Headaches: Types and Treatments

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Conflict of Interest

• Both presenters have nothing to disclose.
Objectives

1. Describe the difference between tension-type headache (TTH), cluster headache (CH) and migraine headache (MH), with a focus on MHs

2. Develop non-pharmacologic treatment regimen for acute, chronic, and prophylactic management of MH

3. Develop pharmacologic treatment regimen for acute, chronic, and prophylactic management of MHs
Outline

• Introduction
• Role playing
• Types of headache
• Migraine headache
  – Non-pharmacologic treatment
  – Pharmacologic treatment
Introduction

- Most common nervous system disorder

- Third primary reason given by adults for visiting emergency department

National Center for Health statistics. Health, United States 2008
Headache Classification

• **Primary** Headache Disorder: Not caused by any other medical condition
  – Tension-type headaches (TTHs)
  – Cluster headaches (CHs)
  – Migraine headaches (MHs)

• **Secondary** Headache Disorder: Due to underlying medical condition. Ex: trauma, infection, brain tumor etc.
Goals of Treatment

• Short-term:
  – To achieve rapid pain relief and resume normal daily activities

• Long-term:
  – Prevent headache recurrence and decrease headache severity
  – Prevent analgesic dependence (medication overuse headache)
  – Be cost-effective in overall management
  – Have minimal to no side effects (SEs)
Headache Role Play Activity

• Pharmacist/Patient Scene:
  • Mrs. Smith, a 28 year old female has not been feeling well for the past few days. Today she stops by her local pharmacy complaining of bilateral headache.

• PMH: Not significant

• FH: Mother has the same headaches

• Medication History: None
1. Headache Types
# Headache Types

<table>
<thead>
<tr>
<th>Basis</th>
<th>Tension Type Headache (TTH)</th>
<th>Cluster Headache (CH)</th>
<th>Migraine Headache (MH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemiology</td>
<td>Most common. Prevalence of 31-86%. Begins in the early 20’s (mostly)</td>
<td>Most severe. Prevalence &lt; 1% (Rare)</td>
<td>With aura vs. w/o aura. 28 million Americans. 21 million women; 7 million men. In 50% of pts problem is severe/disabling. Often not diagnosed/treated properly.</td>
</tr>
<tr>
<td>Risk Factors</td>
<td>Family History, F &gt; M, Poor self-rated health, Inability to relax after work, Sleeping few hours per night</td>
<td>M:F = 4.3:1 Smoking, alcohol use, Family history?</td>
<td>Obesity, depression, overuse of acute migraine medication, Female, age</td>
</tr>
<tr>
<td>Clinical Presentation</td>
<td>Bilateral, dull, non pulsatile pain. Tightness/ pressure. Routine activity does not affect severity</td>
<td>Sudden onset, stabbing quality, Unilateral, retro-orbital, facial pain. Restlessness, Mostly nocturnal.</td>
<td>Unilateral (mostly), N/V, aura, photophobia, phonophobia.</td>
</tr>
<tr>
<td>Duration</td>
<td>Varies. 30 min-7 days</td>
<td>1-4 hours</td>
<td>4-72 hours</td>
</tr>
<tr>
<td>Associated Symptoms</td>
<td>Generally absent. Mild photophobia/phonophobia may be present.</td>
<td>Lacrimation, Rhinorrhea/nasal congestion, facial pain.</td>
<td>N/V, photophobia, phonophobia, without aura (mostly)</td>
</tr>
</tbody>
</table>

The International Headache Society. The International Classification of Headache Disorders
Q.1 Mrs. Smith is experiencing what type of headache?

A. Cluster headache
B. Tension headache
C. Migraine with aura
D. Migraine without aura
Tension Type Headache (TTH)
TTH-Diagnostic Criteria

A. At least 10 episodes and meeting criteria B-D
   – Infrequent episodic: < 1 day/month on average (<12 days/year)
   – Frequent episodic: ≥1 but < 15 days/month for at least 3 months (≥ 12 and < 180 days/year)
   – Chronic: > 15 days/month

B. HA lasting from 30 minutes to 7 days

C. HA has at least 2 of the following characteristics:
   – Bilateral location
   – Pressing/tightening (non-pulsating) quality
   – Mild or moderate intensity
   – Not aggravated by routine physical activity such as walking or climbing stairs

D. Both of the following:
   • No nausea or vomiting (anorexia may occur)
   • No more than 1 of photophobia or phonophobia

E. Not attributed to another disorder

The International Headache Society. The International Classification of Headache Disorders
TTH-Triggers

• Stress (mental or physical)
• Irregular or inappropriate meals
• High intake or withdrawal of coffee and other caffeine containing drinks
• Dehydration
• Sleep disorders, too much or too little sleep
• Reduced or inappropriate physical exercise
• Psycho-behavioral problems
• Menstrual cycle and hormonal substitution (OC)

TTH-Treatment General Rule

• Infrequent Episodic TTH: treated with symptomatic acute drugs
• Frequent episodic and chronic TTH: Treated with prophylactic drugs
• Chronic TTH:
  – Generally do not respond to simple analgesics
  – Patients at risk of toxicity
# TTH-Acute Drug Treatment

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Level of recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibuprofen</td>
<td>200-800mg</td>
<td>A</td>
</tr>
<tr>
<td>Ketoprofen</td>
<td>25mg</td>
<td>A</td>
</tr>
<tr>
<td>Aspirin</td>
<td>500-1000mg</td>
<td>A</td>
</tr>
<tr>
<td>Naproxen</td>
<td>375-550mg</td>
<td>A</td>
</tr>
<tr>
<td>Diclofenac</td>
<td>12.5-100mg</td>
<td>A</td>
</tr>
<tr>
<td>Paracetamol (acetaminophen)</td>
<td>1000mg</td>
<td>A</td>
</tr>
</tbody>
</table>

