Understanding Migraine
Migraine

- Migraine is a recurrent headache that lasts 4-72 hours
- 18% of women
- 6% of men
Typical Features of Migraine

- Usually one sided
- Pulsating, throbbing, pounding
- Aggravated by routine physical activity
- Associated with nausea and vomiting
- Sensitivity to light / noise
"ID Migraine"

- Has a headache limited your activities for a day or more in the last 3 months?
- Are you nauseated or sick to your stomach when you have a headache?
- Does light bother you when you have a headache?
Migraine

- **Aura --- 15%**

- **Warning signs --- 70%**
  - Fatigue
  - Mood changes
  - Food cravings
  - Poor concentration
Pathophysiology of Migraine

- The nervous system is more sensitive and vigilant to the environment.
Pathophysiology of Migraine

- Vasoconstriction of vessels
- Vasodilatation of vessels
- Inflammation of vessels
Goal is to give the patient control over their headaches instead of the headaches controlling the patient’s life.
Principles of Treatment

- Prevention (prophylactic measures)
- Abortive treatment
- Elimination of intractable migraines
Preventive Measures

- Diet
- Sleep
- Exercise
- Weight loss
- Caffeine regulation
- Smoking cessation
- Medications
Diet

- Don’t Skip Meals!!!
- Big Four: chocolate, nutrasweet, caffeine and MSG
- Keep a headache diary
Sleep

- Goal is 7-8 hrs of restful sleep
- Increased frequency with < 6 hrs of sleep
- Increased frequency with > 9 hrs of sleep
- Regulate sleep 7 days per week

Fred had wanted to buy the car that same day, but he had heard that you should always sleep on it first.
Disorders of Sleep

- Poor sleep hygiene
- Sleep apnea
- Depression
Exercise / Weight Loss

- Adipose tissue secretes proteins & hormones that help regulate immunity & inflammation (adiponectin, interleukin-6)
- Dieting and exercise can improve headaches
- Weight may affect choice of medications
Caffeine

- Positive and negative effects on health and headache
- Blocks adenosine receptors
- Mild analgesic effect
- Promotes absorption of other analgesics
- Therapeutic levels in brain in 20 minutes
Negative Effects of Caffeine

- Amounts > 200 mg daily can produce anxiety, dysphoria and panic attacks

- Caffeinism = nervousness, agitation, severe anxiety, panic attacks
Caffeine

- Average intake – 200 – 300 mg daily
- Coffee (brewed) – 115 mg
- Tea – 40 mg
- Chocolate – 35 mg
- Energy drinks – 48 – 300 mg
Caffeine

Beverage boost
Caffeine content in soft drinks varies widely between brands, as well as within the same brand.

Caffeine content in select soft drinks, in mg per 12 ounces

<table>
<thead>
<tr>
<th>Drink</th>
<th>Caffeine Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pepsi One</td>
<td>57.1</td>
</tr>
<tr>
<td>Mountain Dew</td>
<td>54.8</td>
</tr>
<tr>
<td>Diet Coke</td>
<td>46.3</td>
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<tr>
<td>Dr. Pepper</td>
<td>42.6</td>
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<tr>
<td>Pepsi</td>
<td>38.9</td>
</tr>
<tr>
<td>Diet Pepsi</td>
<td>36.7</td>
</tr>
<tr>
<td>Coca-Cola</td>
<td>33.9</td>
</tr>
</tbody>
</table>

NOTE: The same amount of coffee has 156 to 288 mg; tea has 30 to 135 mg

SOURCES: Auburn University; American Beverage Association
Caffeine in Medications

- Excedrin – 65 mg
- Anacin – 32 mg
- Midol – 32 mg
- Fiorinal/ Fioricet – 40 mg
- Wigraine – 100 mg
- Norgesic Forte - 60 mg
- Darvon Compound 65 – 32.4 mg
Typical Dose Related Reactions of Caffeine

- 100 – 200 mg = well being
- 300 – 400 mg = anxiety, dysphoria
- 340 – 750 mg = severe anxiety, panic attacks
- 5 – 10 grams (75 cups of coffee) = lethal dose
Caffeine Withdrawal Symptoms

- After 24 hrs of caffeine withdrawal may experience:
  - Headache (increased cerebral blood flow)
  - Nausea / vomiting
  - Depression
  - Anxiety
  - Drowsiness/ impaired concentration
  - Muscle aches
Official Criteria for Caffeine Withdrawal Headache

- Monthly caffeine intake of 15 grams
- Headache occurs within 24 hours of last caffeine intake
- Head pain relieved within one hour after consuming 100 mg of caffeine
Prevention of Caffeine Withdrawal

- Limit consumption to 2 cups of coffee per day (200 mg)
- Withdrawal more likely if consuming > 500 mg per day
- Gradually decrease consumption
Smoking

- Smoking increases frequency of headaches
- Smoking cessation:
  - Chantix
  - Zyban
  - Nicotine patches/gum
  - Hypnosis
Prevention
When to Consider Prevention

- Headache occurs more than 2 days per week
- Use of acute medications more than 2 days per week
- Headache attacks that are disabling despite treatment
- Prolonged aura, complex aura or migraine-induced stroke
- Patient desires to reduce frequency
Principles of Prevention

- Reduce frequency of attacks by more than 50%
- Start low; Go slow
- Often requires lower dosages
- May take 2-3 months to see benefit
- Maintain for 6-12 months once 50% reduction achieved, then taper
- Reduces cortical spreading depression (CSD)
OTC Medications for Prevention

