Update on Headache Management

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Update in Headache Management

- Headache Diagnosis
- Treatment options in migraine
- Special considerations in women
- Treatment of other primary headaches
- Treatment of frequent / refractory headaches
- What’s in the Pipeline
The start of the day, Monday morning

- 42 y/o woman who demanded last week to be seen urgently, and your secretary obliged her. She is 15 min late for the appointment.
- She describes daily severe holocranial headaches for the last 2 years, having seen many physicians “who did not help me at all”.
- She takes 4-6 Fioricet® tabs daily, and an assortment of Excedrin®, acetaminophen, Advil®, and occasional Percocet®.

In early adolescence she began having menstrual headaches with nausea, photophobia, and phonophobia; these persisted into her 30’s but started to increase in frequency in mid 30’s. The headache severity and nausea become “horrible” if “I don’t take my pain pills”.

- She is “allergic” to most medication, and states that several doctors “almost killed me”. (Imitrex® caused chest pain for example)
- She refuses to take any medication that “will make me fat”
PMH is + for Bipolar disorder (“but I don’t think that psychiatrist knew what he was doing”), and a history of depression (“I’m fine now if people don’t get on my case”). Medical history is otherwise normal.

Her old PCP (whom she has just fired) has given her only enough Fioricet to last til today and will not prescribe any more.

She is an attorney

She has “cleared her morning” and “wants to get to the bottom of this”.

What is the F:M ratio of migraine prevalence?

A. 1:1  
B. 2:1  
C. 3:1  
D. 4:1
What is the F:M ratio of migraine prevalence?

A. 1:1  
B. 2:1  
C. 3:1  18%, 6%  
D. 4:1

Migraine Epidemiology

![](chart.png)
International Classification of Headache Disorders 2013

**Primary HA**
1. Migraine
2. Tension-type HA
3. Cluster headaches relatives (TAC)
4. Exertional and other headaches

**Secondary HA**
5. Posttraumatic
6. Vascular disease
7. Abnormal ICP, Neoplasm, Hydrocephalus
8. Substances
9. CNS infection
10. Metabolic
11. Cervicogenic, Eyes, Sinuses, Jaw
12. Psychiatric HA
13. Neuralgias

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**The primary headaches**

1. Migraine
2. Tension-type headache
3. Trigeminal autonomic cephalalgias
4. Other primary headache disorders
1. Migraine without aura

Headache attacks lasting 4-72 h (untreated or unsuccessfully treated)
Headache has ≥2 of the following
1. unilateral location
2. pulsating quality
3. moderate or severe pain intensity
4. aggravation by or causing avoidance of routine physical activity (eg, walking, climbing stairs)
During headache ≥1 of the following:
1. nausea and/or vomiting
2. photophobia and phonophobia

1.2 Migraine with aura

≥1 of the following fully reversible aura symptoms:
1. visual; 2. sensory; 3. speech and/or language;
4. motor; 5. brainstem; 6. retinal
≥2 of the following 4 characteristics:
1. ≥1 aura symptom spreads gradually over ≥5 min, and/or ≥2 symptoms occur in succession
2. each aura symptom 5-60 min
3. ≥1 aura symptom is unilateral
4. aura accompanied or followed in <60 min by headache
2. Tension type HA

≥2 of the following 4 characteristics:
1. bilateral location
2. pressing or tightening (non-pulsating) quality
3. mild or moderate intensity
4. not aggravated by routine physical activity

Both of the following:
1. no nausea or vomiting
2. no more than one of photophobia or phonophobia

3. Trigeminal autonomic cephalalgias (TACs)

3.1 Cluster headache
3.2 Paroxysmal hemicrania
3.3 Short-lasting unilateral neuralgiform headache attacks
3.4 Hemicrania continua
What is the key feature of cluster headache & TAC’s?