## TTH-Prophylactic Drug Treatment

<table>
<thead>
<tr>
<th>Drug</th>
<th>Daily Dose</th>
<th>Level of recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-line drug</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amitriptyline</td>
<td>30-75mg</td>
<td>A</td>
</tr>
<tr>
<td><strong>Second line drugs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>30mg</td>
<td>B</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>150mg</td>
<td>B</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clomipramine</td>
<td>75-150mg</td>
<td>B</td>
</tr>
<tr>
<td>Maprotiline</td>
<td>75mg</td>
<td>B</td>
</tr>
<tr>
<td>Mianserin</td>
<td>30-60mg</td>
<td>B</td>
</tr>
</tbody>
</table>

- Gabapentin and Topiramate: More studies are needed to determine the efficacy
- Botulinum Toxin has demonstrated inconsistent efficacy pattern
TTH-Prophylactic Drug Treatment

• Others:
  – Venlafaxine
  – Mirtazipine
  – Citalopram
  – Sertraline
  – Tizanidine
  – Memanien
  – Botulinum toxin
  – Topiramate
  – Buspirone
# TTH-Summary

<table>
<thead>
<tr>
<th>Basis</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Hx</td>
<td>Yes</td>
</tr>
<tr>
<td>Sex</td>
<td>F &gt; M</td>
</tr>
<tr>
<td>Onset</td>
<td>Stress psychological</td>
</tr>
<tr>
<td>Prevalence</td>
<td>90% adults have had TTHs</td>
</tr>
<tr>
<td>Severity</td>
<td>Dull, persistent, tight/press</td>
</tr>
<tr>
<td>Location</td>
<td>Bilateral</td>
</tr>
<tr>
<td>Duration</td>
<td>30 min-7 days</td>
</tr>
<tr>
<td>Associated Sx</td>
<td>Light/noise sensitive, anorexia</td>
</tr>
<tr>
<td>Other</td>
<td>Episodic Vs Chronic</td>
</tr>
</tbody>
</table>
Cluster Headache (CH)
CH-Diagnostic Criteria

A. **At least 5** episodes and meeting criteria B-D
B. Severe or **very severe unilateral orbital, supraorbital and/or temporal pain lasting 15-180 minutes**
C. At **least one** of the following:
   a. Ipsilateral conjunctival injection and/or lacrimation
   b. Ipsilateral nasal congestion and/or rhinorrhea
   c. Ipsilateral eye lid edema
   d. Ipsilateral forehead and facial sweating
   e. Ipsilateral miosis and/or ptosis
   f. A sense of restlessness or agitation
D. **Attacks have a frequency from one every other day to 8 per day**
E. **Not attributed to another disorder**
# CH-Acute Drug Treatment

<table>
<thead>
<tr>
<th>1st line Therapy</th>
<th>Dose</th>
<th>Common ADRs</th>
<th>Comments</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>7-10 L/min (high flow rates may be needed)</td>
<td>None</td>
<td>Inhaled via a non-breathable mask for 15-20 min</td>
<td>A</td>
</tr>
<tr>
<td>Sumatriptan (SC)</td>
<td>6 mg</td>
<td>Nausea, fatigue, chest tightness</td>
<td>May be taken up to 2x daily during cluster period CI: In patients with CV diseases</td>
<td>A</td>
</tr>
<tr>
<td>Sumatriptan (IN)</td>
<td>20 mg</td>
<td>Nausea, fatigue, chest tightness, unpleasant taste</td>
<td>Slower onset of action the SC. CI: In patients with CV diseases</td>
<td>A</td>
</tr>
<tr>
<td>Zolmitriptan (IN)</td>
<td>5-10 mg</td>
<td>Nausea, fatigue, chest tightness, unpleasant taste</td>
<td>Comparable in efficacy to sumatriptan NS CI: In patients with CV diseases</td>
<td>A</td>
</tr>
</tbody>
</table>

# CH-Acute Drug Treatment

<table>
<thead>
<tr>
<th>2nd line Therapy</th>
<th>Dose (per day)</th>
<th>Common ADRs</th>
<th>Comments</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octreotide (SC)</td>
<td>100 mg</td>
<td>Injection site pain, abdominal pain, nausea, hyperglycemia</td>
<td>Can be used in patients with CV disease</td>
<td>B</td>
</tr>
<tr>
<td>Lidocaine (IN)</td>
<td>1ml (4-10%)</td>
<td>None</td>
<td>Only moderate effect on head pain May be used as adjunctive therapy in refractory CHs</td>
<td>B</td>
</tr>
</tbody>
</table>

SC= subcutaneous  
IN=Intranasal

# CH-Prophylactic Therapy

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Target Dose (per day)</th>
<th>Common ADRs/ Comments</th>
<th>Monitoring</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verapamil</td>
<td>200-900 mg</td>
<td>Hypotension, constipation, peripheral edema CYP3A4 inhibitor: (Eletriptan 3A4 substrate Avoid concurrent use)</td>
<td>BP, HR, EKG</td>
<td>A</td>
</tr>
<tr>
<td>Lithium Carbonate</td>
<td>600-900 mg</td>
<td>Diarrhea, tremor, polyuria Serum level: 0.4-0.8 mEq/L</td>
<td>Lithium levels, renal, thyroid functions</td>
<td>B</td>
</tr>
<tr>
<td>Topiramate</td>
<td>50-200 mg</td>
<td>Weight loss, fatigue, dizziness, taste alteration</td>
<td>serum bicarbonate</td>
<td>B</td>
</tr>
<tr>
<td>Valproic acid</td>
<td>500-2000 mg</td>
<td>Weight gain, fatigue, tremor, hair loss, nausea</td>
<td>CBC, liver function</td>
<td>C</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>40-60 mg/day Prednisone. Tapered over 3 weeks</td>
<td>Use: in conjunction with longer-acting treatments to take effects Avoid long-term use due to steroid induced complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Melatonin, Baclofen, Gabapentin, clonidine, Botulinum toxin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*May A et al. EFNS guidelines on the treatment of cluster headache and other trigeminal –autonomic cephalagias. Eur J Neurol. 2006*
## CH-Summary

