

Know your different types of fractures (i.e. complete, transverse, etc.) see pictures on ch 37 ppt

- closed (complete): a fracture in which bone fragments separate completely.
- open (compound): fracture of the bone that protrudes to the outside of the body
- incomplete: a fracture in which the bone fragments are still partially joined
- compression: consists of the crushing of cancellous bone
- transverse: parts of the bone are separated but close to each other
- comminuted: more than one fracture line and more than two bone fragments, which may be shattered or crushed
- stress: failure of one cortical surface of the bone, often caused by repetitive activity
- avulsion: separation of a small fragment of the bone at the site of attachment of a ligament or tendon
- greenstick: incomplete break in the bone with the intact side of the cortex flexed (one side is broken the other is bent). usually seen in children
- impacted: one part of the fracture is compressed (crushed) into an adjacent part of the fracture
- spiral: twisting force to the thigh causes fracture line that encircles the shaft

Know the different types of bones

- Cortical: dense
- Trabecular: cancellous, spongy

Causes of Colles fracture, smith fracture, clavicle fracture ch 37

- wrist fractures
- colles: commonly due to fall onto extended hand
- smith: commonly due to fall on flexed hand
- Clavicle fracture: usually in children from falling

Know what causes cauda equine syndrome, compartment syndrome, and carpal tunnel syndrome and their s/s

- Compartment syndrome: tissue pressure exceeds perfusion pressure in closed anatomical space
 - PT complains of pain out of proportion of degree of injury
 - weak distal pulses or pulselessness
- Carpal tunnel syndrome: increased pressure on the median nerve through carpal tunnel area
 - symptoms affect as least two of the first through third fingers
 - paresthesia with pain worse a night
- Cauda equina syndrome: compressed lumbosacral nerves in DDD (degenerative disc disease)
 - loss of bowel/bladder control
 - compromised bowel or bladder function

What are s/s of musculoskeletal trauma?

- The 5 Ps
 - pain, pulselessness, pallor, paresthesia, peris
- bruising, bleeding, decreased ROM, inflammation and swelling

Know what a sprain and strain are

- sprain is an overstretch of ligament with possible tear
- strain is overstretch of muscle or tendon from overusing muscles

What is involved in a neurovascular assessment?

- Pain, radiation of pain, tenderness, swelling, color, wound and wound drainage, deformity, sensation, muscle girth, paresthesia, pulse strength, muscle strength, ROM and limitations of movement, joint stiffness, joint clicking (crepitus), joint instability, and joint swelling

Know what rheumatoid arthritis, osteoporosis, and osteomyelitis is and how to diagnose these

- Rheumatoid arthritis: is an autoimmune disease, inflammatory disorder that affects the joints
 - elevated serum RF, ESR, and CRP
- osteoporosis: weakening of bones/ low bone density
 - dual energy x-ray absorptiometry
 - blood tests (PTH, estradiol, osteocalcin)
 - urine tests (telopeptides, bone break down products)
 - FRAX risk assessment
- osteomyelitis: bone infection
 - radionuclide bone scan shows infection then bone biopsy needed for culture of infection

What is needed for a bone to remain healthy?

- calcium, vit D

Causes of Rickets and Osteomalacia

- rickets: lack of vitamin D, calcium, and phosphorus in children
- osteomalacia: adult vitamin D deficiency

Know what ankylosing spondylitis can cause

- chronic, autoimmune inflammation of the spine and sacroiliac joints; can progress to other tissues- eyes, heart, lungs, and kidneys

Know what gout is, the s/s and where you see it in the body ch 39 slide 37

- high levels of uric acid in body which triggers inflammation
- S/S: extreme pain in joint, redness, warmth, swelling of joint, discomfort during night or early morning
- affects joints in metatarsal with inflammation (toes)

Know psoriatic and septic arthritis s/s

- Septic arthritis: present with inflammation and acute pain around joint, fever, and malaise may occur
- Psoriatic arthritis: pain, swelling, erythema of the affected joints, generalized fatigue, redness, pain of the eye, plaque psoriasis of the skin, psoriatic nail changes (pitting, ridging, and separation from nail bed- onycholysis)

Lyme disease s/s ch 39

- **bull's eye rash**
- bacteria throughout the body
- arthralgia (joint pain)
- myalgias (muscle pain)
- fatigue
- headache

Know s/s of fractures in the base of the skull

- battles sign: bruising of mastoid process behind the ear on the affected side
- CSF leak from the ear or the nose
- Frontal fossa fractures: results in periorbital ecchymosis, referred to as raccoon eyes

Know what the pons, cerebrum, midbrain, medulla, and cerebellum are responsible for

- pons: arousal, consciousness, and sleep
- cerebrum: speech and language center
- midbrain: Vision, hearing, movement
- medulla: vital body functions (HR, respiratory function)
- cerebellum: balance, coordination, fine muscle control