A. Unilaterality
B. Cranial autonomic sx
C. Severity
D. Brevity
3.1 Cluster headache

Severe or very severe unilateral orbital, supraorbital and/or temporal pain lasting 15-180 min

Either or both of the following:

1. ≥1 of the following ipsilateral symptoms or signs:
   a) conjunctival injection and/or lacrimation; b) nasal congestion and/or rhinorrhea; c) eyelid oedema; d) fore-head and facial sweating; e) forehead and facial flushing; f) sensation of ear fullness; g) miosis and/or ptosis

2. a sense of restlessness or agitation

Frequency from 1/2 d to 8/d for > half the time when active

3.2 Paroxysmal hemicrania

Severe unilateral orbital, supraorbital and/or temporal pain lasting 2-30 min

≥1 of the following ipsilateral symptoms or signs:

1. conjunctival injection and/or lacrimation
2. nasal congestion and/or rhinorrhea
3. eyelid oedema
4. forehead and facial sweating
5. forehead and facial flushing
6. sensation of fullness in the ear
7. miosis and/or ptosis

Frequency >5/d for > half the time

Prevented absolutely by therapeutic doses of indomethacin
3.3 Short-lasting unilateral neuralgiform (SUN) attacks

A. At least 20 attacks fulfilling criteria B-D
B. Moderate or severe unilateral head pain, with orbital, supraorbital, temporal and/or other trigeminal distribution, lasting 1-600 sec and occurring as single stabs, series of stabs or in a saw-tooth pattern
C. \( \geq 1 \) of the following ipsilateral cranial autonomic symptoms or signs: 1. conjunctival injection and/or lacrimation; 2. nasal congestion and/or rhinorrhoea; 3. eyelid oedema; 4. forehead and facial sweating; 5. forehead and facial flushing; 6. sensation of fullness in the ear; 7. miosis and/or ptosis
D. Frequency \( \geq 1/d \) for > half the time when active

TAC’s

- All involve unilateral pain
- Usually periorbital & brief
- Duration decreases with name length

Cluster
15-180 min

Paroxysmal Hemicrania
2-30 min

Short lasting unilateral neuralgiform headaches
1-600 sec
3.4 Hemicrania continua

A. **Unilateral headache** fulfilling criteria B-D
B. **Present >3 mo.** with exacerbations of moderate or greater intensity
C. Either or both of the following:
   1. **cranial autonomic activity** e.g. ipsilateral symptoms or signs:
      a) conjunctival injection and/or lacrimation; b) nasal congestion and/or rhinorrhoea; c) eyelid oedema; d) forehead and facial sweating; e) forehead and facial flushing; f) sensation of fullness in the ear; g) miosis and/or ptosis
   2. a sense of restlessness or agitation, or aggravation of pain by movement
D. **Responds absolutely to therapeutic doses of indomethacin**

TAC’s:

- **HC Years**
- **Cluster 15-180 min**
- **Paroxysmal Hemicrania 2-30 min**
- **Short-lasting unilateral neuralgiform headaches 1-600 sec**
4. Other primary headaches

Exertional headaches
- Cough headache
- Exercise headache
- Orgasmic headache
- Pre-orgasmic headache
- Thunderclap headache

HA related to stimulation
- HA attributed to cold stimulus
- External compression headache

Epicranias
- Nummular HA
- Epicrania fugax
- Stabbing Headache

Other HAs
- Hypnic HA
- NDPH

4.3 Primary headache associated with sexual activity

B. Brought on by & occurring only during sexual activity

C. Either or both of the following:
   1. increasing in intensity with increasing sexual excitement
   2. abrupt explosive intensity around orgasm

D. Lasting from 1 min to 24 hr with severe intensity and/or up to 72 hr with mild intensity
4.7 Primary stabbing headache – icepick headache

A. Head pain occurring spontaneously as a single stab or series of stabs and fulfilling criteria B-D
B. Each stab lasts for up to a few seconds
C. Stabs recur with irregular frequency, from one to many per day
D. No cranial autonomic symptoms
E. Not better accounted for by another ICHD-3 diagnosis

4.9 Hypnic headache

A. Dull headache fulfilling criteria B-D
B. Develops only during sleep, and awakens patient
C. At least two of the following characteristics:
   1. occurs > 10 times/mo
   2. lasts ≥15 min after waking
   3. first occurs after age of 50
D. No autonomic symptoms and no more than one of nausea, photophobia or phonophobia
E. Not attributed to another disorder
4.10 New daily persistent headache (NDPH)

A. Persistent headache fulfilling criteria B and C
B. **Distinct and clearly-remembered onset**, with pain becoming continuous and unremitting within 24 h
C. Present for >3 mo
D. Not better accounted for by another ICHD-3 diagnosis

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Diagnosing Primary Headaches - The essentials

- **Migraine** - unilat, throbbing, female 3:1, nausea, +/- aura
- **Tension-type HA** - milder, no nausea, no aura
- **Cluster** - Unilateral, male predom, brief, recurring in cycles
Part 2: The secondary headaches