<table>
<thead>
<tr>
<th>Basis</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Hx</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>M &gt; F</td>
</tr>
<tr>
<td>Onset</td>
<td>During sleep (mostly)</td>
</tr>
<tr>
<td>Prevalence</td>
<td>Rare &lt; 1%</td>
</tr>
<tr>
<td>Severity</td>
<td>Excruciating, sharp, steady</td>
</tr>
<tr>
<td>Location</td>
<td>Behind or near one eye</td>
</tr>
<tr>
<td>Duration</td>
<td>15-90 minutes</td>
</tr>
<tr>
<td>Associated Sx</td>
<td>Sweating, flushing, congestion</td>
</tr>
<tr>
<td>Other</td>
<td>History of smoking, Etoh use</td>
</tr>
</tbody>
</table>
Migraine Headache (MH)
Patient Case # 1

- **HPI:** J.Y. is a 32 y/o male patient that presents to the clinic today complaining of unilateral headache which occurs mostly in the night. He describes pain as continuous, severe pain behind one eye.
- **PMH:** Experienced four of the same headache over the past year.
- **FH:** Father had the same headaches.
- **SH:** Smoker 1 ppd x 20 years
- **Medication history:** None
Q. 2 What kind of headache is JY experiencing?

A. Migraine
B. Cluster
C. Tension
D. None of the above
Anatomy

Trigeminocervical complex
- Trigeminal Nerve
- Cervical Nerves (C1-C3)

Goadbsy. Headache 2005;45:S14-24
MH-Pathophysiology

• Neurovascular Headache
  Neural events
  ▼
  Blood vessel dilation
  ▼
  Pain & more nerve activation

• Migraine not caused by a primary vascular event

MH-Pathophysiology

Goadsby, et al NEJM. 2002;346:257-270
MH-Pain Mechanisms

• Not well understood

• Considerations
  – Cranial blood vessel dilation in the in the *dura mater*
  – Trigeminal nerve innervation
  – Release of *Calcitonin-gene related peptide (CGRP)* from trigeminal nerves (*vasodilator*)
  – Release of *Vasoactive Intestinal Peptide (VIP)* from parasympathetic nerves (*vasodilator*)
  – Plasma [5-HT] decrease by nearly half
  – Nitric Oxide may play a part (*vasodilator*)

Goadsby PJ. NEJM. 2002;346:257-270.
Goadsby. Headache 2005;45:S14-24
Q. 3 Migraines are caused by vascular events?

A. True
B. False
Patient Case # 2

Amy, a 29 y/o female presents to the clinic
CC: “I am having headaches and can’t seem to get rid of them”
FH: Mother has headaches
SH: Stewardess. Nonsmoker. Occasional alcohol
MH-Underdiagnosed?

• Lack of biomarker!!
• IHS criteria is based on patient’s descriptions of symptoms from the past 3 months
• Lack of consultation by patient
• Education/training of health care providers
  – Misdiagnosis
  – Professional and societal bias- “lack of willpower”


IHS: International Headache Society
Headache Assessment

• Headache history
  – Medications and history

• Headache diaries & calendars
  – http://www.achenet.org/resources/headache_diaries/

• Pain Assessment

• Patient Interview
Pain Assessment Scales

- **P** Palliative factors: What makes pain better?
  - Provocative factors: What makes pain worse? Triggers?

- **Q** Quality: Describe the pain. Intensity?

- **R** Radiation: Where is the pain?

- **S** Severity: How does pain compare?
  - How intense is pain?

- **T** Temporal: Onset? Duration? Frequency?
  - Does pain change with time?

Wenzel RG. Pharmacotherapy 2003; 23(4):494-505
Pain Assessment Tools

• Migraine Disability Assessment Scale (MIDAS)
  – Validated, 5 items
  – score > 10 suggests moderate to severe impact and necessity of triptan

• HIT-6
  – Validated, questionnaire that measures 6 domains and 6 questions
  – Score ≥ 60 suggests severe impact and necessity of triptan


## MIDAS Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Disability</th>
<th>Midas Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Minimal or infrequent</td>
<td>0-5</td>
</tr>
<tr>
<td></td>
<td>(OTC analgesic)</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Mild or infrequent</td>
<td>6-10</td>
</tr>
<tr>
<td></td>
<td>(Prescription analgesic, triptan?)</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Moderate</td>
<td>11-20</td>
</tr>
<tr>
<td></td>
<td>(High medical need, Triptan, prophylaxis?)</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Severe</td>
<td>21+</td>
</tr>
<tr>
<td></td>
<td>(High medical need, Triptan, prophylaxis)</td>
<td></td>
</tr>
</tbody>
</table>

Score ≥ 6 : See provider

**MIDAS QUESTIONNAIRE**

INSTRUCTIONS: Please answer the following questions about ALL your headaches you have had over the last 3 months.

Write your answer in the box next to each question. Write zero if you did not do the activity in the last 3 months.

1. On how many days in the last 3 months did you miss work or school because of your headaches? [ ]

2. How many days in the last 3 months was your productivity at work or school reduced by half or more because of your headaches? (Do not include days you counted in question 1 where you missed work or school.) [ ]

3. On how many days in the last 3 months did you not do household work because of your headaches? [ ]

4. How many days in the last 3 months was your productivity in household work reduced by half or more because of your headaches? (Do not include days you counted in question 3 where you did not do household work.) [ ]

5. On how many days in the last 3 months did you miss family, social or leisure activities because of your headaches? [ ]

---

**Total**

A. On how many days in the last 3 months did you have a headache? (If a headache lasted more than 1 day, count each day.) [ ]

B. On a scale of 0–10, on average how painful were these headaches? (Where 0 = no pain at all, and 10 = pain as bad as it can be) [ ]

© Innovative Medical Research 1997

Once you have filled in the questionnaire, add up the total number of days from questions 1–5 (ignore A and B).