Cushing's triad

- hypertension
- bradycardia
- abnormal respirations and bradypnea

Know what the frontal, parietal, occipital, and temporal lobe are responsible for

- frontal: motor/ sensory, speech, emotions, problem solving
- parital: orientation, recognition, perception
- occipital: vision
- temporal: hearing, memory, speech

Risk factors of stroke and what vessels they occur in

- hypertension, age, gender, ethnicity, diabetes, smoking, obesity, lack of exercise, AFIB, excessive alch, family history
- Ischemic most common in internal carotid and middle cerebral artery
- Hemorrhagic most common location: Circle of Willis -joining area of several arteries at the bottom (inferior) side of the brain

Know what a migraine is along with the causes and s/s

- periodic, throbbing heachaches, altered perceptions, nausea, and severe pain, usually worsens with movement
- serotonin decrease and calcitonin gene related peptide increase (GCRP is a vasodilator)
- triggers such as stress, hormones, excessive exercise, lack of sleep, hypoglycemia, certain foods

What is a TIA and how long do they last?

- disruption of cerebral circulation lasting less than 24 hours
- no permanent injury but can warn future attacks

Intracranial pressure s/s ch 35

- **decreased level of consciousness**
- **crushing triad**
 - **hypertension (weakened pulse pressure)**
 - **bradycardia**
 - **abnormal respiratory pattern**
- pupillary dilation
- headache
- vomiting
- papilledema
- increased BP

F.A.S.T in stroke

- Facial drooping
- Arm weakness
- speech difficulty
- time to call 911

Myasthenia gravis, parkinsons, guillian barre syndrome, and amyotrophic lateral sclerosis s/s

- myasthenia gravis
 - extreme muscle weakness and fatigue, ascending paralysis, paresthesias and numbness
- parkinsons
 - TRAP. tremor at rest, rigidity, akinesia, postural/gait instability
- guillian barre syndrome
 - weakness varies from mild weakness to complete paralysis, including respiratory muscles. Paresthesia and numbness first symptoms
- amyotrophic lateral sclerosis
 - muscle weakness, speech changes, dysphagia, muscle spasticity, positive babinski reflex, diaphragm affected

Know your different types of seizures and s/s

- focal: localized within 1 cerebral hemisphere
 - S/S: EX: if you are having a right side seizure, you may experience involuntary on the left side- these movements are usually clonic, repetitive, flexion/extension
 - there may also be automatisms, repeated automatic movements, like clapping or rubbing of hands, lip smacking/chewing, or running
- generalized: involves both hemisphere
 - motor symptoms include clonic, tonic, or myoclonic muscle activity; muscles can also become atonic- individual may endure repeated flexion/extension of the whole body

Seizure nursing actions

- move everything out of the way
- do not physically restrain
- don't put anything in the mouth
- lower to ground if walking or sitting in the chair
- after seizure place on side and turn head so emesis or oral secretions will drain out of mouth and not be aspirated

What is the cause of parkinson's?

- unknown etiology, progressive loss of dopamine-producing cells in the substantia nigra
- accumulation of Lewy bodies (abnormal protein)

How to test for Myasthenia gravis

- test for ach receptor antibodies

S/S of tension HA and trigeminal Autonomic Cephalgia and how to treat

- tension headache: bilateral pain with mild to moderate band like pain around the head and neck or shoulder muscle tensing
 - tx: pain relievers, relaxation therapy, antidepressants
- autonomic cephalgia: excruciating unilateral orbital, supraorbital, or temporal pain, bloodshot eyes, tearing in eyes, rhinorrhea, pupil constriction, eyelid edema
 - tx: 100% oxygen inhalation or subcutaneous sumatriptan

Causes of MS, MG, GBS

- MS (multiple sclerosis): T cell mediated attack of myelin
- MG (myasthenia gravis): autoimmune disease that attacks the Ach receptors
- GBS (Gullian-barre syndrome): post infectious autoimmune disease, acute inflammatory demyelination

Ictal, postictal, and interictal phases of seizure

- ictal: time of seizure
- postictal: after seizure is complete
- interictal: if multiple seizures it is the time between seizures

How to assess unconscious patient

- Make an assessment based on the Glasgow Coma Scale

ricketts: lack of vitamin D, calcium, and phosphorus in children

(ex. too much sunscreen)

food supplement with vit D has reduced development of rickets

reduced vit D from lack of sunlight calcium absorption

if calcium levels fall, PTH secreted, stimulating bone break down

osteomalacia: adult vitamin D deficiency

common causes lack of sufficient exposure to sunlight, renal disorders, cancer, gastrointestinal malabsorption

- chronic, autoimmune inflammation of the spine and sacroiliac joints; can progress to other tissues- eyes, heart, lungs, and kidneys
accompanies arthritis in joints in the extremities, iritis (inflammation of the eyes), and pulmonary fibrosis (scarring throughout the lungs)