5. Headache attributed to trauma or injury to the head and/or neck
6. Headache attributed to cranial or cervical vascular disorder
7. Headache attributed to non-vascular intracranial disorder
8. Headache attributed to a substance or its withdrawal
9. Headache attributed to infection
10. Headache attributed to disorder of homoeostasis
11. Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structure
12. Headache attributed to psychiatric disorder
Headache attributed to traumatic injury to the head

- If persistent, a key component of the post-concussive syndrome
- Can resemble other headache types including migraine
- Resistant to treatment
- Divided by causative mild or severe head injury

Mild Head Trauma: Definition

Injury to someone else's head
Headaches due to vascular disorders

- Stroke
- Hemorrhage
- Arteritis
- Cerebral venous thrombosis
- Reversible cerebral vasoconstriction syndrome
- AVM
- Aneurysm
- Post endarterectomy
- CADASIL
- MELAS

Reversible Cerebral Vasoconstriction Syndrome

1. angiography with “strings and beads”
2. Focal subarachnoid hemorrhage
3. Thunderclap headache
4. Triggered by sexual activity, exertion, Valsalva manoeuvres, emotion, bathing and/or showering
Headache attributed to IIH
Pseudotumor Cerebri

A. Any headache fulfilling criterion C
B. Idiopathic intracranial hypertension (IIH) diagnosed, with CSF pressure >250 mm CSF
C. Evidence of causation demonstrated by ≥2 of the following:
   1. headache has developed in temporal relation to IIH, or led to its discovery
   2. headache is relieved by reducing intracranial hypertension
   3. headache is aggravated in temporal relation to increase in intracranial pressure
D. Not better accounted for by another ICHD-3 diagnosis

What is the most effective treatment of IIH?

A. Weight loss
B. Lumbar punctures
C. Shunting
D. Diuretics
What is the most effective treatment of IIH?

A. **Weight loss**
B. Lumbar punctures
C. Shunting
D. Diuretics

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**Headache attributed to spontaneous low ICP**

A. Any headache fulfilling criterion C
B. Low CSF pressure (<60 mm CSF) and/or evidence of CSF leakage on imaging
C. Headache has developed in temporal relation to the low CSF pressure or CSF leakage, or has led to its discovery
D. Not better accounted for by another ICHD-III diagnosis.

**Key diagnostic clue = worsening on standing**
Medication-overuse headache (MOH)

A. Headache occurring on ≥15 d/mo in a patient with a pre-existing headache disorder
B. Regular overuse for >3 mo of one or more drugs that can be taken for acute and/or symptomatic treatment of headache
C. Not better accounted for by another ICHD-3 diagnosis

Headaches due to medications, toxins and other substances

3 mechanisms:
- Direct effects of substance
- Withdrawal
- Medication overuse
Headache and Medications

Medication and substances which induce HA:

- Hydralazine
- Isosorbide, Nitroglycerin
- Nifedipine, Enalopril (Vasotec)
- Amantadine, L-Dopa
- Phenothiazines
- Ranitidine, famotidine, cimetidine
- Sildenafil (Viagra; also Levitra, Cialis)
- Trimethoprim-Sulfa, Tetracyclines
- Estrogen, Progesterone, Tamoxifen
- Theophylline
- Pseudoephedrine, sympathomimetics
- Tetracyclines, Trimethoprim
- Indomethacin, NSAIDs
- Cyclophosphamide
- Amphetamines, Cocaine

Cervicogenic headache

Clinical, laboratory and/or imaging evidence of a disorder or lesion within cervical spine or soft tissues of neck, known to be able to cause headache

Evidence of causation demonstrated by ≥2 of:
1. headache has developed in temporal relation to onset of cervical disorder or appearance of lesion
2. headache has significantly improved or resolved in parallel with improvement in or resolution of cervical disorder or lesion
3. cervical range of motion is reduced and headache is made significantly worse by provocative manoeuvres
4. headache is abolished following diagnostic blockade of a cervical structure or its nerve supply
Cervicogenic headache

“A” splitting Headache
Clinical Approach to the HA patient

Goals:
1. Exclude secondary causes of HA
2. Identify co-morbid conditions
3. Think about prevention
4. Find an effective acute treatment

