2:45 – 3:45pm

Treatment of Primary Headache Syndromes

SPEAKER
Gerald W. Smetana, MD

Presentation Title

Treatments of Primary Headache Syndromes

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Learning Objectives

- Learn which complementary and alternative physical and pharmacologic treatments are helpful for migraine
- Determine which abortive treatments for migraine are most effective
- Learn a proper sequence of preventive medications for the treatment of migraine
- Understand abortive, transitional, and preventive treatment strategies for cluster headache
- Learn how to effectively treat tension-type headache

Case Vignette: Karen

A 24-year-old primary care patient comes to see you for evaluation of headaches. They have been present for 10 years.
Headaches are unilateral, throbbing, and associated with nausea, photophobia
- What lifestyle advice will help her manage her migraines?
- What are the preferred abortive medications?
- When should you recommend preventive medications and which ones are preferred?

Primary Headache Syndromes

- Migraine without aura
- Migraine with aura
- Migraine with typical aura
- Tension-type headache
- Cluster headache

Presenter Disclosure Information

The following relationships exist related to this presentation:

Gerald W. Smetana, MD, has no financial relationships to disclose.

Off-Label/Investigational Discussion

In accordance with pmiCME policy, faculty have been asked to disclose discussion of unlabeled or unapproved use(s) of drugs or devices during the course of their presentations.
Impact of Primary Headache Syndromes

- Source of suffering and disability
- Contributes to lost work and school days
- Decreased productivity
- Impact on quality of life

Treatment of Migraine: General Principles

- Lifestyle advice to minimize triggers for all patients
- Abortive therapy at onset of migraine
- Preventive therapy for patients with frequent and/or disabling migraines
- Consider complementary and physical treatments for patients with poor Rx response or based on patient preference

Lifestyle Approaches to Migraine: Obtain a Headache Diary

- Ask patient to keep a headache diary for one month
- Record
  - Dates
  - Events prior to headache
  - Presence of headache
  - Type and location of pain
  - Menses
  - Sleep patterns
  - Foods, caffeine, alcohol
  - Stress

Patient Education: Avoid Migraine Triggers

- Tailor recommendations based on headache diary
- Regular meal and sleep pattern
- Avoid oversleeping, skipping meals
- Limit caffeine intake < 2 drinks/day
- Avoid offending foods
  - Cheese, red wine, MSG, chocolate, alcohol most common offenders
- Regular exercise

Complementary Physical Treatments for Headache

<table>
<thead>
<tr>
<th>Migraine</th>
<th>Tension-type headache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probably effective</td>
<td>Probably effective</td>
</tr>
<tr>
<td>Spinal manipulation</td>
<td>Spinal manipulation</td>
</tr>
<tr>
<td>Biofeedback*</td>
<td>Possibly effective</td>
</tr>
<tr>
<td>Possibly effective</td>
<td>Therapeutic touch</td>
</tr>
<tr>
<td>Electromagnetic fields</td>
<td>Cranial electrotherapy</td>
</tr>
<tr>
<td>TENS and electrical neurotransmitter modulation</td>
<td>TENS</td>
</tr>
<tr>
<td></td>
<td>TENS and electrical neurotransmitter modulation</td>
</tr>
</tbody>
</table>

Acupuncture is Effective for Migraine Prophylaxis: Needle Location May Not Matter

- Cochrane 2009 review
- 22 trials (n=4419)
  - 6 trials of acupuncture vs. no Rx all showed benefit
  - 14 trials of true acupuncture vs. sham treatment showed equal response rates
  - 4 trials of acupuncture vs. medication Rx favored acupuncture: higher efficacy and fewer side effects
- Acupuncture also effective in separate review of tension-type headache

Alais LK et al. Cochrane Database of Systematic Reviews 2009;1
Abortive Migraine Treatments: General Classes

- Nonspecific
  - NSAIDs
  - Combination analgesics
  - Neuroleptics/antiemetics
- Specific
  - Ergotamine/DHE
  - Triptans

Abortive Treatment: NSAIDs

- Recommended first line abortive therapy for most patients
- Ibuprofen, naproxen, and indomethacin most extensively studied
- If first doesn’t work, try another
- Treatment of choice for menstrual migraines

Abortive Treatment: Triptans

- Serotonin (5HT₂) agonists
- Side effects
  - Pain at injection site
  - Flushing
  - Chest or jaw pressure
  - Nausea and bad taste (intranasal form)
- Some patients respond better to one than another triptan
- Try at least two before giving up...

