Migraine:

More Than A Headache

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Migraine is not just a headache disorder, it is truly a neurologic disorder, with evidence pointing to the existence of a migraine generator within the brainstem and a spreading neuronal depression affecting the cortex during the migraine aura. However, migraine remains misunderstood, misdiagnosed and, often, mistreated.

Migraine affects 6% of men and up to 18% of women. Although migraine is a lifetime syndrome in most patients, it can usually be managed without significant diffic... Migraine has five ... (Figure 1) ...

... motor, ... some cases, it may

Hannah's Head

Hannah, 24, presents with a 12-year history of intermittent headaches.

- Her headaches began with menarche and always occur around the time of menses.
- They happen without warning and last up to three days.
- Hannah's headaches are felt bilaterally over her head, with throbbing, moderate to severe pain, associated nausea, vomiting and photophobi...
- Her examination is normal.

What is Hann...

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... of four to 72 hours if untreated or unsuccessfully treated.

Pain characteristics (at least two)
- Unilateral location
- Pulsating quality
- Moderate to severe intensity
- Aggravation when walking stairs or similar physical activity

Associated symptoms (at least one)
- Nausea, vomiting or both
- Photophobia or phonophobia

History and physical examination must not suggest an underlying organic disease. At least five total attacks meeting the above criteria are necessary.

How is migraine diagnosed?

Migraine without aura can be diagnosed based on clinical data (Table 1) and rarely requires the use of diagnostic imaging. Migraine with aura diagnosis uses the same criteria for the headache portion, but criteria for the aura must be met as well (Table 2). These diagnostic criteria are very specific when followed closely.

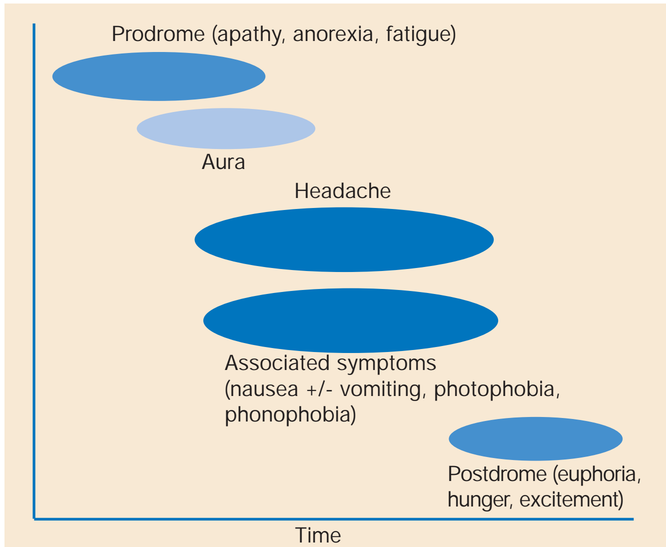

Figure 1. Five phases of migraine.

Table 2

Diagnostic criteria for migraine with aura

Diagnostic criteria for the headache portion from Table 1 must be met.

Aura characteristics (at least three)

- One or more fully reversible aura symptoms indictaing focal cerebral cortical or brain-stem dysfunction.
- At least one aura symptom develops gradually lasting longer than four minutes or two or more symptoms occur in succession.
- No single aura symptom lasts > 60 minutes.
- Headache begins within 60 minutes of aura onset.

History and physical examination must not suggest an underlying organic disease. At least two total attacks meeting the above criteria are necessary.

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Are there any red flags to other diagnostic possibilities?

There are several clinical indicators which may indicate a condition that mimics migraine (Table 3). Conditions that must always be kept in mind include:

- subarachnoid hemorrhage,
- meningitis,
- mass lesion-associated headache,
- intracranial hemorrhage,
- stroke,
- venous thrombosis and
- pseudotumour cerebri.

What prophylactic therapies can be considered?

