IS IT THE CHICKEN OR THE EGG? A LOOK AT ATYPICAL MIGRAINE

Deena B Hollingsworth MSN, FNP-BC, CORLN
Arlington Virginia

Objectives

- Define atypical migraine
- Identify common symptoms of vestibular migraine
- Differentiate ocular migraine from TIA
- Discuss pharmacologic, dietary, and environmental management of migraine

What Is a migraine?

- One of the most debilitating chronic disorders in the US
- Common during “productive years”
- Estimated that 50% of migraineurs are undiagnosed or mismanaged


- Women > Men 3:1
  - 1 in 4 women will experience migraine
- Prevalence peaks in early to middle adulthood then declines
  - 3rd most common reason for ER visits in women 15-64
- Prevalence inversely related to income and education
- Significantly disabling and burdensome
- Associated with increased rates of medical and psychiatric comorbidities

Headache: The Journal of Head and Face Pain

Characteristics of Classic Migraine

- Usually unilateral pain
- Progressive intensity
- Pounding or throbbing
- Accompanied by:
  - Sensitivity to light and/or sound
  - Nausea
  - Vomiting
### Episodic vs Chronic
- Weeks or months between attacks
- At least 5 migraine attacks in a lifetime
- Headaches that occur less than 15 days each month
- Headaches that typically last less than 24 hours

Current Pain and Headache Reports 2013

### What Happens During a Migraine Attack?
- Abnormal electrical activity in, on and around the brain (spreading depression)
- Abnormal ion channels can be inherited
- “triggers” stimulate the abnormal electrical activity leading to the migraine
- Cause various symptoms based on location
  - Superficial
  - Deep
  - Trigeminal

### Migraine Triggers
Any environmental, dietary, or physiologic factor that provokes migraine activity in the brain

- Strong odors
- Bright lights
- Noise
- Head and neck
- Injury and spasm
- Sinus
- TMJ
- Weather changes (40%)

### Environmental Triggers

### Food Triggers
- Byproducts of food aging
  - Fermented products
    - Red wine
    - Aged cheese
    - Yeast (fresh bread, yogurt)
- Foods with chemicals similar to neurotransmitters
  - Coffee
  - Chocolate
  - MSG
  - Nitrites

### Physiologic Triggers
- Stress
- Hunger
- Exercise
- Pain
- Fatigue
- Sleep
  - To much
  - To little
- Hormones
  - Estrogen

### Long Term Duration
- Longer duration
- Occurs 15 or more days per month over a 3 month period

Current Pain and Headache Reports 2013
**Atypical Migraine**
- A variant presentation that may or may not be associated with headache
  - Vestibular Migraine or Migraine Associated Vertigo (MAV)
  - Ocular Migraine

**Vestibular Migraine**
- Link between vertigo and migraine recognized in the 19th century
- Thought to affect 1% of general population
- Barany Society has developed diagnostic criteria to gain broad acceptance within the vestibular and neurological communities.

**Vestibular Migraine**
- Migraine-related vertigo (MRV)
  - May be confused with Meniere’s
- Migraine-associated dizziness
- Atypical migraine variant with vertigo

**So how do we tell?**
- Short duration vertigo associated with headache – aura
- Prolonged duration vertigo unassociated with headache - atypical migraine

**History is Important!**
- Patients may not associate vertigo with migraine
  - Usually some past history of migraine
  - May have history of motion intolerance in childhood
  - 50% have a family history of migraine
- Providers fail to associate episodic vertigo and neurologic symptoms with migraine because there is often no headache
- Women may experience MRV due to hormonal changes with peri-menopause or menopause

**Etiology**
- Spreading wave of depression and/or vasoospasm
- Neurotransmitter release in the peripheral or central balance system
- Gene mutations related to calcium channel disturbances in the brain and inner ear
Diagnostic criteria for vestibular migraine

1. At least 5 episodes with vestibular symptoms of moderate to severe intensity, lasting 5 minutes to 72 hours.

2. Current or previous history of migraine with or without aura

Lempert et al. Vestibular Migraine Criteria

3. One or more migraine features with at least 50% of the vestibular episodes

- Headache
  - Unilateral
  - Pulsating
  - Moderate to severe pain intensity
  - Aggravated by routine physical activity

Associated Neurologic Symptoms

- Otalgia
- Tinnitus
- Ear fullness
- Migratory scalp pain
- Photophobia—light induced discomfort
- Phonophobia—sound induced discomfort
- Visual—bright scintillating lights or zigzag lines associated with scotoma, blurred vision
- Paresthesia
- Dysarthria
- Facial numbness, limb numbness or weakness
- Mental confusion (fuzzy or foggy feeling)

Vestibular symptoms

1. Vertigo
   - Spontaneous
     - Internal—false sensation of self motion
     - External—false sensation of surroundings moving
   - Positional
     - Related to change of head position
   - Visually induced
     - Triggered by complex visual stimulus
   - Head motion induced
     - Occurs during head motion
     - Head motion induced dizziness with nausea

Vestibular Symptom Ratings

Moderate
Symptoms interfere with but do not prohibit daily activities

Severe
daily activities cannot be maintained

Duration of Episodes

- Variable
  - 30% last minutes
  - 30% last hours
  - 30% last several days
  - 10% last seconds but occur repeatedly

