medication
- Monitor for medication overuse
- Prophylactic medication if disability despite acute medication

**Cluster headache or another trigeminal autonomic cephalalgia**
- Management primarily pharmacologic
- Acute medication
- Prophylactic medication
- Early specialist referral recommended

**Hemicrania continua**
- Specialist referral

**New daily persistent headache**
- Specialist referral

**Uncommon headache syndromes**
- **All of**
  - Frequent headache
  - Severe
  - Brief (<3 h per attack)
  - Unilateral (always same side)
  - Ipsilateral eye redness, tearing, or restlessness during attacks

- **All of**
  - Unilateral (always same side)
  - Continuous
  - Dramatically responsive to indomethacin

- Headache continuous since onset

**Practice points:**
- Migraine has been historically underdiagnosed
- Consider migraine diagnosis for recurring “sinus” headache

**Headache with ≥ 2 of**
- Nausea
- Light sensitivity
- Interference with activities

**Headache with no nausea but ≥ 2 of**
- Bilateral headache
- Nonpulsating pain
- Mild to moderate pain
- Not worsened by activity

**First Contact**
**HEADACHE In Primary Care**
**American Headache Society**
All variants below should meet ICHD-3 criteria for migraine listed at beginning of this section, in addition to the below listed individual characteristics:

1. If headache meets most but not ALL ICHD-3 criteria for migraine, then call it **Probable Migraine**

2. **Chronic migraine**: half of the days are of migraine severity/phenotype ($\geq 15$ days/month), for $> 3$ months

3. **Status migrainosus**: debilitating migraine attack $\geq 72$ hours

4. **Migraine aura without headache** is possible

5. **Migraine with aura**
   a. At least 1 or more fully reversible features (**TYPICAL AURA**: visual, sensory, speech and/or language. **OTHER AURA**: motor, brainstem or retinal)
   b. At least 3 or more characteristics:
      i. At least 1 aura symptom spreads gradually over $\geq 5$ minutes (if sudden onset, think about alternate etiology such as stroke/TIA, etc.)
      ii. 2 or more aura symptoms occur in succession
      iii. Each individual aura symptom lasts typically 5-60 minutes
      iv. At least 1 aura symptom is unilateral
      v. At least 1 aura symptom is positive (example: sensory tingling is positive, numbness is negative)
      vi. The aura is accompanied or followed within 60 minutes by headache

6. **Migraine with brainstem aura**
   a. At least 2 or more reversible features (dysarthria, vertigo, tinnitus, hypoacusis, diplopia, ataxia not attributable to sensory deficit, decreased level of consciousness)
   b. NO motor or retinal symptoms

7. **Hemiplegic migraine**
   a. Fully reversible motor weakness AND fully reversible visual, sensory and/or speech/language symptoms
   b. Can be familial or sporadic

8. **Retinal migraine**
   a. Repeated attacks of monocular visual disturbance (including scintillations, scotomata or blindness), associated with migraine headache
   l. fully reversible, monocular, positive and/or negative visual phenomena confirmed during an attack by either or both of the following:
      - clinical visual field examination
      - the patient’s drawing of a monocular field defect
   ii. at least 2 or more of the following:
      - spreading gradually over $\geq 5$ minutes
      - symptoms last 5-60 minutes
      - accompanied or followed within 60 minutes by headache

Although these are NOT considered to be “traditional migraine variants,” the diagnoses below are listed in the APPENDIX of the ICHD3:

**Vestibular migraine**
- Vestibular symptoms moderate-severe intensity
- Typically 5 minutes to 72 hours
- At least half of episodes associated with at least one of the following migraine features:
  - Headache with at least 2 of 4 features (unilateral location, pulsating, moderate-severe intensity, aggravation by/avoiding routine physical activity)
  - Photophobia and phonophobia
  - Visual aura

**Menstrual migraine**
- Occurs in at least two-thirds of menstrual cycles during the typical 5-day perimenstrual period from day 2 through three days after period begins (with day one as the first day of flow)

Do not be afraid to ask the patient about the various features that can occur with their migraine.

Often patients will forget to be forthcoming about certain aspects of their migraine because they have “gotten used to dealing with it for so long,” thus it is commonly ignored.
Asking patients about alleviating factors can also help in acquiring the clinical history for a migraine patient. Here are some common examples:

1. Migraine patients often need to sleep/rest for relief (compared to cluster headache patients who are often agitated/pacing around)
2. Prefer to rest in a dark room (which could indicate light sensitivity, or photophobia)
3. Prefer to rest in a quiet place (which could indicate sound sensitivity, or phonophobia)
4. Prefer to rest keeping still (which could indicate movement sensitivity, or kinesiophobia)
5. Prefer to avoid perfume/cologne or other strong smells (which could indicate smell sensitivity, or osmophobia)
6. Prefer to avoid touching the scalp/neck (which could indicate cutaneous allodynia)

A helpful hint in determining headache frequency is to ask how many days of true headache freedom they have every month.

Lifestyle modifications are the key foundation of non-medication therapies to help migraine.

- Regular eating schedule
- Regular sleeping schedule with sleep hygiene
- Avoid excess sugar/carbohydrates
- Avoiding excess caffeine
- Cardio exercise: recommended 40 minutes, 3 days per week (or about 20 minutes per day when discussing compliance with the patient)
- Stress/mental health management

Lifestyle specific references:


References