<table>
<thead>
<tr>
<th>Score range</th>
<th>Description</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5</td>
<td>Little or infrequent disability</td>
<td>Grade I</td>
</tr>
<tr>
<td>6 to 10</td>
<td>Mild or infrequent disability</td>
<td>Grade II</td>
</tr>
<tr>
<td>11 to 20</td>
<td>Moderate disability</td>
<td>Grade III</td>
</tr>
<tr>
<td>&gt;21</td>
<td>Severe disability</td>
<td>Grade IV</td>
</tr>
</tbody>
</table>

**Figure 9-1:** The MIDAS questionnaire. Reproduced with permission from Richard Lipton, MD.
Q. 4 What are Amy’s risk factors for migraine?

A. Sex, Age
B. Smoker
C. Occasionally drinks alcohol
D. All of the above
MIDAS: Amy - 29 yo female

- Completed MIDAS test at home over the internet:
  - MIDAS Grade II (Score: 8)
Patient Interview: Amy - 29 y/o female

- Onset: Cannot predict
- Duration: 5-6 hrs
- Frequency: ~1 q wk
- Triggers: “I don’t know”
- Location: One side
- Quality: Pulses
- Other: Feels sick to stomach
MH-Diagnosis: Migraine **without** aura

- **Episodic attacks of headaches**
  - Duration 4-72 hours
  \[\]

- **Two or more symptoms**
  - Unilateral pain
  - Throbbing
  - Aggravation on movement
  - Moderate to severe pain
  \[\]

- **One of the following**
  - Nausea or vomiting
  - Photophobia or phonophobia

---

Q. 5 Does Amy meet the criteria for migraine?

A. True
B. False
MH-Diagnosis: Migraine with aura

• Meet IHS migraine without aura criteria

  +

• At least 3 of 4 of the following
  – ≥1 fully reversible aura symptoms
  – ≥1 aura symptom develops gradually ≥ 4 minutes
    OR ≥ 2 symptoms occur in succession
  – No symptom lasts > 60 minutes
  – Headache follows aura < 60 minutes

MH-with Aura

• ~10-15% migraineurs experience
• Symptoms of aura
  – Visual disturbances
  – Numbness
  – Hallucinations
  – Loss of speech
• Prodromes
  – Excessive yawning
  – Fatigue
  – Mood changes
  – Food craving
  – Sensitivity to light, sound, touch, smell

Red Flags

• Onset of headaches after age 50
• Sudden onset of severe headaches, “the worst headache ever”, or a rapidly accelerating headache
• Headaches from exertion
• Headache associated with neurological changes (e.g., confusion, dizziness, numbness, tingling – not aura)
• Headache that worsens with each day
• Headache with signs of infection (fever, stiff neck)

MH-Possible Food Triggers

• Phenylethylamine: Chocolate, cheese
• Tyramine: Red wine, certain cheeses
• Caffeine: Coffee, tea, sodas
• Breads: Sourdough, fresh yeast
• Peanuts, Peanut Butter
• Suspected food additives, seasonings, & flavorings:
  – Monosodium glutamate (MSG): Canned foods
  – Sodium nitrite: Hot dogs & luncheon meats
  – Soy sauce, marinades, & meat tenderizers
How many triggers can you find?
MH-Medication Triggers

- Interferons 21-80%
- Estrogen (Conjugated) 11-68%
- Nitroglycerin 19-38%
- Ondansetron (5HT₃ receptor antagonist) 9-27%
- Venlafaxine (Effexor®) 25%
- Nifedipine (Procardia®) 10-23%
  - (note amlodipine similar to placebo 7-8%)
- SSRIs 10-21%
  - Fluoxetine (Prozac®) 21%
  - Sertraline (Zoloft®) >10%
- Celecoxib (Celebrex®) 15%
- Doxazosin (Cardura®) other α₁-blockers 10-14%
- Allegra®, Zyrtec® 10-12%
- Sildenafil (Viagra®) >10%
MH-Comorbidities

• HTN
• DM
• Allergies
• Thyroid Disorders
• Mood Disorders (Depression, Anxiety)
• Eyesight
• Sleep Disorders
• Obesity
Q. 6 About what percentage of migraineurs experiences aura?

A. 15%
B. 30%
C. 45%
D. 60%
Q. 7 Which of the following medications have headache as side effect profile >10% 

A. Interferons, Nitroglycerin  
B. Venlafaxine, Fluoxetine,  
C. Celecoxib, Nifedipine  
D. All of the above
MH-Therapeutic alternatives

• Non-pharmacologic therapy

• Pharmacologic therapy
  – Acute treatment
  – Prophylactic therapy
  – Adjunct therapy
2. MH: Non-Pharmacologic Treatment
MH-Non-Pharmacologic Treatment

• Relaxation techniques
  – Biofeedback: 1 study resulting in symptom improvement in 79% of subjects and 73% reduction in headaches
  – Acupuncture: Cochrane Collaboration review of 22 RCT found that at least as effective or possibly more effective than drug therapy
  – Only methods proved safe and effective during pregnancy

RCT Randomized Controlled Trial

MH-Non-Pharmacologic Therapy

• Behavioral
  – Regular sleep, regular meals, exercise, stress avoidance

• Diet
  – Avoiding food triggers, excess caffeine

• Medication

• Environmental
  – Weather, tobacco smoke, bright lights, loud noises

3. MH: Pharmacologic Treatment
MH-Therapeutic alternatives

• Non-pharmacologic therapy

• Pharmacologic therapy
  – Acute treatment
  – Prophylactic therapy
  – Adjunct therapy
Headache Migraine

- Mild to moderate symptoms
  - OTC analgesics
    - Rx analgesic
- Severe symptoms
  - Triptans or Ergot derivatives
  - Combination opioids or Butorphanol spray
MH-Acute Treatment

- Analgesics
  - NSAIDS, aspirin, acetaminophen
  - Combination
- Ergotamine alkaloid
- Barbiturates
- Opiate analgesics
- $5\text{-HT}_{(\text{IB/ID})}$ receptor agonists (Triptans)