Triptans: More Alike than Different

<table>
<thead>
<tr>
<th>Drug</th>
<th>Onset of Action</th>
<th>Minimum Interval Between Doses</th>
<th>Maximum Dose per 24 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almotriptan</td>
<td>30-60 min.</td>
<td>2 hours</td>
<td>25 mg</td>
</tr>
<tr>
<td>Eletriptan</td>
<td>30-60 min.</td>
<td>2 hours</td>
<td>80 mg</td>
</tr>
<tr>
<td>Frovatriptan</td>
<td>2 hours</td>
<td>2 hours</td>
<td>7.5 mg</td>
</tr>
<tr>
<td>Naratriptan</td>
<td>1-3 hours</td>
<td>4 hours</td>
<td>5 mg</td>
</tr>
<tr>
<td>Rizatriptan</td>
<td>30-60 min.</td>
<td>2 hours</td>
<td>30 mg</td>
</tr>
<tr>
<td>Sumatriptan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tablets</td>
<td>30-60 min.</td>
<td>2 hours</td>
<td>200 mg</td>
</tr>
<tr>
<td>- Nasal Spray</td>
<td>10-15 min.</td>
<td>2 hours</td>
<td>40 mg</td>
</tr>
<tr>
<td>- SC injection</td>
<td>10 min.</td>
<td>1 hour</td>
<td>12 mg</td>
</tr>
<tr>
<td>Zolmitriptan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tablets</td>
<td>30-60 min.</td>
<td>2 hours</td>
<td>10 mg</td>
</tr>
<tr>
<td>- Nasal Spray</td>
<td>10-15 min.</td>
<td>2 hours</td>
<td>10 mg</td>
</tr>
</tbody>
</table>

Triptan Safety Considerations

Use with caution in patients with CAD risk factors
- Post menopausal women
- Hypertension
- Obesity
- Diabetes
- Smokers
- Elevated cholesterol
- Family History CAD
- Age > 50 years

Contraindicated in patients with
- Ischemic artery disease or significant CV disease
- Coronary artery vasospasm
- Hemiplegic or basilar migraine
- Hx Stroke or TIA
- Peripheral vascular disease
- Ischemic bowel disease
- Uncontrolled hypertension
- MAO-I use within 2 weeks

Abortive Treatment: Ergots

- Ergotamine
  - Available as monotherapy or in combination with caffeine
  - Can not use during pregnancy or if pregnancy possible
  - Frequent use may cause rebound headaches, ergotism
  - Not recommended due to:
    - More side effects than NSAIDs
    - Less effective than NSAIDs

Medical Letter Rx Guidelines Feb. 2011

http://www.accessdata.fda.gov/drugsatfda_docs/label/2011/020864s011s016s017s018s019,020865s012s016s018s020s021lbl.pdf
Abortive Treatment: DHE

- Would consider only using in patients referred to consultant
- Given IM along with anti-emetic
- Intranasal form in selected patients who are non-responders to other acute Rx’s
- Causes less rebound headaches

Abortive Treatment: Anti-Emetics are Underutilized

- Particularly useful when nausea is a major feature
- Useful when nausea prevents use of PO analgesics
- Metoclopramide PO, PR, IM
- Prochlorperazine PO, PR, IV
- Prochlorperazine is superior to metoclopramide and potentially to other common 1st line Rx’s*

Migraine Specific Rx Formulations

<table>
<thead>
<tr>
<th>Drug</th>
<th>Tablet</th>
<th>Dissolving tablet</th>
<th>Nasal spray</th>
<th>Injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almotriptan</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Eletriptan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rizatriptan</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Sumatriptan</td>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zolmitriptan</td>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>DHE</td>
<td>✓ ✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ergotamine</td>
<td>✓</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Other Abortive Treatments

