

Headaches, Migraines, and Seizures

I. Headache

A. Classifications

1. Primary or Functional-tension, migraine, cluster
Headache is the primary problem
2. Secondary or Organic- headache secondary to another diagnosis or organic cause (trauma, stroke, brain tumor, aneurysm)

B. Diagnosis

1. History
 - Headache Characteristics
 - Familial history
 - Headache diary
2. EMG-may display increased muscle tension leading to headaches
3. Labs- may be done to rule out (r/o) other problems
4. CT scan, MRI, LP to rule out other conditions that could cause HA

C. Alternative treatment options

1. Biofeedback- Patients are taught to relax by a biofeedback therapist to control their BP, HR, muscle tension and even skin temp.
2. Non-pharm Treatments and Comfort Measures-

D. Tension- type headache

1. Pathophysiology is unclear, cause is unknown
2. Most common type of headache
3. Occurrence is intermittent
4. Duration- minutes-days- months
5. Clinical manifestations-
6. Medication treatments
 - Mild to Moderate- Non-narcotics (Aspirin, acetaminophen, NSAIDS)
 - Severe- Non-Narcotics plus a muscle relaxer in some cases
 - Preventative- Antidepressant/Antiseizure meds (amitriptyline, nortriptyline, topiramate)

E. Migraine Headaches

1. Risk Factors- women, obesity, stress
2. Pathophysiology- exact patho & cause unknown, but it is known that something triggers the dilation, constriction, and spasms of cerebral blood vessels. Neurons in the cerebral cortex become hyperexcitable.
3. Clinical manifestations
 - Unilateral pain, Throbbing pain, sensitive to light/noise, nausea, vomiting
 - Aggravated by activity or head movement
 - Duration-anywhere from 4 to 72 hours.
 - Triggers- Foods

- Other Factors-Stress, menses, sleep related issues, bright lights, dehydration, medications can all trigger!

4. Types of Migraine

- Migraine without an aura or with an aura
- An aura is a sensation that precedes h/a or a vision/smell/ feeling

5. Phases of Migraine

- May have an aura during the first phase before headache begins
- The headache then begins and intensifies-people tend to want to hibernate from light, odors and noise at this point
- Headache terminates and patient may be sore and exhausted

6. Medical Management

- Abortive/Symptomatic Treatments
 - 1). Abortive/Symptomatic Treatments Timing: Take when 1st symptom starts to relieve pain
 - 2) Mild migraine
 - OTC meds like Aspirin, Tylenol, NSAIDS (ibuprofen, Excedrin migraine and naproxen) are abortive meds
 - 3) Severe Migraine
 - Triptans (sumatriptan, almotriptan, rizatriptan) Abortive Meds that are classified as serotonin receptor agonists
 - a) Triptans are highly effective for severe migraine
 - b) Treximet- anti-inflammatory which contains sumatriptan and naproxen
 - c) Affects serotonin receptors to inhibit neurogenic inflammation and cause cranial vasoconstriction to treat migraine
 - d) SE of Triptans-flushed, hot, tingly sensation
 - e) Contraindications- other vascular conditions as these meds can cause further vasoconstriction of arteries (Caution in patients with uncontrolled HTN, perip, cardiac or cerebral vascular diseases)
- Prophylactic Treatments- Used to prevent migraine occurrence
 - Antihypertensives- Beta Blockers, Calcium Channel Blockers
 - Anticonvulsants or anti-epileptic-Topiramate
 - Antidepressants- Amitriptyline

F. Cluster Headache

1. Rare, more common in men
2. Patho- Unknown
3. Clinical manifestations- Headaches occur in cluster periods, can have 1-8 or more headaches in one day. Patient may experience these cluster headaches for 6-12 weeks at a time before entering a remission period.

- On the affected side: severe, unilateral burning pain in and around the eye or head
 - Tearing of painful side eye- (ipsilateral tearing)
 - Rhinorrhea
 - Facial flushing/pallor
 - Miosis- pupil construction
 - Periorbital edema
- Triggers-During a cluster period, etoh and vasodilator medications can trigger the headaches. Diagnosed by symptoms and/or ruling out other causes.

4. Treatment

- Prophylactic
 - Ca+ Channel blockers (verapamil), Corticosteroids (prednisone)
- Abortive-in the acute phase
 - oxygen – high flow by face mask 100%
 - Triptans standard treatment
- c. Nerve Blocks- corticosteroids injected
- d. Ablation- used to damage nerve pathways to decrease pain

II. Seizure Disorders and Epilepsy

A. Definition

1. Seizure- paroxysmal uncontrolled electrical discharge of neurons in the brain that interrupts normal function
2. May be a symptom of a disease like tumors, CVA's, Alzheimer's, infections, head injuries, metabolic disorders, alcohol withdrawal etc...
3. Epilepsy- is the term for the chronic condition in which a person has 2 or more unprovoked seizures

B. Diagnostics

1. History, was event witnessed?
2. EEG-May show some abnormalities or may not. Not definitive.
3. CT scan, MRI, cerebral angiography, MRA
4. Labs to rule out other causes

- Phases of Seizures:

- Aural Phase-warning signs, may be change in tastes/smells/visual disturbances, just an overall change in feeling. Indescribable.
- Ictal Phase-actual seizure is occurring at this time
- Post Ictal Phase-time period after seizure phase, recovery phase.

- Generalized Seizures

6 types of Generalized Seizures:

1. Tonic-Clonic-Loss of consciousness, periods of muscle stiffness and jerking. Can last 2-5 minutes. Most common type of seizure. Patient will be post ictal afterwards. Will have no memory of event.
2. Tonic-muscle tone increased in body, arms, and legs. Consciousness preserved usually.
3. Clonic-Loss of consciousness usually followed by loss of muscle tone, then limb jerking that can be asymmetric or symmetric
4. Absence-Brief staring or daydreaming period, lasts only a few seconds. Seen mostly in school aged children. Resumes normal activity right after seizure.
5. Myoclonic-brief, sudden, excessive jerk/twitching of the muscle or group of muscles
6. Atonic- aka drop attack, sudden loss of muscle tone causing fall

- Focal Seizures

- **2 types of Focal Seizures:**

1. (Simple Partial)Focal Awareness Seizure- patient remains conscious throughout but has unusual sensations and feelings that occur suddenly. Joy/Sadness/Anger/Nausea
2. (Complex Partial) Focal Impaired Awareness-Will have a loss of consciousness or alteration in awareness. Can have altered emotions, behaviors, and memory. Can have repetitive movements: lip smacking

- C. Medical Management

1. Medications- to stabilize the nerve cell membranes
 - Antiseizure drugs to attempt prevention
 - phenytoin, carbamazepine, phenobarbital, divalproex, gabapentin, levetiracetam
 - Side effects can be common
2. Surgery
 - Remove the epileptic focus
3. Other
 - Vagal nerve stimulation
 - Electrode wrapped around vagus nerve usually on Left side
 - Nerve is stimulated if seizure is sensed as imminent with a handheld magnet to help stop seizure from happening
 - Ketogenic Diet-low carb diet
 - Medical Marijuana

- D. Complications

1. Status Epilepticus- continuous seizure
 - Emergency- Brain neurons become exhausted, can cause brain damage
 - Treatment:
2. R/F Injury

3. Psychosocial
 - Lifestyle changes needed
 - Ineffective coping
 - social stigma
 - driving laws

E. Nursing Care

1. Protect from injury
2. Acute care
3. Patient education/ family ed
 - lifestyle
 - resources- www.headaches.org, Epilepsy Foundation:
www.epilepsy.com