### MH-Acute Drug Treatment

<table>
<thead>
<tr>
<th>Drug</th>
<th>Common ADRs</th>
<th>Comments</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSAIDs IBU, ASA, naproxen sodium (Grade A) prostaglandin inhibition of Cox I and II</td>
<td>GI related: Avoid in 2\textsuperscript{nd} and 3\textsuperscript{rd} trimester of pregnancy</td>
<td>Take with food. Analgesic effects: lower doses Anti-inflammatory: higher doses Use adequate dose: OTC IBU: 200 mg 1-2 tabs/dose Max:400 mg/d. Restrict use to 2-3 days / week to prevent rebound headaches</td>
<td>A &amp; B</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>Well tolerated</td>
<td>No longer recommended as monotherapy May be useful first choice in t Pregnancy</td>
<td>B</td>
</tr>
<tr>
<td>Combo with Caffeine Excedrin Migraine and Bayer Migraine First line</td>
<td>Infrequent SEs (jitters, ↑BP, heart palpitations)</td>
<td>APAP (250 mg), ASA (250 mg), Caffeine (65 mg) 2 tabs q 6 hrs prn Do not take &gt; 48 hours</td>
<td>A</td>
</tr>
</tbody>
</table>

Silberstein. Neurology 2000
MH-OTC Summary Statement

- OTC vs. placebo more effective at reducing moderate or pain and mild pain to no pain within 2 hours
- Small number of those taking OTC can be pain-free within 2 hrs.
- 21-76% taking OTC can return to normal function by 2 hrs.
- Most OTC products are safe
- Suggest that IBU 200 mg is favorable dose of IBU
- Most severe migrainers excluded
- Not to be use more than 2 days/week

MH-Ergot Derivatives

- **Use:** Moderate-severe migraine
- **Evidence:** Grade A&B
- **First-line agents for pt’s who don’t respond to or cannot use a triptan**
- **Ergotmaine tartrate (ET) (Ergomar, Hydergine)**
- **ET+ Caffeine (Cafergot, Migergot)**
  - **Dose:** Cafergot® (Ergotamine 2 mg, Caffeine 100 mg)
    - 2 tabs at onset of attack, then 1 tab q 30 min prn
    - Max: 6 tabs / attack or 10 tabs / week
    - Caffeine ↑absorption and efficacy
- **Dihydroergotamine mesylate (DHE; Migranal)**
  - SC, Intranasal, IV
  - Evidence does not support efficacy of IV DHE
MH-Ergot Derivatives

• Side effects limit use:
  – N/V, dizziness, numbness, vasoconstriction → ischemic complications
  – Should be administered with anti-emetics (metoclopramide, chlorpromazine)

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Low cost</td>
<td>• Complex pharmacology</td>
</tr>
<tr>
<td>• Long experience of use</td>
<td>• Erratic pharmacokinetics</td>
</tr>
<tr>
<td>• Fast onset</td>
<td>• Lack of evidence regarding effective doses</td>
</tr>
<tr>
<td>• Non-PO routes of administration</td>
<td>• Vasoconstrictor effects</td>
</tr>
<tr>
<td>• Effective for severe migraine requiring hospital admission</td>
<td>• Risk of overuse → rebound headaches</td>
</tr>
</tbody>
</table>
MH-Barbiturates

• Use: Moderate-severe migraine
• Limited evidence of efficacy: Grade C
• Butalbital has been used for a long time
• Abuse problems and SE limits (altered cognition, sedation)
• Often combined with ASA or APAP
• Fiorinal vs Fioricet
  – Fiorinal: ASA 325 mg, butalbital 50 mg, caffeine 40 mg
  – Fioricet: APAP 325 mg, butalbital 50 mg, caffeine 40 mg
MH-Opioids

• Use
  – Use is controversial. Avoid, if possible.
  – Last line rescue medication only
  – Emergency department

• Morphine, meperidine, oxycodone, hydromorphone, butorphanol

• Possible role with intranasal dosing for patients with N/V
  – Butorphanol (Stadol NS): Mixed agonist/antagonist
  – Less respiratory depression than morphine or meperidine

Silberstein. Neurology 2000
Goadsby PJ. NEJM. 2002
MH-5-HT\textsubscript{(IB/ID)} Receptor Agonists (Triptans)

- **Mechanism of Action**
  - Selective serotonin agonist
  - 5HT1B/1D

- **Pharmacokinetics/dynamics**
  - Both long and short acting available
  - Long acting more effective during aura but take longer to act
  - Short acting have more side effects
MH-Triptan Sites of Action

Goadsby PJ. NEJM. 2002;346:257-270.
MH-Triptans

• Mechanism of Action
  5-HT_{1B/1D} (serotonin) receptor agonist
  – 5-HT_{1B} \rightarrow Constrict cranial vessels
    • In cranial & coronary circulation
  – 5-HT_{1D} \rightarrow Inhibit peripheral trigeminal nerves
  – 5-HT_{1B/1D/1F} \rightarrow Inhibit transmission through second order neurons of the trigeminocervical complex

Goadsby PJ. NEJM. 2002;346:257-270.
MH-Serotonin vs. Triptan structure

Serotonin (5-HT)

Almotriptan
MH-Triptans- Adverse Effects

<table>
<thead>
<tr>
<th>Common</th>
<th>Less Common</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tingling, paresthesias, sensations of warmth - Head, neck, chest, limbs</td>
<td>• Dizziness, flushing, neck pain/stiffness</td>
</tr>
</tbody>
</table>
MH-Triptan Drug Interactions

• ↑ [triptan] by CYP 3A4 inhibition
  – Ketoconazole, itraconazole
  – Verapamil, erythromycin, ritonavir

• Vasospastic reactions
  – Ergot alkaloids (e.g., ergotamine)

• Serotonin syndrome – mental status changes, diaphoresis, tremor, myoclonus, hyperreflexia, fever (5HT2A & 5HT1A?)
  – SSRIs (e.g., sertraline) → prevent 5HT reuptake
  – MAOIs (e.g., phenelzine) → ↓ 5HT metabolism
  – TCAs (e.g., amitriptyline) → ↓ 5HT uptake