- Acetaminophen, ASA, and caffeine (AAC = Excedrin Migraine)
- Butalbital
  - Best avoided due to risk of drug induced rebound headaches and habituation
  - Consider in patients with very infrequent headaches requiring only occasional use
- Opiates (butorphanol, oral opiates)
  - Last resort

RCTs: Triptans no More Effective than NSAIDs

<table>
<thead>
<tr>
<th></th>
<th>Headache Relief with Triptan (%)</th>
<th>Headache Relief with NSAID (%)</th>
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</thead>
<tbody>
<tr>
<td>Sumatriptan 100 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ASA 900 mg+metoclopramide</td>
<td>53</td>
<td>56</td>
</tr>
<tr>
<td>+Tolfenamic acid 200 mg</td>
<td>78</td>
<td>58*</td>
</tr>
<tr>
<td>Sumatriptan 50 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ASA 1000 mg</td>
<td>56</td>
<td>53</td>
</tr>
<tr>
<td>+Ibuprofen 400 mg</td>
<td>56</td>
<td>60</td>
</tr>
<tr>
<td>+Indomethacin 25 mg + prochlorperazine</td>
<td>57</td>
<td>57</td>
</tr>
<tr>
<td>Zolmitriptan 2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+Ketoprofen 75 mg</td>
<td>67</td>
<td>63</td>
</tr>
</tbody>
</table>

*P < 0.05

Evidence-Based Abortive Migraine Therapies

- Group 1: Good evidence and pronounced benefit
  - OTC analgesics
    - ASA
    - Acetaminophen, ASA, plus caffeine
  - NSAIDs
  - Migraine specific medications
    - Triptans PO, nasal, SC
    - DHE IV or nasal

Silberstein SD et al. Neurology. 2000;54(8):1553
Evidence-Based Abortive Migraine Therapies

- Group 2: Fair evidence and moderate clinical benefit
  - Opioids
  - Metoclopramide IV
  - Chlorpromazine IV
  - Ketorolac IM
  - Prochlorperazine IM, PR, IV
  - Ergotamine plus caffeine

- Group 3: Expert opinion
  - Butalbital, ASA, caffeine
  - Metoclopramide IM, PR

- Group 4: Ineffective
  - Acetaminophen
  - Lidocaine IV

Cost of Treating A Single Migraine Attack at Lowest Dosage

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost (USD)</th>
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<tbody>
<tr>
<td>Eletriptan 20 mg</td>
<td>$43</td>
</tr>
<tr>
<td>Naratriptan 1mg</td>
<td>$14</td>
</tr>
<tr>
<td>Sumatriptan 25 mg PO</td>
<td>$20</td>
</tr>
<tr>
<td>Sumatriptan 6 mg SC</td>
<td>$54</td>
</tr>
<tr>
<td>Sumatriptan intransal 10mg</td>
<td>$14</td>
</tr>
<tr>
<td>DHE Nasal</td>
<td>$75</td>
</tr>
<tr>
<td>Ibuprofen 600 mg</td>
<td>$0.18</td>
</tr>
<tr>
<td>Naproxen 500 mg</td>
<td>$0.43</td>
</tr>
</tbody>
</table>

Abortive Treatment of Migraines: Recommendations

- NSAIDs for mild to moderate migraine
- Triptan for moderate to severe migraine
- Consider PR prochlorperazine
- Third line options:
  - DHE nasal
  - If nausea limits the use of PO meds
    - PR prochlorperazine or indomethacin
    - Intransal sumatriptan, zolmitriptan or DHE
    - SC sumatriptan

Indications for Preventive Therapy

- More than 2 migraines per week
- Headache related disability for ≥ 3 days per month
- Duration > 48 hours
- Acute migraine treatments are ineffective or overused
- Attacks produce severe disability
- Prolonged aura (> 1 hour), complex aura, or migrainous infarction
- Patient preference

Principles of Migraine Prevention

- 50% or greater reduction in severity or frequency is a success
- May take 2-3 months to take effect
- Use drugs that benefit a coexisting condition when possible
- Goal is fewer headaches, less absence from work or school, less use of abortive medications