Headache Disorders - History
- Location, frequency, duration, accompaniments
- Age of onset
- Triggers, relieving factors
- Past and current meds
- Drugs, ethanol, nicotine, caffeine intake
- Family hx
- Toxic exposure, sleep pattern
- Neurological and psych symptoms and history

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Headache Dx:
Mode of Onset

1. **Chronic Intermittent**
migraine, tension-type, cluster
2. **Subacute**
neoplasm, hydrocephalus, metabolic
3. **Sudden**
subarachnoid hem, dissection

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Headache Log
Headache Log
April 14 - April 20

Sensation
April 1 - April 7
Distress
April 1 - April 7

Average of All Days
Headache Disorders - Exam

- **General** - Vital signs, cardiac, pulmonary

- **Head and Neck** - trauma, carotids, paranasal sinuses, C-spine, occipital and supraorbital n., TMJ, submandibular, funduscopic, otoscopic

- **Neurological** - MS, cranial n, motor, reflexes, sensation, coordination, gait

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Headache Disorders - Labs

- Blood tests - CBC, lytes, Ca, Mg, BUN, creat, liver enzymes, thyroid, ESR, HIV
- C-spine X-ray, sinus X-rays
- MRI, CT - if red flags
- Lumbar puncture - if suspect
  - 1) Subarachnoid hemorrhage
  - 2) Hi or low intracranial pressure
  - 3) meningitis/encephalitis
- MRA, MRV, CTA, Cerebral arteriography

Secondary Headaches - When to look for them

Red Flags in HA

- New or change in pattern
- Onset in middle age or later
- Effort induced or positional
- Febrile or systemic illness - AIDS, Cancer
- Change in personality or cognition
- Neurological findings
Severe Recurring Headache

Usually Migraine

Migraine pathophysiology

- Step 1 - Cortical spreading depression

https://www.youtube.com/watch?v=yZr9Joe85wg
Migraine pathophysiology

- Step 2 - Trigeminal nerve activation with release of inflammatory substances in the vicinity of meningeal arteries

- Step 3 activation of central trigeminal system and autonomic centers with central sensitization and reactive vasodilation
Migraine pathophysiology — a unified hypothesis

- Targeting any of these steps might help to prevent or relieve HA in migraine, e.g.:
  - Antiepileptics - Cortical spreading depression
  - Triptans - Trigemino-vascular activation

Acute Migraine - Tx options

**Non-specific**
- NSAIDs
- Dopamine antagonists
- Opioids
# Acute Migraine - Tx options

## Non-specific

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand Name</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Naproxen sodium</td>
<td>Alleve</td>
<td>550 mg po</td>
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<tr>
<td>Indomethacin</td>
<td>Indocin</td>
<td>50 mg po, pry</td>
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<tr>
<td>Ketorolac</td>
<td>Toradol</td>
<td>30-60 mg IM</td>
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<tr>
<td>Promethazine</td>
<td>Phenergan</td>
<td>5 mg IM, IV</td>
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<tr>
<td>Prochlorperazine</td>
<td>Compazine</td>
<td>5-10 mg IV, IM</td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>Thorazine</td>
<td>10-25 mg IV, IM</td>
</tr>
<tr>
<td>Butorphanol</td>
<td>Stadol</td>
<td>1 mg nasal</td>
</tr>
<tr>
<td>Meperidine</td>
<td>Demerol</td>
<td>50-150 mg IM</td>
</tr>
<tr>
<td>Morphine</td>
<td></td>
<td>5-10mg IM, 2-5 IV</td>
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<tr>
<td>Valproate</td>
<td>Depacon</td>
<td>500 mg</td>
</tr>
<tr>
<td>Mg Sulfate</td>
<td></td>
<td>1 g</td>
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</table>

## Specific:

- **Triptans**
- **Ergots**
# Acute Migraine - Tx options

### Specific:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand</th>
<th>Dose</th>
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<tbody>
<tr>
<td>Sumatriptan</td>
<td>Imitrex</td>
<td>6mg IM, 20 NS, 50-100 po</td>
</tr>
<tr>
<td>Naratriptan</td>
<td>Amerge</td>
<td>2.5 po</td>
</tr>
<tr>
<td>Rizatriptan</td>
<td>Maxalt</td>
<td>10 mg po</td>
</tr>
<tr>
<td>Zolmitriptan</td>
<td>Zomig</td>
<td>2.5-5 mg po</td>
</tr>
<tr>
<td>Almotriptan</td>
<td>Axert</td>
<td>12.5 mg po</td>
</tr>
<tr>
<td>Frovatriptan</td>
<td>Frova</td>
<td>2.5 mg po</td>
</tr>
<tr>
<td>Eletriptan</td>
<td>Relpax</td>
<td>40-80 mg po</td>
</tr>
<tr>
<td>Dihydroergotamine</td>
<td>DHE-50</td>
<td>1 mg IV, IM</td>
</tr>
<tr>
<td></td>
<td>Migranol</td>
<td>2 mg NS</td>
</tr>
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</table>

