MIGRAINE: THE INS AND OUTS OF MANAGEMENT
Lynn Rankin, MD
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Objectives
• Brief review of headache classification
• Brief review of diagnosis of primary vs. secondary headache disorders
• Brief overview of pathophysiology
• Management principles
• Abortive and preventive therapy

IHS Migraine and Tension-Type Headache
• Migraine
  1. >4 attacks lasting 4-72 hours
  2. At least 2 of the following:
     - Unilateral
     - Pulsating
     - Moderate to severe intensity
     - Aggravated by routine physical activity
  3. At least 1 of the following:
     - Nausea and/or vomiting
     - Photophobia and phonophobia

• Tension Type
  1. > 10 attacks lasting 30 minutes to 7 days
  2. At least 2 of the following:
     - Bilateral
     - Non-pulsating
     - Mild to moderate intensity
     - Not aggravated by routine physical activity
  3. No nausea or vomiting, and only one of photophobia or phonophobia

Diagnostic Support for Migraine
• Childhood precursors
• Relief with sleep
• Reliable triggers
• Other associated symptoms- osmophobia
• Positive family history

Recurrent moderate to severe headaches are migraine until proven otherwise.

Disclosures
• Allergan preceptor for Botox training for chronic migraine

Migraine With Aura- IHS Criteria
Based on the aura symptoms, not headache features but headache must begin during or within 60 minutes after the aura.
A. At least 2 attacks
B. Aura consisting of at least 1 of the following:
  1. Fully reversible visual symptoms
  2. Fully reversible sensory symptoms
  3. Fully reversible dysphasic speech problem
C. At least 2 of the following:
  1. Homonymous visual symptoms and/or unilateral sensory symptoms
  2. At least one aura symptom develops gradually over >5 minutes and/or different aura symptoms occur in succession over >5 min.
  3. Each symptom lasts 5-60 minutes
### Diagnosis

<table>
<thead>
<tr>
<th>Prevalence</th>
<th>Primary</th>
<th>Secondary</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Migraine</td>
<td>Cluster</td>
</tr>
<tr>
<td></td>
<td>Tension type</td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td>Infected</td>
<td>Vascular</td>
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<tr>
<td></td>
<td>ICP</td>
<td>Tumor</td>
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</tbody>
</table>

### Worrisome Red Flags “SNOOP”
- Systemic symptoms (fever, weight loss) or Secondary risk factors (HIV, systemic cancer)
- Neurologic symptoms or abnormal signs (confusion, drowsiness, diplopia, hyperreflexia, meningismus, papilledema)
- Onset sudden “thunderclap”
- Older individual especially if new onset and progressive
- Previous headaches different

### THE NEUROVASCULAR THEORY

Meninges
Cortical Spreading Depression
Trigeminal Serotonergic Nerve Endings


### CUTANEOUS ALLODYNIA

- 1-Peripheral Trigeminal Sensitization
- 2-Secondary Trigeminal Sensitization
- 3-Secondary Head Alloodynia
- 4-Extraocular Alloodynia

Bunger RE et al. Brain. 2005

### Principles of Migraine Management
- Thorough first visit including their goals and quality of life survey, e.g. MIDAS or HIT-6
- Establish a therapeutic partnership
- Establish a treatment plan
  - communicate the diagnosis
  - strategies for identifying and avoiding triggers
  - lifestyle and behavioral management (regular sleep, meals, exercise, stress management)
  - preventive and abortive medication plan
MIGRAINE TRIGGERS

Physical exertion  Diet
Hormonal changes  Head trauma
Stress and anxiety  Sleep deprivation or excess
Environmental factors

Abortive Treatment Principles

- Stratify care rather than step care
- Treat early for best results, CAVEAT- medication overuse
- Use correct dose, formulation and route
- Use maximum of 2-3 days per week
  - simple analgesics max 15 days per month
  - triptans max 10 days per month
  - opiates max 8 doses per month
  - butalbital max 5 doses per month
- Use preventive therapy in patients with frequent attacks and then their abortive meds may work better

Abortive Medication Principles, cont’d

- Consider synergistic effects of combinations- caffeinated beverage, NSAID, triptan and antiemetic
- Have a rescue plan in place to avoid trips to ER
  - sumatriptan injection or Sumavel DosePro
  - sedating antiemetic (po or pr) and/or benedryl
  - home ketorolac and antiemetic injections
  - home DHE injections in non triptan users
  - medrol dose pak on hand
  - occipital nerve block in the office
  - fluids and IV meds at the infusion center at ILH
  - rare opiate in select cases only

Rationale for Early Treatment

- Treat early to prevent or lessen disability
- Decrease risk of headache recurrence
- Decrease # of abortive tablets needed per attack
- Prevent central sensitization and allodynia

Inadequate acute treatment efficacy is associated with increased risk of conversion to chronic migraine.