Preventive Therapy: Beta Blockers

- Most commonly used prophylaxis
- Avoid if history of CHF, asthma, diabetes (relative contraindication), depression
- Propranolol best studied, (FDA approved)
  - 80-240 mg daily
- Timolol, atenolol, metoprolol also effective (not FDA approved)
- Begin low dose, may need to push to full beta blockade (i.e. HR in 50’s)
- Follow BP, HR
Preventive Therapy of Migraines:
Divalproex Sodium

• Equivalent efficacy to beta blockers
• Doses of 500-1000 mg daily are effective
• Requires baseline and periodic laboratory monitoring:
  – LFTs, platelet count, coagulation studies
• Contraindicated during pregnancy and reproductive age women not using birth control
• Weight gain important side effect

Preventive Therapy of Migraines:
Topiramate

• Efficacy similar to propranolol
• Side effects are common and may result in discontinuation
  – Paresthesias
  – Fatigue, poor concentration
  – Weight loss
  – Acute angle closure glaucoma (rare)
• Limit maximum dose to 50 mg bid
• First line option but side effects may be a barrier

Preventive Therapy of Migraines:
Amitriptyline

• Efficacy similar to propranolol in clinical practice
• Less data
  – Downgraded in 2012 by AAN to Level B
• Side effects are common and may result in discontinuation
  – Weight gain
  – Dry mouth
  – Constipation
• Equally effective in non-depressed patients
• Usual doses 10-50 mg qhs
• Helpful if coexistent chronic pain or insomnia

Preventive Therapy of Migraines*

• Venlafaxine probably effective
  – Suggest use if amitriptyline fails or not tolerated
• Short term daily triptans
  – Effective for menstrual migraine
• ACE inhibitors
  – Lisinopril effective in a single study
• ARBs
  – Candesartan may be effective
* all of these drugs are FDA off-label

Third Line Approach: Botulinum Toxin

Botulinum toxin pericranial injections
• Ineffective for episodic migraine
• Ineffective for chronic tension-type headache
• Effective for chronic migraine and chronic daily headache
• FDA approved for chronic (not episodic) migraine in 2010
• Treat every 12 weeks

Average Retail Price of Preventive Medicines

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta blockers</td>
<td></td>
</tr>
<tr>
<td>Propranolol SR 120 mg qd</td>
<td>$35</td>
</tr>
<tr>
<td>Antiepileptics</td>
<td></td>
</tr>
<tr>
<td>Divalproex sodium 250 mg bid</td>
<td>$61</td>
</tr>
<tr>
<td>Topiramate 50 mg bid</td>
<td>$16</td>
</tr>
<tr>
<td>Tricyclics</td>
<td></td>
</tr>
<tr>
<td>Amitriptyline 50 mg qhs</td>
<td>$11</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td></td>
</tr>
<tr>
<td>Verapamil SR 180 mg qd</td>
<td>$23</td>
</tr>
<tr>
<td>Botulinum toxin injections</td>
<td>$420</td>
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Source: Rx PriceQuote.com July 2014


### American Academy of Neurology 2012: Evidence Based Preventive Treatment

<table>
<thead>
<tr>
<th>Level A</th>
<th>Established efficacy</th>
<th>Level B</th>
<th>Probably effective</th>
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<tbody>
<tr>
<td>Anti-epileptic drugs</td>
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<td>Anti-epileptic drugs</td>
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<tr>
<td>Topiramate</td>
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<td>Topiramate</td>
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</tr>
<tr>
<td>Divalproex sodium</td>
<td></td>
<td>Divalproex sodium</td>
<td></td>
</tr>
<tr>
<td>Beta blockers</td>
<td></td>
<td>Beta blockers</td>
<td></td>
</tr>
<tr>
<td>Propranolol</td>
<td></td>
<td>Propranolol</td>
<td></td>
</tr>
<tr>
<td>Metoprolol</td>
<td></td>
<td>Metoprolol</td>
<td></td>
</tr>
<tr>
<td>Timolol</td>
<td></td>
<td>Timolol</td>
<td></td>
</tr>
<tr>
<td>Triptans</td>
<td></td>
<td>Triptans</td>
<td></td>
</tr>
<tr>
<td>Frovatriptan (menstrual migraine)</td>
<td></td>
<td>Frovatriptan (menstrual migraine)</td>
<td></td>
</tr>
</tbody>
</table>