### Triptans

- Relpax® (eletriptan HBr)
- Zomig™
- Imitrex®
- Maxalt®
- Amerge®
- Frova™

New Almotriptan Malate Tablets

- Axert™
Common Triptan AE’s and Contraindications

**AEs:**
- Tingling
- Warmth
- Flushing
- Chest discomfort
- Dizziness
- Somnolence
- HA recurrence

**Contraindications**
- Hemiplegic or “basilar Mig”
- Uncontrolled hypertension
- Concomitant use of MAO
- Use within 24 hrs of an ergot
- Pregnancy category C

(Adapted from Hargreaves, Shepheard 1999)
Triptan concerns

Contraindicated because of their vasoconstrictive effects: Coronary disease, stroke - **But they are minimally vasoconstrictive**

Contraindicated in hemiplegic migraine and migraine with basilar auras – **but these are not due to vasoconstriction**

Worrisome for some clinicians due to possible **serotonin syndrome** in patients on SSRI/SSNI - **but evidence is weak**; & they are 5HT1B and D agonists and SSS is felt to be due to 5HT1,2A

$28.24 for 9 sumatriptan 100 mg
Acute Migraine Tx - barriers

- NSAIDS: GI, renal adverse effects
- DA antag: Dystonia, akathisia
- Opioids: Tolerance and addiction
- Ergot: Vasoconstriction
- Triptans: Contraindications

Choices in Migraine Prophylaxis

- Anticonvulsants – topiramate, valproate
- Beta blockers – propranolol, atenolol
- Cyclic antidepressants – amitriptyline, nortriptyline
- Calcium channel blockers – verapamil, flunarizine
- Angiotensin receptor blockers - candesartan
- ACE inhibitors - lisinopril
- Antispasmodics – baclofen, tizanidine
**Choices in Migraine Prophylaxis - Good options**

- Anticonvulsants – topiramate 100-200 mg hs
- Beta blockers – propranolol 80 mg bid
- Cyclic antidepressant – nortriptyline 25-75 mg hs
- Calcium channel blocker – verapamil 80 mg tid
- Angiotensin receptor blocker – candesartan 4-16 mg

**Other choices in Migraine Prophylaxis**

- B2, Magnesium,
- Feverfew, Butterbur
- Co Q 10
- Melatonin
- Ginger
Non medicinal Tx

Lifestyle adjustment
  Avoidance of triggers
  Exercise
  Sleep regulation
Relaxation techniques
  Biofeedback, yoga
  Meditation, hypnotherapy
Manual therapies
  Acupuncture, TENS

Managing menstrual migraine

- Generally migraine without aura, and can be disabling.
- Focused “mini-prophylaxis” treatments during the perimenstrual time period - NSAID, triptans
- Estrogen during vulnerable time frame
- Estrogen uninterrupted, x 3 mo
### Managing Menstrual Migraine

<table>
<thead>
<tr>
<th>Medication class</th>
<th>Examples</th>
<th>Dose</th>
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<tbody>
<tr>
<td>Triptans</td>
<td>sumatriptan po</td>
<td>25-50 mg bid bid d-3 – d+4</td>
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<tr>
<td></td>
<td>rizatriptan po</td>
<td>10 mg bid d-3 – d+4</td>
</tr>
<tr>
<td></td>
<td>naratriptan po</td>
<td>1-2.5 mg bid d-3 – d+4</td>
</tr>
<tr>
<td></td>
<td>frovatriptan po</td>
<td>2.5 mg daily d-3 – d+4</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>naproxen sodium</td>
<td>550 mg bid d-3 – d+4</td>
</tr>
<tr>
<td></td>
<td>ibuprofen</td>
<td>400-800 mg bid d-3 – d+4</td>
</tr>
<tr>
<td>Beta blockers</td>
<td>atenolol</td>
<td>25 mg bid daily, or d-3 – d+4</td>
</tr>
<tr>
<td></td>
<td>metoprolol</td>
<td>50 mg daily, or d-3 – d+4</td>
</tr>
<tr>
<td>Estrogen</td>
<td>Estrogen + Progesterone</td>
<td>Without interruption</td>
</tr>
<tr>
<td></td>
<td>combination medication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Estrogen alone – oral, transdermal</td>
<td>d-3 – d+4 or 3 month courses</td>
</tr>
</tbody>
</table>