In general, prophylactic therapies should be considered for the patient who experiences more than three migraines per month. Prophylactic therapies must be taken daily for efficacy.

Often, prophylactic therapies can be tailored to the individual patient. For example, the migraine sufferer with hypertension may be best treated with a beta-blocker or calcium channel blocker. The migraine sufferer with epilepsy may have greatest success with valproic acid or topiramate. For patients who do not want to take medication, riboflavin (vitamin B2) or magnesium sulphate may be good options (Table 4).

In the case of menstrual-associated migraines, removal of estrogen-containing preparations may be beneficial and the use of abortive or prophylactic agents around the time of menses is often successful.

Table 3

Red flags of other causes of headache

Red flag	Conditions to consider
Onset after age 50	Temporal arteritis, intracranial malignancy
Sudden onset	Subarachnoid hemorrhage
Increasing frequency and severity	Mass lesion-associated headache
Presence of HIV or cancer	Intracranial malignancy, opportunistic infection
Systemic illness (fever, meningismus)	Meningitis
Focal neurologic deficitis	Subarachnoid hemorrhage, malignancy, stroke
Altered level of consciousness	Mass lesion, meningitis, subarachnoid hemorrhage
Papilledema	Increased intracranial pressure, pseudotumour cerebri
Trauma	Subdural hemtoma, subarachnoid hemorrhage

Hannah's Diagnosis

Hannah is diagnosed with menstrual-associated migraines without aura.

She is placed on ibuprofen daily starting three days before her menses and notices improvement in headache severity and frequency.

The addition of sumatriptan tablets taken at the onset of headache pain also improves her headache severity and duration.

What abortive therapies can be considered?

Abortive therapies are best considered for the migraine sufferer with three or less migraines per month. First-line agents include acetaminophen and non-steroidal anti-inflammatory agents, such as ibuprofen. Some patients may respond to the combination of acetaminophen, acetylsalicylic acid and caffeine.

Other abortive therapies include the triptans and ergots. In cases of emergency room presentations, intravenous metoclopramide followed by dihydroergotamine, 20 to 30 minutes later, can be a successful abortive combination.

Other agents that can be attempted in that setting include triptans, corticosteroids, anti-psychotics and finally, opioids (Table 5).

Table 4

Prophylactic agents for migraine

- Amitriptyline starting at 10 mg to 25 mg, qhs
- Nadolol, 40 mg to 160 mg, od
- Verapamil, 80 mg, tid
- Valproate, 250 mg, tid
- Methysergide, 2 mg, bid-qid
- Magnesium, 360 mg, od
- Riboflavin, 400 mg, od
- Topiramate starting at 25 mg, bid

qhs: Every hour of sleep
od: Once daily
tid: Three times a day
bid: Twice a day
qid: Four times daily

Table 5
Abortive agents for migraine

- Naproxen, 375 mg
- Ibuprofen, 400 mg
- Acetaminophen, 250 mg/acetylsalicylic acid, 250 mg/caffeine, 65 mg
- Metoclopramide, 10 mg
- Dihydroergotamine, 0.5 mg to 1 mg
- Chlorpromazine, 25 mg to 50 mg
- Corticosteroids
- Neuroleptics
- Triptans
  - Almotriptan, 6.25 mg to 12.5 mg
  - Naratriptan, 1 mg to 2.5 mg
  - Rizatriptan, 5 mg to 10 mg
  - Sumatriptan, 50 mg to 100 mg
  - Zolmitriptan, 2.5 mg to 5 mg

Frequently asked questions...

1. Can migraine be associated with stroke?

Migrainous infarction is exceptionally rare, but is possible in patients with migraine with aura.

2. Can herbal medications be used to treat migraine?

This is unclear and lacking evidence. Feverfew, primrose oil and fish oils have been shown to be no better than placebo.

3. What is the association of hormones with migraine?

Migraine can be triggered or provoked during times of escalating estrogen levels, such as at menarche, menses or menopause.

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