**Level A**
- Established efficacy
- Anti-epileptic drugs
- Topiramate
- Divalproex sodium
- Beta blockers
- Propranolol
- Metoprolol
- Timolol
- Triptans
- Frovatriptan (menstrual migraine)

**Level B**
- Established efficacy
- Anti-epileptic drugs
- Topiramate
- Divalproex sodium
- Beta blockers
- Propranolol
- Metoprolol
- Timolol
- Triptans
- Frovatriptan (menstrual migraine)

**Level C**
- Possibly effective
- Antidepressants
- Amitriptyline
- Venlafaxine
- Atenolol
- Triptans
- Naratriptan
- Zolmitriptan

**Level U (abbreviated list)**
- Conflicting or inadequate data
- Acetazolamide
- Warfarin
- Fluoxetine
- Gabapentin
- Nifedipine
- Verapamil

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### Summary: Preventive Migraine Rx

<table>
<thead>
<tr>
<th>Drug</th>
<th>Efficacy</th>
<th>Side effects</th>
<th>Relative contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>β-Blockers</td>
<td>4+</td>
<td>2+</td>
<td>Asthma, depression, CHF</td>
</tr>
<tr>
<td>- Metoprolol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Propranolol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antidepressants</td>
<td>3+</td>
<td>3+</td>
<td>Mania, BPH, heart block</td>
</tr>
<tr>
<td>- Amitriptyline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Venlafaxine</td>
<td>2+</td>
<td>1+</td>
<td>Mania</td>
</tr>
<tr>
<td>Anticonvulsants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Divalproex</td>
<td>4+</td>
<td>2+</td>
<td>Liver dz, bleeding disorders</td>
</tr>
<tr>
<td>- Gabapentin</td>
<td>2+</td>
<td>2+</td>
<td>Liver dz, bleeding disorders</td>
</tr>
<tr>
<td>- Topiramate</td>
<td>4+</td>
<td>2+</td>
<td>Kidney stones</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>2+</td>
<td>2+</td>
<td>Ulcer disease, gastritis</td>
</tr>
</tbody>
</table>

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### Complementary Migraine Prevention: Positive Results but Small Studies

1. Coenzyme Q 100 mg tid
   - Effective in two small trials
2. Magnesium citrate 300 mg daily
   - Effective in 3 of 4 trials to date
3. Riboflavin 200 mg bid
   - >50% response rate in 2 small trials
4. Petasites 50-75 mg bid
   - Extract of butterbur plant
   - Effective in two small trials
   - Long term safety unknown
5. MIG-99
   - Extract of feverfew plant
   - Effective in three studies to date

---

### Evidence Based Complementary Treatments for Migraine Prevention

**Level A**
- Established efficacy
- Petasites (Butterbur)

**Level B**
- Probably effective
- Magnesium
- MIG-99 (feverfew)
- Riboflavin

**Level C**
- Possibly effective
- Petasites / Butterbur

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### Preventive Therapy of Migraines: My Recommendations

<table>
<thead>
<tr>
<th>First Line Rx</th>
<th>Second Line Rx</th>
<th>Third Line Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propranolol</td>
<td>Amitriptyline</td>
<td>Lisinopril</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>Verapamil</td>
<td></td>
</tr>
<tr>
<td>Topiramate</td>
<td>Magnesium</td>
<td></td>
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<tr>
<td></td>
<td>Petasites / Butterbur</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Riboflavin</td>
<td></td>
</tr>
</tbody>
</table>

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Silberstein SB et al. Neurology 2012;78:1337–1345

Cluster Headache

- Much less common in primary care practice than migraine
- High rates of disabling pain among patients with cluster headache
- Unique pathophysiology
- Effective treatment regimens differ in important ways from treatment of migraine