MH-Triptans

• Absolute Contraindications
  – Ischemic heart disease: Angina, MI, arteriosclerosis
  – Cerebrovascular disease: stroke, TIA, intracranial bleeding
  – Peripheral Vascular Disease
  – Uncontrolled HTN
  – Hemiplegic or basilar migraine

• Cautions
  – Pts at risk for cardiac complications unless lower risk determined (e.g., DM, elderly, high cholesterol, family hx cardiac)

• If given, consider first dose in physician office

## MH-Triptan Pharmacokinetics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Almo-</th>
<th>Ele-</th>
<th>Frova-</th>
<th>Nara-</th>
<th>Riza-</th>
<th>Suma-</th>
<th>Zolmi-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half-life (h)</td>
<td>3.5</td>
<td>5.0</td>
<td>25.0</td>
<td>5.0-6.3</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Tmax (h)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During attacks</td>
<td>2.0-3.0</td>
<td>2.8</td>
<td>3.0</td>
<td>—</td>
<td>1.0</td>
<td>2.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Other times</td>
<td>1.4-3.8</td>
<td>1.4-1.8</td>
<td>3.0</td>
<td>2.0-3.0</td>
<td>1.0</td>
<td>2</td>
<td>1.8-2.5</td>
</tr>
<tr>
<td>Bioavailability (%)</td>
<td>69</td>
<td>50</td>
<td>24-30</td>
<td>63-74</td>
<td>40</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>Metabolism/excretion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary route</td>
<td>CYP450 &amp; MAO</td>
<td>CYP3A4</td>
<td>Renal, 50%</td>
<td>Renal, 70%</td>
<td>MAO</td>
<td>MAO</td>
<td>CYP450</td>
</tr>
<tr>
<td>Secondary route</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>MAO</td>
</tr>
</tbody>
</table>

MAO = monoamine oxidase; CYP450 = cytochrome P450; CYP3A4 = 3A4 isoform of CYP450

Goadsby PJ. NEJM. 2002;346:257-270.
Prepared by C.Taylor, 2002
Q.8 Which triptan would you recommend for Amy if CrCl is <20 mg/mL?

A. Naratriptan
B. Sumatriptan
C. Frovatriptan
D. Almotriptan
MH-Triptans—Meta-analysis 2001

• 53 clinical trials (12 unpublished)
• Double-blind, randomized, controlled
• 24,089 adult subjects
• Treatment within 8 hrs. of onset
• Random effect statistical modeling
• Gold standard: 100 mg oral sumatriptan

Prepared by C.Taylor, 2002
### MH-Oral Triptans
**(comparison to 100 mg Sumatriptan)**

<table>
<thead>
<tr>
<th>Agent</th>
<th>Initial 2 h relief</th>
<th>Sustained pain-free</th>
<th>Consistency</th>
<th>Tolerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumatriptan 25 mg</td>
<td>−</td>
<td>=/−</td>
<td>−</td>
<td>+</td>
</tr>
<tr>
<td>Sumatriptan 50 mg</td>
<td>=</td>
<td>=</td>
<td>=/−</td>
<td>=</td>
</tr>
<tr>
<td>Zolmitriptan 2.5 mg</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Zolmitriptan 5 mg</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Naratriptan 2.5 mg</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>++</td>
</tr>
<tr>
<td>Rizatriptan 5 mg</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Rizatriptan 10 mg</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>=</td>
</tr>
<tr>
<td>Eletriptan 20 mg</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>=</td>
</tr>
<tr>
<td>Eletriptan 40 mg</td>
<td>=/+</td>
<td>=/+</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Eletriptan 80 mg</td>
<td>+(+)</td>
<td>+</td>
<td>=</td>
<td>−</td>
</tr>
<tr>
<td>Almotriptan 12.5 mg</td>
<td>=</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>

Prepared by C.Taylor, 2002
MH-Unique Formulations

• Injections
  – Sumatriptan (Imitrex®)
    • 6mg

Needless Injections
  – Sumatriptan (Sumavel Dosepro ®)- Approved July 2009
    • 6mg/0.5mL

• Nasal Spray
  – Sumatriptan (Imitrex®)
    • 5, 10, 20mg
  – Zolmitriptan (Zomig® Nasal Spray)
    • 5mg

• Disintegrating tablet
  – Rizatriptan (Maxalt® MLT)
    • 5, 10mg
  – Zolmitriptan (Zomig® ZMT)
    • 2.5, 5mg
MH-Triptan: Patient Counseling

• Oral
  – One tablet at onset of migraine
    • Onset: 30 min
    • May repeat one dose in 2 hours
    • Max often recommended: 2 doses/24 hrs
  – May experience some chest pain

• Disintegrating tablet
  – Place one tablet on tongue at onset of migraine
    • Onset: 30 min
    • May repeat one dose in 2 hours
    • Max often recommended: 2 doses/24 hrs
  – May experience some chest pain

MH-Triptans: Patient Counseling

• Injection
  – One subcutaneous (SC) dose
    • Onset: 10 min
    • May repeat after 1 hr
    • Max often recommended: 2 doses/24 hrs
  – May experience some chest pain

• Nasal
  – One dose in one nostril
    • Onset: 15 min
    • May repeat once more after 2 hrs
    • Max often recommended: 2 dose/24 hrs
  – May experience some chest pain

# Triptan - Cost

<table>
<thead>
<tr>
<th>Drug</th>
<th>Strength</th>
<th>Cost (Approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almotriptan (Axert®)</td>
<td>6.25, 12.5 mg</td>
<td>$29/tab</td>
</tr>
<tr>
<td>Eletriptan (Relpax®)</td>
<td>20, 40 mg</td>
<td>$33/tab</td>
</tr>
<tr>
<td>Frovatriptan (Frova®)</td>
<td>2.5 mg</td>
<td>$37/tab</td>
</tr>
<tr>
<td>Naratriptan (Amerge®)</td>
<td>1, 2.5 mg</td>
<td>$6/tab (generic)</td>
</tr>
<tr>
<td>Rizatriptan (Maxalt®/MLT)</td>
<td>5, 10 mg</td>
<td>$3/tab (generic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$38/tab MLT</td>
</tr>
<tr>
<td>Sumatriptan (Imitrex®)</td>
<td>25, 50, 100 mg</td>
<td>$3/tab (generic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$18/ns (generic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$35/vial (generic)</td>
</tr>
<tr>
<td>Zolmitriptan (Zomig®/ZMT)</td>
<td>2.5, 5 mg</td>
<td>18/tab (generic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>135/tab ZMT</td>
</tr>
</tbody>
</table>

Q. 9 How would you recommend Amy to take almotriptan 6.25 mg?

A. Take 1 tab PO every 2h PRN
B. Take 1 tab PO every 2h PRN (max 2 doses)
C. Take 1 tab PO daily
D. Take 1 tab PO twice daily
Q. 10 Which of the following patients could take a triptan safely?