### Managing Migraine in pregnancy

<table>
<thead>
<tr>
<th>Medication</th>
<th>FDA category</th>
<th>TERIS risk rating</th>
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<tbody>
<tr>
<td>Acetaminophen</td>
<td>B</td>
<td>No risk</td>
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<tr>
<td>Ibuprofen</td>
<td>B (D in 3rd Trimester)</td>
<td>Minimal</td>
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<tr>
<td>Naproxen</td>
<td>B (D in 3rd Trimester)</td>
<td>Undetermined</td>
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<tr>
<td>Oxycodone</td>
<td>B (D near term)</td>
<td></td>
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<tr>
<td>Magnesium</td>
<td>B</td>
<td>Unlikely</td>
</tr>
<tr>
<td>Metoclopramide</td>
<td>B</td>
<td>Unlikely</td>
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<tr>
<td>Prednisone</td>
<td>C in 1st trimester;</td>
<td>Minimal</td>
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<tr>
<td></td>
<td>? 2nd/3rd trimesters</td>
<td></td>
</tr>
<tr>
<td>Promethazine</td>
<td>C</td>
<td>None</td>
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Managing Migraine during lactation

**Acute meds which seem to be compatible**
- Acetaminophen
- Ibuprofen
- Eletriptan
- Meperidine
- Caffeine
- Prednisone
- Probably compatible - other triptans, other NSAIDs, ondansetron, promethazine, Dilaudid, Lidocaine

Managing Migraine during lactation

**Proph meds which seem to be compatible**
- Riboflavin
- Magnesium
- Probably compatible - gabapentin, candesartan, verapamil, cyproheptadine, Botox
When is Estrogen particularly risky in migraine sufferers?

A. Young women
B. Young women with migraine and aura
C. Middle aged women with migraine with aura
D. Postmenopause
Epidemiology

- **Migraine with aura** is associated with an increased risk of ischemic stroke.
- Risk is increased in women, especially women using oral contraceptives and peripartum period.
- Younger than 45.
- And smokers.

![Graph showing relative risk of ischemic stroke related to migraine and other factors.](image)


Cluster Headache treatment

- **Break cycle**: Prednisone.
- **Prophylaxis**:
  - Calcium channel blockers – Verapamil, Amlodipine.
  - Lithium.
  - Antiepileptics – Valproate, Lamotrigine.
- **Acute treatment**:
  - Oxygen 8-10 L/min.
  - Sumatriptan subcutaneous.
  - Occipital nerve blocks.
Tension type Headache treatment

- **Prophylaxis:**
  - Lifestyle
  - Relaxation/manual therapies
  - Cyclic antidepressants

- **Acute treatment**
  - Acetaminophen
  - NSAIDs
  - Triptans
  - Manual therapy

**Chronic Migraine is defined as**

A. Lasting longer than one week
B. Occurring on ≥15 days per mo
C. Lasting longer than 3 months
D. Refractory to treatment
Chronic Migraine is defined as

A. Lasting longer than one week  
B. Occurring on >15 days per mo  
C. Lasting longer than 3 months  
D. Refractory to treatment

Chronic Migraine (>15/mo)

- Topiramate
- Other typical prophylactic migraine medications
- Botox
- Nerve blocks
- Inpatient infusion therapies
Botulinum toxin for Chronic Migraine

31 injections 5U each in forehead, temples, occiput, neck, trapezius
Repeated every 3 mo
AE’s – facial asymmetry, neck pain

Chronic HA due to MOH

- Education of patient and family
- Stopping the offending medications (OTC, prescrip, dietary)
- Designing a “bridge therapy”
- Starting prophylactic meds
- Choosing effective abortive meds
**Chronic HA due to MOH**

Bridge therapies in MOH tx
- Steroids
- Benzodiazepines
- Clonidine
- Longer acting barbiturates
  - Ratio Phenobarb:butalbital = 30:100
- Caffeine (NoDoz)
- DHE
- NSAIDs

