Epidemiology of migraine pain
WHAT IS MIGRAINE?
Headache Disorders

- Among the most common disorders of the nervous system\(^1\)
- Prevalence among adults (symptomatic at least once within the last year) is almost 47% worldwide\(^1\)
- Associated with personal and societal burdens of pain, disability, reduced quality of life, and financial burden\(^1\)
- Globally, only a minority of people with headache disorders are appropriately diagnosed by a health care provider\(^1\)
- Headache has been underestimated, under-recognized, and under-treated throughout the world\(^1\)

Structures Related to Headache

- Blood vessels that become dilated (enlarged) or constricted
- Muscles around the eyes that become strained due to overwork or poor vision correction
- Sinuses that become swollen due to allergies, colds, or infections
- Teeth that are decayed or damaged
- Nerves that transmit abnormal pain signals
- Joints in the jaw and neck that are overused or become damaged
- Muscles in the neck and head that become tight or tense
What Is Migraine?

- Neurologically based, common clinical syndrome characterized by recurrent episodic attacks of head pain which serve no protective purpose

- The headache is accompanied by associated symptoms
  - Nausea
  - Sensitivity to light
  - Sensitivity to sound
  - Sensitivity to head movement

- The vulnerability to migraine is an inherited tendency in many people
Classification of Migraine

Migraine without aura
• Recurrent attacks, lasting minutes, of unilaterally fully reversible visual, sensory, or other CNS symptoms that usually develop gradually and are usually followed by headache and associated migraine symptoms

Migraine with typical aura
• Aura consists of visual and/or sensory and/or speech/language symptoms but no motor weakness
• Gradual development
  • Duration of each symptom ≤1 hour
• Mix of positive and negative features
• Complete reversibility

Chronic Migraine
• Headache occurring on ≥15 days/month for >3 months
• Headache has the features of migraine headache on ≥8 days/month
Primary vs. Secondary Headache

**Primary Headache**
Not a symptom of or caused by another disease or condition

**Secondary Headache**
A symptom of or caused by an underlying disease or condition, such as tumor or infection

## Prevalence of Headache Disorders by Headache Type

<table>
<thead>
<tr>
<th>Headache Type</th>
<th>Lifetime Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Headache Disorders</strong></td>
<td></td>
</tr>
<tr>
<td>Tension-type</td>
<td>78%</td>
</tr>
<tr>
<td>Migraine</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Secondary Headache Disorders</strong></td>
<td></td>
</tr>
<tr>
<td>Fasting</td>
<td>19%</td>
</tr>
<tr>
<td>Sinus/nasal disorder</td>
<td>15%</td>
</tr>
<tr>
<td>Head injury</td>
<td>4%</td>
</tr>
<tr>
<td>Non-vascular intracranial disorder*</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

*Including brain tumor
Age- and Gender-Specific Prevalence of Migraine

Prevalence of Migraine in Three Population-based Studies

Prevalence of Migraine by Ethnicity

Prevalence of Headache Disorders by Geographic Area
## Specific Types of Secondary Headaches

<table>
<thead>
<tr>
<th>Type of Headache</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>External compression</td>
<td>Pressure-causing head gear</td>
</tr>
<tr>
<td>Rebound</td>
<td>Overuse of pain medication</td>
</tr>
<tr>
<td>Sinus</td>
<td>Inflammation and congestion in sinus cavities</td>
</tr>
<tr>
<td>Spinal</td>
<td>Low levels of cerebrospinal fluid (<em>e.g.</em>, due to trauma, spinal tap, spinal anesthesia)</td>
</tr>
<tr>
<td>Thunderclap</td>
<td>Subarachnoid haemorrhage is the most common cause</td>
</tr>
</tbody>
</table>

An ice cream headache – or brain freeze – is a secondary headache

Prevalence of Headache Disorders

Top Five Reasons for Emergency Department Visits*

*National Hospital Ambulatory Medical Care Survey, 2009
Depression, Anxiety, and Migraine

# Prevalence of Psychiatric Disorders in Three Pain Conditions

<table>
<thead>
<tr>
<th>Psychiatric Disorder</th>
<th>Pain Condition</th>
<th>Odds Ratio (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Migraine</td>
<td>Migraine</td>
</tr>
<tr>
<td>Depression</td>
<td>12.3%</td>
<td>28.5%</td>
</tr>
<tr>
<td>Panic attacks</td>
<td>5.5%</td>
<td>17.4%</td>
</tr>
<tr>
<td>GAD</td>
<td>2.5%</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychiatric Disorder</th>
<th>Pain Condition</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Arthritis</td>
<td>Arthritis</td>
</tr>
<tr>
<td>Depression</td>
<td>13.1%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Panic attacks</td>
<td>5.8%</td>
<td>11.2%</td>
</tr>
<tr>
<td>GAD</td>
<td>2.7%</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychiatric Disorder</th>
<th>Pain Condition</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Back Pain</td>
<td>Back Pain</td>
</tr>
<tr>
<td>Depression</td>
<td>12.4%</td>
<td>21.0%</td>
</tr>
<tr>
<td>Panic attacks</td>
<td>5.3%</td>
<td>13.0%</td>
</tr>
<tr>
<td>GAD</td>
<td>2.5%</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

All findings significant at p<0.001
CI = confidence interval; GAD = generalized anxiety disorder
Migraine and Depression: A Bidirectional Relationship with Common Neurobiology

- Monoamine and peptide transmitters may be involved in depression
- Endorphins and encephalins are involved in mood and pain control
- Serotonin has been implicated in **migraine**, and **tension-type headache**
  - Also implicated in mood disorders, anxiety disorders, sleep disorders, eating disorders, and obsessive-compulsive behavior
- Evidence suggests dopamine is involved in migraine
  - Migraine prodrome often characterised by dopaminergic symptoms
  - Anti-dopaminergic drugs can often be helpful in treating migraine

Severe headache, severe somatic symptoms, and major depression may be linked through dysfunction of the serotonergic and dopaminergic systems

Literature Cited


Literature Cited (Continued)