AMPP study, Neurology 2015;84:688-95.
**Non oral route of abortive therapy**

- **Nasal - Triptans**
  - sumatriptan, zolmitriptan - DHE - Migranal

- **Transdermal**
  - Zecurity sumatriptan iontophoretic patch

- **Subcutaneous**
  - sumatriptan autoinjection, Sumavel DosePro - DHE -45

- **Rectal**
  - TRIPTANS: TREATMENT CHOICES

### Question and Answer

- Are there differences between the triptans?
- If one triptan fails, will another triptan work?

#### Zolmitriptan
- Tablet & melt (2.5, 5 mg)
- Nasal spray (5 mg)

#### Rizatriptan
- Tablet (1, 2.5 mg)

#### Naratriptan
- Tablet (1, 2.5 mg)

#### Almotriptan
- Tablet (6.25, 12.5 mg)

#### Frovatriptan
- Tablet (2.5 mg)

#### Eletriptan
- Tablet (20, 40 mg)

#### Sumatriptan
- Tablet (25, 50, 100 mg)
- Injection (6 mg)
- Nasal spray (5, 20 mg)*


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**Before the FDA**

Orally Inhaled Dihydroergotamine (DHE)

AND Breath Powered Sumatriptan

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**When to Use Preventive Management**

- No hard, fast rules - when migraine significantly interferes with daily routine, roles, despite acute treatment
- Frequent migraine attacks approaching once a week
- Abortive meds contraindicated, ineffective or causing intolerable side effects
- Patient tendency to overuse abortive meds
- Very severe attacks with neurological disability, e.g. hemiplegic migraine
- Patient preference

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**Preventive Medication Principles**

- Consider co-existing and co-morbid conditions
- Start low and increase dose slowly
- Adequate trial is 2-3 months at appropriate dose
- Address medication overuse to achieve best response
- Evaluate response to therapy with log or app

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**Preventive Medications**

- **Antiepileptics**
  - topiramate 100 mg
  - valproic acid 1000 mg

- **Tricyclic Antidepressants**
  - amitriptyline 25-50

- **Beta blockers**
  - propranolol, nadolol
  - metoprolol, atenolol

- **Supplements**
  - magnesium 600 mg
  - Vitamin B2 400 IU
  - Co-enzyme Q10
  - butterbur, fever few

- **Calcium channel blockers**
  - verapamil

- **NSAIDs**

- **Angiotensin antagonists**
Treatment of Menstrual Migraine

- **Hormonal**
  - Estradiol patch 0.1 mg during placebo week
- Continuous dosing
- OCP or vaginal ring
- Not hysterectomy!

- **Naproxen** beginning one week ahead and/or magnesium 2 weeks ahead
- **Triptans**
  - Frova 2.5 mg bid
  - Naratriptan 1 mg bid
  - Zolmitriptan 2.5 mg tid

Chronic Migraine

- **AKA Transformed Migraine**
- **Low socioeconomic status**
- **Frequent abortive medication and caffeine overuse**
- **High attack frequency**
- **Cutaneous allodynia**

- **Typical patient:**
  - Decades of migraine
  - Frequent co-morbid conditions (anxiety and depression, obesity, fibromyalgia, IBS)
  - Stressful life events including childhood maltreatment
  - Unemployed or under employed

Chronic Migraine

A. At least five prior attacks fulfilling migraine w/o aura criteria
B. HA ≥ 15 days per month for at least 3 mos.
C. On ≥ 8 days per month has fulfilled C.1 or C.2 criteria for pain and associated symptoms of migraine.
   1. Has at least 2 of the following:
      a. Unilateral location
      b. Pulsating quality
      c. Moderate or severe pain intensity
      d. Aggravation by routine physical activity and at least one of the following: nausea and/or vomiting or photophobia and phonophobia
   2. Treated and relieved by triptans or ergot
D. No medication overuse and not due to an underlying d/o

Olesen et al. Cephalalgia. 2006

Chronic Migraine PREEMPT Studies

Supine

Sitting
Neuromodulation

- Cefaly TENS headband
- SPO blocks/stimulators
- Occipital stimulator
- Transcranial magnetic stimulation
- Transcranial direct current stimulation
- Vagal nerve stimulators- noninvasive, hand held

Other Management Considerations

- Biobehavioral
  In adult and peds migraine, best results with combination of cognitive behavioral therapy or biofeedback plus preventive and abortive medication
- Promote relaxation
  Yoga, meditation
- Address sleep issues/disorders
- Weight loss programs
- Address allergies

The patient with a headache often finds himself a medical orphan. He is fortunate indeed if his headache is transient, for otherwise he may find himself on an excursion to the ophthalmologist, otolaryngologist, neurologist, dentist, psychiatrist, chiropractor, and the latest health spa. He is X-rayed, fitted with glasses, analyzed, massaged and relieved of his turbinates and too often emerges with his headache intact.

Russell C. Packard