**New treatment options in Headache**
- New forms of triptans & other older meds
- CGRP as a target
- Monoclonal antibodies
- Neurostimulation
- Non-pharmacological and Non-device treatments
New forms of triptans

- Sumatriptan Optinose

New forms of triptans

- Sumatriptan iontophoretic patch
A new class of triptans - Serotonin 1F receptor blockers

- lasmiditan, the first “ditan”, has clear proof of principle in 2 studies
- It is nonvascular so safer

DHE via inhalation
New forms of NSAIDs

- Diclofenac K in sachet
- Diclofenac suppositories

CGRP and the aim of blocking it in migraine - antagonists and antibodies

Calcitonin gene related protein - a key neurotransmitter in pain
- Elevated CGRP is seen during migraine
- CGRP higher in general in migraine patients
- Injection of CGRP induces migraine
CGRP receptor antagonists

- Telcagepant – abandoned because of liver toxicity
- Olcegapant – and others, being studied

CGRP antibodies

4 monoclonal antibodies being developed for monthly injection to prevent migraine

- LY2951742 - mAb anti-CGRP - aimed at preventing episodic migraines - Arteaus Therapeutics
- ALD403 - mAb anti CGRP - aimed at preventing episodic migraines - Alder Biopharmaceuticals.
- LBR-101 - fully humanized monoclonal antibody aimed at preventative treatment of chronic migraine. Labrys Biologics
- AMG 334 – an anti-GCRP receptor Ab - Amgen
Neural Stimulation for HA

- Transcutaneous supraorbital nerve stim
- Implanted Occipital and Supraorbital stim
- Sphenopalatine ganglion implanted stim
- Surface vagal nerve stim
- Transcutaneous magnetic stimulation
- Deep brain stimulation
The UCSF Headache Center

- Intractable migraine, cluster headaches, post-traumatic headaches and other unusual or difficult headache disorders
- Outpatient treatment
- Inpatient treatment
- Telemedicine
- Research

Interventional treatment of migraine and other headaches

- Face and head nerve blockade
Interventional treatment of headaches

Botulinum toxin

Interventional treatment of Migraine and other headaches

- Non-invasive neural stimulation
Inpatient treatment of refractory headaches

- Intravenous Dihydroergotamine (DHE)
- Intravenous Chlorpromazine
- Intravenous Lidocaine
- Safe discontinuation of pain medications

Indications

- Intractable head pain despite appropriate tx
- Significant analgesic rebound
- Serious psychiatric co-morbidity
- Medical illnesses requiring monitoring
- Significant lifestyle stress
Update in Headache Management

- Headache diagnosis
- Treatment options in migraine
- Treatment of other primary headaches
- Treatment of frequent / refractory headaches
- What’s in the Pipeline

Our Headache Case

- 42 y/o woman who demanded last week to be seen urgently, and your secretary obliged her. She is 15 min late for the appointment.
- She describes daily severe holocranial headaches for the last 2 years, having seen many physicians “who did not help me at all”.
- She takes 4-6 Fioricet® tabs daily, and an assortment of Excedrin®, acetaminophen, Advil®, and occasional Percocet®.

MOH? 2°causes?
Our Headache Case

- In early adolescence she began having menstrual headaches with nausea, photophobia, and phonophobia; these persisted into her 30's but started to increase in frequency in mid 30's. The headache severity and nausea become "horrible" if "I don't take my pain pills".
- She is "allergic" to most medication, and states that several doctors "almost killed me". (Imitrex caused chest pain e.g.)
- She refuses to take any medication that "will make me fat"

Our Headache Case

- PMH is + for Bipolar disorder ("but I don't think that psychiatrist knew what he was doing"), a history of depression ("I'm fine now if people don't get on my case"). Medical history is otherwise normal.
- Her old PCP (whom she has just fired) has given her only enough Fioricet to last till today and will not prescribe any more.
- She is an attorney
- She has "cleared her morning" and "wants to get to the bottom of this".
Our Headache Case

- Migraine with medication overuse

Treatment -
- Educate about medication overuse
- Consider bridge therapy like prednisone, benzodiazepines
- Consider admission to inpatient unit for DHE
- Institute new prophylactic medication, consider Topiramate, candesartan, Botox

Headache diagnosis and treatment

An interesting game