A. A 80 y/o female on warfarin
B. A 35 y/o male. BP 140/90 - on lisinopril
C. A 55 y/o male on digoxin

Q: Can you switch between classes?
A. Yes
B. No
Q. 11 A patient has a MIDAS score of 1. What of the following would you recommend?

A. Nothing, the migraine disability is not severe enough
B. Over-the-counter medication
C. Prescription abortive therapy
D. Prescription preventative therapy
MH-Therapeutic alternatives

- Non-pharmacologic therapy

- Pharmacologic therapy
  - Acute treatment
  - Prophylactic therapy
  - Adjunct therapy
MH-Preventive Medications

• Approximately 38% of migraineurs need preventive medication
• 3%-13% migraineurs use it
• Goals
  – ↓ attack frequency, severity, duration
  – ↑ response when treating acute attacks
  – ↑ Function & reduce disability

MH-Preventive Medications Use

• Recurring migraines interfering with daily routines
• Frequent headaches (perhaps predictable)
• Contraindication, failure, adverse events, overuse of acute therapy
• Cost of acute & preventive therapy
• Patient preference
• Uncommon migraines (e.g., hemiplegic migraine)
MH-Preventive Meds: Guide to Dosing

• First 1-2 months: Start lowest effective dose
• Next 2 months: Maintain dose – Be patient!
• *If response* (>50% ↓ in # of days with headache), then continue on dose for 3-6 months
• Then may taper & discontinue (consult with patient)

**Selection of agents**
  – Often by trial & error
  – Some studies available

• Avoid overuse of acute meds
• Long-acting agents may increase adherence

## MH-Preventive Medications

<table>
<thead>
<tr>
<th>Level A</th>
<th>Level B</th>
</tr>
</thead>
</table>
| • Anticonvulsants  
  Divalproex  
  Sodium Valproate  
  Topiramate  
  | • Antidepressants/SSRI/SNRI/TCA  
  Amitriptyline  
  Venlafaxine  |
| • Beta blockers  
  Propranolol  
  Metoprolol  
  Timolol  | • Beta blockers  
  Atenolol  
  Nadolol  |
| • Triptans (MRM)
  Frovatriptan  | • Triptans  
  Naratriptan  
  Zolmitriptan  |

a: MRM-Menstrual-Related Migraine

MH-Preventive Medications

Topiramate

– Initial: 25 mg evenings w/o regard to meals up to 100 mg/day

– ADE
  • Dizziness, Somnolence, Fatigue, Nervousness, Ataxia (shaky, unsteady movement)
  • Nausea, paresthesias (numbness, tingling)

– Needs Mediguide!

MH-Rebound Headaches

• Affects up to 10 million people
• Excessive use of acute migraine medications

• Symptoms of rebound headaches
  – Daily or near daily headaches
  – Pain on both sides of the head
  – Pressing/tightening quality
  – Mild photophobia
  – Tight or tender neck and shoulder muscles

• Discontinue the offending agent
  – Initial 7-10 days may result in worsening of headaches

• Most break the rebound-headache cycle within 2-6 months

• Limit use of acute migraine meds to 2-3 days per week
MH-Therapeutic alternatives

• Non-pharmacologic therapy

• Pharmacologic therapy
  – Acute treatment
  – Prophylactic therapy
  – Adjunctive therapy
MH-Adjunctive Therapy

• N/v associated with migraines
  • Evidence grade B or C

• Antiemetic
  • Usually parenteral or rectal dose
  • Options
    • Metoclopramide IM, IV*
    • Prochlorperazine PR, IM, IV*
    • Chlorpromazine IV

• Serotonin (5-HT₃) receptor antagonists (e.g., ondansetron)
  • Not effective monotherapy
  • May be adjunct
TY, 37 y/o female complains of symptoms consistent with migraine. She recently began taking fluoxetine for depression with good response.

She does not take any other medications.
Q. 12 What non-pharmacologic advice is appropriate for TY?

A. Avoid drinking alcohol
B. Maintain healthy sleep hygiene
C. Follow up with primary care physician
D. All of the above
Q. 13 TY follows up with PCP in. Which of the following would be most appropriate?

A. Discontinue fluoxetine and initiate sertraline
B. Taper fluoxetine and initiate sertraline
C. Initiate sumatriptan
D. Recommend OTC ibuprofen
Q. 14 Which of the following is a red flag?