Trigger Avoidance for Cluster Headache

AVOID
- Afternoon naps or changes in sleeping habits
- Alcohol
- Prolonged exposure to volatile chemicals
- Excessive bursts of anger or extreme emotion
- Prolonged physical exertion
- Extreme changes in altitude

Abortive Treatment of Cluster Headache*

- First line options
  - $O_2$ 100% non rebreather at 7-10 l/min for 15 minutes
  - 70% effective within 5 minutes
  - Sumatriptan 6 mg SC
    - No evidence of tachyphylaxis or dependency with repeated use
  - Sumatriptan or zolmitriptan IN

Abortive Treatment of Cluster Headache*

- Second line abortive treatments
  - Octreotide SC
  - DHE IV, IM, or SC
  - DHE Intranasal
  - Intranasal lidocaine

*All drugs off-label per FDA

Prophylactic Therapy for Cluster Headache*

- Transitional
  - Prednisone (60-100 mg daily for 5 days, then taper over 10-12 days)
  - Ergotamine tartrate
  - DHE
  - Occipital nerve block
- Maintenance
  - First line
    - Verapamil (240-480 mg / day)
  - Second line
    - Methysergide
    - Lithium carbonate
    - Divalproex sodium
    - Topiramate
    - Melatonin

Refactory Cluster Headache

- Heroic treatments with appropriate subspecialty consultation
  - IV histamine desensitization
  - Surgical or RFA ablation of sensory trigeminal nerve
  - Glycerol injection to trigeminal cistern
  - Gamma knife radiosurgery

*Only ergotamine-containing formulations are FDA approved for cluster headache
Levels of Evidence for Rx of Cluster Headache*

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Acute Rx</th>
<th>Level of Evidence</th>
<th>Maintenance Prophylaxis</th>
<th>Level of Evidence</th>
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</thead>
<tbody>
<tr>
<td>100% Oxygen</td>
<td>A</td>
<td>Verapamil</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Prednisone</td>
<td>A</td>
<td>Melatonin</td>
<td>B</td>
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<td>Sumatriptan SC</td>
<td>A</td>
<td>Lithium</td>
<td>B</td>
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<td>A</td>
<td>Topiramate</td>
<td>B</td>
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<td>Zolmitriptan PO</td>
<td>B</td>
<td>Valproic Acid</td>
<td>B/C</td>
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<td>Octreotide SC</td>
<td>B/C</td>
<td>Baclofen</td>
<td>C</td>
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<td>Lidocaine IN</td>
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<tr>
<td>DHE IN</td>
<td>Not rated</td>
<td>Botulinum Toxin</td>
<td>Not rated</td>
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*All drugs off-label per FDA

Tension-Type Headaches

- Less gratifying than treatment of migraines
- Stress reduction or biofeedback may be helpful
- Psychiatric evaluation in selected patients
- Physical therapy for tender points
- Consider TMJ or cervicogenic components to headache

Acute Treatment of Tension-Type Headaches

- ASA or NSAIDs are mainstay
- Acetaminophen effective in some patients
- Butalbital containing medications for patients with infrequent headache (risk of addiction and rebound headache)

Preventive Treatment of Tension-Type Headaches*

- 1st Line
  - Amitriptyline
  - Nortriptyline

- 2nd Line
  - Venlafaxine
  - Tizanidine
  - Mirtazapine

- Ineffective
  - Botulinum toxin injections
  - SSRIs

*All drugs off-label per FDA

Summary

- Patient education: Learn to avoid migraine triggers
- Abortive therapies for migraine
  - NSAIDs
  - Triptans
  - DHE
- Preventive medications for migraine
  - Propranolol
  - Divalproex sodium
  - TCAs
  - Topiramate

Summary

- Complementary physical strategies for migraine
  - Spinal manipulation
  - Relaxation training
  - Biofeedback
  - Cognitive behavioral therapy
- Complementary oral medications
  - Magnesium
  - Riboflavin
  - Petasites (butterbur)
  - MIG-99 (feverfew)
<table>
<thead>
<tr>
<th>Summary</th>
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<tbody>
<tr>
<td>• Abortive therapy for cluster headache</td>
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<td>– O2</td>
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