Core episodes rarely last more than 72 hours
**Diagnosis**
- Some consider MRV to be diagnosis of exclusion.
  - Other causes of vertigo must be ruled out:
    - Meniere’s
    - Infections of middle ear, mastoid and brain
    - Trauma (head and ear)
    - Metabolic disorders
    - Endocrine disorders (thyroid disease)
    - Demyelinating diseases (MS)
    - Autoimmune disease
    - Stroke
    - Medication side effects
    - BPPV
    - SSC
    - Toxic exposures

**Testing**
- Audiogram
- ABR/VNG
- ENG
- EEG
- MRI/MRA, CT
- Eye exam
- Lumbar puncture
- Labs
  - CBC, Chem 7, thyroid panel, RA, ANA, lyme titers, syphilis, toxicology screen

**Ocular Migraine**
- Painless temporary visual disturbances
- Affect one or both eyes but usually unilateral
- Resolve spontaneously without treatment within 20-30 minutes
- Harmless

**Migraine vs Aura**
- Pain is the key
- Visual disturbance without pain thought to be an ocular migraine
- Visual disturbances followed by a throbbing unilateral headache are thought to be aura to the migraine.

**Symptoms of Ocular Migraine**
- Onset with small scotoma (blind spot) in central vision
- Expands with scintillations (bright flashing or flickering lights or wavy, zig-zag lines)
- May move across visual field
- Creates a sensation of looking through cracked glass
- Last 20-30 minutes

**Ocular Migraine or TIA**
- Visual changes with migraine are thought to be “positive”
  - Bright lights with shimmering or sparkling
  - Gradual progression
- Visual changes resulting in blind spots (total darkness) are more likely related to TIA or mini-stroke.
  - Require additional testing (CT scan or MRI)
  - Abrupt with loss of function: blindness, paralysis, dysphasia
### Progression of Ocular Migraine

- Usually resolve spontaneously without treatment.
- Try to rest.
- Use NSAIDS.
- If accompanied by severe headache - triptans.

### Migraine Treatment

- **Recognize and avoid triggers**
  - Migraine diet
  - Exercise
  - Adequate sleep

- **Medication to increase the headache threshold**
  - Antidepressants (nortriptyline, effexor)
  - Beta-blockers (propranolol, nadolol)
  - Anticonvulsants (sodium valporate, gabapentin, topiramate)

- **Medications to abort the attack**
  - Triptans

### Migraine Diet

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>FOODS TO AVOID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caffeine</td>
<td>No more than 2 servings/d</td>
</tr>
<tr>
<td></td>
<td>Do not vary timing or amount</td>
</tr>
<tr>
<td></td>
<td>Coffee, tea, cola, Mountain dew, Sunkist</td>
</tr>
<tr>
<td></td>
<td>Anacin, Excedrin</td>
</tr>
<tr>
<td>Snacks</td>
<td>Chocolate, nuts, seeds</td>
</tr>
<tr>
<td>alcohol</td>
<td>All but especially ales, Burgundy, chianti, red wine, sherry, vermouth</td>
</tr>
<tr>
<td></td>
<td>Nyquil</td>
</tr>
</tbody>
</table>

### Vitamins and Dietary Supplements

- B2 (Riboflavin) – up to 400mg/day
- Magnesium – up to 400mg bid
- CoQ10 – up to 100mg tid
- Butterbur extract – 50-75mg bid
- Feverfew – 50+mg/day
- Melatonin – 3-6mg taken 1h prior to bed

### Medications

<table>
<thead>
<tr>
<th>ANTIDEPRESSANTS</th>
<th>BETA-BLOCKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nortriptyline: 10-100mg q hs SE: Dry mouth, weight gain, sedation</td>
<td></td>
</tr>
<tr>
<td>Venlafaxine (SSRI): 37.5mg daily SE: Panic attacks, suicide, extrapyramidal sx, HTN, nausea, headache</td>
<td></td>
</tr>
<tr>
<td>Propranolol LA 60-160mg daily SE: depression, bradycardia, fatigue, dizziness, insomnia Containlidated in DM and reactive airway disease</td>
<td></td>
</tr>
<tr>
<td>Nadolol: 20-120mg/d Has fewer CNS effects</td>
<td></td>
</tr>
</tbody>
</table>
Calcium Channel Blockers

**Diltiazem CD**
Start at 120 mg. Titrate up to 240-480 mg/d in divided dose (bid)

SE: constipation and hypotension

Often best tolerated

---

**Medications**

**Anticonvulsants**
- Sodium valproate (Depakote)
  - 250-500 mg bid
- Gabapentin
  - Insufficient evidence
- Lamotrigine
  - Carbamazepine
  - Negative evidence
- Topiramate (Topamax) 100-200 mg bid (start slowly with 25 mg/d)
- SE: Metabolic acidosis, nephrolithiasis, dizziness, nystagmus, rhinitis, anxiety

**Triptans**
- Almotriptan (Axert)
  - 6.25-12.5 mg
- Elitriptan (Relpax)
  - 20-40 mg
- Frovatriptan (Frova)
  - 2.5 mg
- Naratriptan (Amerge)
  - 1-2.5 mg
- Rizatriptan (Maxalt)
  - 5-10 mg
- Sumatriptan (Imitrex)
  - 25-150 mg
- Zolmitriptan (Zomig)
  - 1-2.5 mg

**Serotonin Syndrome**
- Potential result of giving triptans with SSRIs or SNRIs
- **Symptoms**
  - Confusion
  - Agitation
  - Diarrhea
  - Sweating
  - Loss of balance
  - Shivering
  - Tremors
  - Fever
- **Potentially fatal!**

---

**Questions**