

## Controlling Migraine Pain

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## Migraine Stats

- Women 15%
- Men 5%
- Usually starts in 2<sup>nd</sup> and 3<sup>rd</sup> Decade
- Major Impact on days lost from work and life
- Often associated with depression
- Tends to become less with age
- Often genetic component (thanks, mom and dad!)



## Symptoms

- Disabling pain
- Lasts more than 2 hrs
- One sided and throbbing
- Associated with variable nausea, vomiting, light or sound sensitive
- Sometimes associated with confusion and irritability
- Can have an aura (10-15% of patients): visual, sensory, language
  - Duration typically 30 minutes
  - Slowly spreads or evolves over many minutes



## Exam Findings

- Usually normal neurologic exam
- Sometimes dilated pupils or drooping eyelid
- Excessive tearing or nasal drip on one side



## Red Flags (Warning Signs)

- Worst headache of life
- Severe nausea and vomiting from the start
- One sided weakness, numbness or persistent visual loss
- Failure to respond to any treatment over 12 hrs
- Following head trauma
- Known history of cancer or active infection
- Suppressed immune system

## Triggers

- Highly individualized
- Menses
- Exercise or stress
- Alcohol
- Perfumes
- Bright lights
- Sleep deprivation
- Chocolate
- Fermented cheeses and cured meats

## Mechanism

- The neurovascular hypothesis
- Start in the brainstem and move upward and electrical discharges of neurons trigger sterile inflammation
- Various neurotransmitters and proteins wreak havoc and cause pain, hypersensitivity, vasoconstriction and dilation, suppression of neuronal activity
- Serotonin, Calcitonin gene related peptide, epinephrine, norepinephrine, histamine
- Still not sure exactly why it occurs

## Acute Treatment

- Acetaminophen
- Ibuprofen
- Caffeine
- Combination pills
- Ergotamine
- Sumatriptan
- Lidocaine nasal
- Sleep
- Steroids
- Benadryl
- Barbiturates
- Narcotics
- IV infusions of anti-seizure medications

## Acute Treatment, Advanced

- Vagal nerve stimulation
- Supraorbital nerve stimulation
- Transcranial magnetic stimulation

## What To Do First?

- It depends
- Sometimes start with simple medications then escalate
- Go straight to the big guns
- Trial and error to some degree but always tailored to patient preference and known illnesses or chronic conditions

## Does Acute Therapy Work?

- Usually but easily 50% of patients struggle
- Benefit may take hours
- Pain can recur
- Risk of overuse of medication
- Continue to customize the approach

## Prevention Strategies

- You name it, it's been tried
- Supplements
- Prescriptions
- Devices
- Relaxation techniques

## Supplements

- Magnesium citrate, 400-600mg
- Riboflavin, 400mg
- Feverfew, 50-300mg
- CoQ 10, 300mg

## Prescriptions

- Antidepressants
- Seizure medications
- Blood pressure medications
- Botulinum toxin
- CGRP antibodies (very new)
  - Monthly or quarterly self-administered subcutaneous injections

## Devices

- Cefaly, electrical stimulation over supraorbital nerves
- Implantable nerve stimulation
- Vagal nerve stimulation
- Magnetic stimulation

## Relaxation Techniques

- Biofeedback
- Cognitive behavioral therapy

## How Well Does Prevention Work?

- For most options about 60% of patients get a 50% reduction in frequency of migraine with great variability
- Sometimes a combination of treatments is required

## Complications of Migraine

- Poor judgement, concentration and attention
- Abnormal MRI findings in migraine with aura
- Job loss, loss of relationships, and poor quality of life
- Risk of stroke
  - Particularly if smoking, birth control, and migraine with aura

## Complications of Treatment

- Every intervention or medication has unique side effects
- The most common problem is nausea, vomiting, fatigue and brain fog
- There can be organ toxicity, weight gain/loss, mood swings, rashes
- Acute confusional states with fever and hypertension (serotonin syndrome)
- Financial loss
- Dependency
- Overuse of medication (generally greater than 3 days per week)

## Summary

- Migraine is a common disease
- It has fairly consistent symptoms and findings
- Major source of disability and loss of quality of life
- Rarely causes irreversible injury, but can have many serious impacts on activity of daily living
- The list of acute and chronic treatment continues to grow
- Usually something will work fairly well for individual patients but careful joint decision making is needed
- Let's keep moving forward!

## Questions?

- Thanks for sharing your evening with me!



## Thank you!

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