- Magnesium
- Riboflavin (Vit B2)
- Melatonin
Magnesium

- Relaxant effect on smooth muscles
- Part of messenger system in the serotonin cascade
- Daily HA suffers and pts. with menstrually related migraines benefit
Magnesium

- **Sources** – nuts, whole grains, tomatoes
- **Supplements** – 500 – 750 mg daily
- **40 – 90 % average headache reduction**
Riboflavin (VIT B2)

- Assists with production of ATP in nerve cells – energy molecule
- At least three trials suggest it reverses “energy crisis” during migraine
Riboflavin (Vit B2)

- **Sources** – bread, cereals, milk, meat and poultry
- **Recommended daily dose** is 400 mg
- **Improvement seen in 50% of patients**
Melatonin

- Sleep is one of nature’s ways of dealing with migraine
- Melatonin is also used as a sleep aid
Melatonin

- **Migraine** – 1 mg starting dose; titrate up to 3 mg daily if needed

- **Cluster** – 9 – 12 mg daily; use with medical supervision
Evidence-based Recommendations for Preventive Treatment
Major Classes of Medications for Prevention

- Beta-adrenergic blockers
- Antidepressants
- Anticonvulsants (neurostabilizers)
- Calcium antagonists
- NSAIDs
Medications with High Efficacy and Mild to Moderate Adverse Events

- **Amitriptyline** (10-150mg/day)
- **Depakote** (125-200 mg/day)
- **Propranolol** (20-160mg/day)
- **Timolol** (10-30mg/day)
- **Topiramate** (50-150mg/day)
Medications with Lower Efficacy and Mild to Moderate Adverse Events

- Atenolol (25-100mg/day)
- Metoprolol (50-200mg/day)
- Gabapentin (300-2400mg/day)
- Prozac (10-80mg/day)
- Botox (25-100 units/3 months)
Medications with Lower Efficacy and Mild to Moderate Adverse Events

- NSAIDs (naproxen, ketoprofen, fenoprofen)
- Verapamil (120 – 480 mg/d)
- ASA (325mg/day)
Medication Use Based on Opinion

- Antidepressants (zoloft, doxepin, paxil, nortriptyline)
- Diltiazem
- Periactin (cyproheptadine)
- Methergine (methylergonovine)
Principles of Abortive Therapy

- Use the most effective therapy at the onset of the migraine
- Must always have medication with you!
- Try to limit acute treatments to 3x per week
Common Abortive Medications

- **NSAIDs**
- Combination analgesics with caffeine
  
  - *Midrin (acetaminophen, dichloralphenasone, isometheptene)*
  
  - *Triptan plus Naproxen (500 mg)*

- **Antiemetics**
Triptans

- Use with Naproxen 500 mg at onset of migraine
- Use most appropriate delivery mode
- Failure = no response to three different triptans
Evidence-based Recommendations for Acute Treatment of Migraine

- Triptans as initial treatment for moderate to severe migraine – Grade A
- Triptans as initial treatment for migraine of any severity when nonspecific treatment has failed – Grade C
Evidence-based Recommendations for Acute Treatment of Migraine

- **DHE nasal spray for moderate to severe migraine** - Grade A
- **DHE (IM,SC) for moderate to severe migraine** – Grade B
- **DHE (IV) plus antiemetic (IV) for severe migraine** – Grade B
- **Ergomar for moderate to severe migraine** – Grade B
Evidence-based Recommendations for Acute Treatment of Migraine

- **Reglan (IV/IM)** to control nausea – Grade C
- **Reglan (IV)** as monotherapy for migraine pain relief – Grade B
- **Compazine (IV, IM, PR)** for migraine in appropriate setting – Grade B
Evidence-based Recommendations for Acute Treatment of Migraine

- Acetaminophen not recommended – Grade B
- NSAIDs and combination analgesics with caffeine as first-line treatment for mild-moderate attacks – Grade A
- Midrin for mild to moderate headaches – Grade B
- Corticosteroids (dexamethasone 16 mg IV or PO) for rescue therapy for status migrainosus – Grade C
Efficacy but Adverse Events Concern

- Methylsergide
- Vitamin A – overuse associated with pseudotumor cerebri
- Pyridoxine (Vit B6) – may be toxic in doses exceeding 150mg/day
Difficult to Treat Migraines

Migranal nasal spray

- One spray each nostril
- May repeat in 15 mins.
- Max: 4 sprays / attack
  6 sprays / 24 hrs
  8 sprays / week
- Use with an antiemetic
Difficult to Treat Migraines

- **D.H.E. 45**
  - (dihydroergotamine)
  - 1 mg IM / IV
  - May repeat in 1 hr x 2
  - Max: 3 mg / attack
  - Max: 6 mg / week
  - Use with an antiemetic
Intractable Migraine

- Inflammation !!!
- Dexamethasone 8mg /16 mg IM, IV or oral
- Prednisone 50 mg daily x 3 days
- Solumedrol 80 mg IM
- Toradol 60 mg IM
Intractable Migraine

- D.H.E. 45 - 1 mg IM / IV with an antiemetic
- Magnesium sulfate 2 grams IV over 30 minutes
- Benadryl 50 mg IV/IM
- Antiemetics – zofran, phenergan, compazine, reglan (IV / IM)
Inpatient Treatment

- IV antiemetic followed by D.H.E. 45 1 mg IV
- Repeat every 8 hours x 3 days
The End