NR507NP Week 8 CNS Brain Disorders

CONVULSIONS

1. Convulsions: Rapid muscle twitching or broader extremity tremor with or without loss of consciousness.
2. Pathophys of seizures
    a. Seizure: Uncontrolled electrical activity in the brain due to excessive neuron discharges.
    b. Ischemia: Decreased pH from decreased O2 and potential electrolyte abnormalities (i.e. CVA or suffocation).
    c. Electrolyte abnormalities: Imbalance ◊ decreased action potential threshold.
        i. Can also result from too quick of electrolyte correction!
    d. Trauma
    e. Neurotransmitter abnormalities: Such as with SSRIs or other mental health meds.
3. Type of Seizures
    a. Focal (partial)
        i. Simple Partial: Remains conscious and involves twitching or sensory changes.
        ii. Complex Partial: Change or loss of consciousness. May present as dazed or perform repetitive actions.
    b. Generalized
        i. Absent (petit mal): Brief, sudden lapse in attention (staring spells).
            1. Common in children.
        ii. Tonic: Muscles become stiff.
        iii. Clonic: Repetitive rhythmic jerks.
        iv. Tonic-Conic (grand mal): Sudden LOC, body stiffening and shaking.
        v. Atonic: Loss of muscle control (sudden collapse)
        vi. Myoclonic: Sudden brief jerks/twitches of arms and legs.
4. Etiology of Seizures
    a. Genetics
    b. Structural brain abnormalities (i.e. tumors or blood from tauma)
    c. Metabolic imbalances (K, Na, or glucose)
    d. Infection
    e. Autoimmune disorders
    f. Dev't disorders

g. Toxin/Heavy Metal exposure
h. Drug/Alcohol
i. Fevers

5. Seizure Phases
    a. **Prodroma:** (hours or days before with fatigue, malaise, HA
    b. **Aura:** Olfactory, visual, and emotional changes.
    c. Ictal: Symptoms
    d. Postictal: Disoriented/confused
6. Epilepsy Diagnosis
        i. Check CBC and CMP
        ii. Check for heavy metals
        iii. Check drug/alcohol
        iv. EEGs
        v. MRI and CT
7. Epilepsy Tx
    a. Benzos (usually IM or IV when in active seizure)
    b. Maintain safety (padding)
    c. Airway patency (side-lying)
    d. Meds
    e. Ketogenic diet (high fat, low carb)
    f. Vagus nerve stimulation (VNS) and responsive nerve stimulation (RNS)
    g. Surgery
8. Pathophys of NONepileptic Seizure: Sign of mental distress.
    a. Risk Factors
        i. Psychological/emotional trauma
        ii. Physical/sexual abuse
        iii. Depression/anxiety
        iv. PTSD
    b. CMs
        i. Unequal/fluctuating movements b/w right and left side
        ii. Signs of consciousness during episode
        iii. Side-to-side neck movement
        iv. Breaking fall
        v. Easing to ground
        vi. Eyes closed
        vii. Yelling
        viii. No post-ictal phase

HEADACHE SYNDROMES

1. Pathophys of Headaches
    a. Primary
        i. **Tension**: Muscular origin. "Tight band" surrounding head.
            1. Pathophys: Contraction of the muscles in the head or neck in response to stress, depression, injury, or anxiety causes muscular tension and pain.
            2. Risk factors
                a. Stress, alcohol, caffeine withdrawal illness, eye strain, fatigue
            3. CMs
                a. 2 of 4:
                    i. Bilateral, pressure or tightening without pulsating, mild to moderate intensity, not aggravated by activity
                b. BOTH:
                    i. Diminshed appetite without N/V, Photophobia/Phonophobia
            4. Diagnosis/Tx
                a. ESR – to check inflammation
                b. Imaging – to eliminate secondary/tumors
                c. Digital subtraction angiography – to see vasculature
                d. Lumbar puncture – to r/o cerebral bleeding or infection
            5. Tx
                a. Nonpharm
                    i. Eliminate triggers
                    ii. EMG biofeedback to relax muscles
                    iii. CBT
                    iv. Physical therapy
                    v. Hot/cold
                b. Pharm
                    i. Pain relievers (aspirin, ibuprofen)
                    ii. Tricyclic antidepressants
                    iii. Botox
        ii. **Migraine**: Trigeminal nerve activation w/ unilateral pain.
            1. Pathophys:
                a. Genetic: Linked to genetic variants