A. A 55 y/o man with a headache that gradually increases in intensity

B. A 75 y/o woman with a headache when climbing stairs

C. A 34 y/o man who called the pharmacy complaining of the worse headache ever

D. All of the above
MH-New Therapeutic Approaches

• Conceptual shift of understanding migraines as vascular disorder to brain disorder

• New therapies have emerged
  – CGRP receptor antagonists- Phase II & III trials
  – Glutamate receptor antagonists- Phase II trials
  – Nitric oxide synthesis inhibition– Phase II trial
## MH-Complementary Therapies

<table>
<thead>
<tr>
<th>Level A</th>
<th>Level B</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Herbal preparations, vitamins, minerals, other</td>
<td>• Herbal Preperations, vitamins, minerals, other</td>
</tr>
<tr>
<td>• Petasites (butterbur)</td>
<td>• Magnesium</td>
</tr>
<tr>
<td></td>
<td>• MIG-99 (Feverfew)</td>
</tr>
<tr>
<td></td>
<td>• Riboflavin</td>
</tr>
<tr>
<td></td>
<td>• Histamines</td>
</tr>
<tr>
<td></td>
<td>• Histamine (SC)</td>
</tr>
</tbody>
</table>

Special Population
MH: Special Population

• Pregnancy
  – First-line: Acetaminophen
  – Commination therapy: Non-responders (acetaminophen/metoclopramaide)

• Children
  – Older than 6 years: Ibuprofen and acetaminophen
  – Older than 12 years: Sumatriptan nasal spray
  – Conflicting data regarding oral triptans in children
# Pregnancy-Acute Therapy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Comments</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>Safe for mild – moderate pain</td>
<td>B</td>
</tr>
<tr>
<td>Short-acting Opioids</td>
<td>2\textsuperscript{nd} line agent</td>
<td>B/C</td>
</tr>
<tr>
<td>Codeine, hydrocodone</td>
<td>Limit use due to risk of medication overuse, increases risk of fetal mortality, premature labor associated with neonatal opioid w/d syndrome</td>
<td></td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>also helpful for prolonged attacks after 1\textsuperscript{st} trimester</td>
<td></td>
</tr>
<tr>
<td>NSAIDs</td>
<td>CI in 3\textsuperscript{rd}-trimester(\rightarrow) premature constriction, closure of fetal ductus arteriosus, Reports of ↑ risk of miscarriage(\rightarrow) inhibition of prostaglandin synthesis &amp; implantation</td>
<td>B/C</td>
</tr>
</tbody>
</table>

- **Triptans**: Relatively contraindicated even though maternal registry data show little teratogenicity. But some data shows could be used in moderate-severe pain.
- **Ergot compounds**: strictly avoided as they may precipitate uterine contraction and placental ischemia leading to fetal hypoxemia

MacGregor A. Management of migraine during pregnancy. Progress in neurology and Psychiatry

CI=Contraindicated
## Pregnancy-Prophylactic Therapy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Comments</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta blockers</td>
<td>Frequent and severe pain</td>
<td>C</td>
</tr>
<tr>
<td><strong>Propranolol</strong></td>
<td>Caution hypotension especially mid-pregnancy</td>
<td></td>
</tr>
<tr>
<td>SSRIs (except paroxetine)</td>
<td>Paroxetine increase risk of congenital heart defects</td>
<td>C</td>
</tr>
<tr>
<td>TCAs</td>
<td>also helpful for prolonged attacks after 1st trimester</td>
<td>C</td>
</tr>
<tr>
<td>• Avoid valproic acid, carbamazepine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SSRI Serotonin reuptake inhibitor; TCA tricyclic antidepressants

## Pregnancy/Lactation

<table>
<thead>
<tr>
<th>Medication</th>
<th>Pregnancy</th>
<th>Lactation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>B</td>
<td>L1</td>
</tr>
<tr>
<td>Butalbital, APAP, Caffeine</td>
<td>C</td>
<td>L3</td>
</tr>
<tr>
<td>Butalbital, ASA, Caffeine</td>
<td>C/D</td>
<td>L3</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>C/D</td>
<td>L1</td>
</tr>
<tr>
<td>Aspirin (mortality, premature closure ductus arteriosus, intrauterine growth retardation)</td>
<td>C/D</td>
<td>L3</td>
</tr>
<tr>
<td>Ergotamine</td>
<td>X</td>
<td>L4</td>
</tr>
</tbody>
</table>

- **Lucas.** Medication use in the treatment of migraine during pregnancy and lactation. 2009
# Pregnancy/Lactation

<table>
<thead>
<tr>
<th>Medication</th>
<th>Pregnancy</th>
<th>Lactation Lactation risk (M/P)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triptans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sumatriptan</td>
<td>C</td>
<td>L3 (4.9)</td>
</tr>
<tr>
<td>Zolmitriptan</td>
<td>C</td>
<td>L3</td>
</tr>
<tr>
<td>Eletriptan</td>
<td>C</td>
<td>L2 (0.25)</td>
</tr>
<tr>
<td><strong>Preventative Therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propranolol, Metoprolol, Nadolol</td>
<td>C</td>
<td>L2 (0.5), L3 (3-3.7), --</td>
</tr>
<tr>
<td>Verapamil</td>
<td>C</td>
<td>L2 (0.94)</td>
</tr>
<tr>
<td>Amitriptyline</td>
<td>C</td>
<td>L2 (1)</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>D</td>
<td>--</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>C</td>
<td>L2 (0.29-0.67)</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>C</td>
<td>L3 (--)</td>
</tr>
</tbody>
</table>

Q. 15 Propranolol is a good choice for prophylactic therapy for a breastfeeding mother?

A. True
B. False
MH-Clinical pearls

• Adults
  – Acute Treatment- OTC: APAP, ASA, & Caffeine; RX: triptans
  – Prevention- Divalproex, Propranolol, Triptans

• Pregnancy
  – Acute Treatment- OTC: APAP; RX: triptans (moderate-severe)
  – Prevention- beta blocker

• Lactation
  – Acute Treatment- OTC: APAP/NSAIDS; RX: triptan (eletriptan)
  – Prevention- Fluoxetine, Propranolol, Verapamil

• Pediatrics
  – Acute Treatment- OTC: NSAIDs; RX: Almotriptan (≥12 y.o.)
  – Prevention- Topiramate (≥12 y.o.)
MH-Clinical pearls

• Acute therapy with triptans- limit only 2-3 tabs per week to prevent medication overuse headache

• Rebound headaches- account for 1 out of 100 people- check refill history for possible medication overuse and refer

• Red flags: onset >50 years of age, sudden onset of severe HA, HA from exertion, associated w/ neurological changes, worsens Q day, HA w/signs of infection
American College Health Associations 2017
Igniting Innovation

Headaches: Types and Treatments

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