N441 Concept Review Exam 3

1. **Fractures** (indications, nursing management, complications)

Closed (simple) fracture

Also called closed fractures, they occur when your bone suffers breakage but does not pierce through the epidermis.

Open (compound) fracture

It is opposite to simple fracture and is also known as an open fracture. There will be buxation of the bone and it will pierce through the epidermis. So it is more likely to develop an infection in this type of a fracture.

Displaced fracture

Among the many different types of fractures, this type occurs when your bone breaks into two parts in a way that the bone loses its alignment.

Non-displaced fracture

It is opposite to the displaced fracture. It means your bone snaps into two pieces but stays aligned.

Pathological (spontaneous) fracture

You develop this fracture when you have an underlying health condition, such as osteoporosis. You can also get pathological fractures if cancer cells spread to the bones.

Compression fracture

You develop a compression fracture when at least two bones are forced against one another. You usually get it in the bones of the spine usually due to a collapse of the anterior portion of the vertebra or advanced osteoporosis.

Nursing management

assess NV, vital signs, Elevate, apply ice, Pain, medicate, May need assistive devices in bed, prevent DVT/ blood clots, cast application and care, Assist with traction application and cont. to assess, provide pin care(skin vs skeletal traction)

What are some factors that influence healing?
Age, initial displacement, site of fracture, implants, infection, blood supply to area, hormones

Complications of healing?
Delayed union, nonunion, Malunion, Angulation, Pseudoarthrosis, Refracture

2. **Immobilization Devices** (Indications, Nursing management)

Cast

Temporary circumferential immobilization device, allows pt to perform many normal ADLs, Cast materials are natural, synthetic acrylic, fiberglass-free, latex-free polymer, or a hybrid of materials, Application incorporates joints above and below fracture.

After Cast is completely dry, it is strong and firm and can withstand stresses. Plaster sets in 15mins(not strong enough for weight bearing until 24-72hrs), Fresh plaster should NEVER BE COVERED W/A BLANKET.
During drying period: cast should be kept dry and clean, direct pressure should be avoided.
Once thoroughly dry, edges may need to be petaled to avoid skin irritation.

Musculoskeletal Casts: Application
Use palms to lift to prevent indentations, expose to air to dry, fiberglass cast get warm when drying, smooth out rough edges, petal edges

Musculoskeletal Casts: Assess
NV status, Ability to move digits/exposure part of extremities, Drainage/foul odor, increasing pressure under cast.

Collaborative Care: Casts

Elevate extremity onto pillows above heart level for first 24 hrs, After initial phase, casted extremity should not be placed in a dependent position b/c of the possibility of excessive edema, Observe for signs of pressure.

Casts: Teaching
Avoid: powders, using long objects to scratch under cast, getting cast wet (fiberglass and plaster), getting food or small objects in cast.

Cast: Tip for Itching
May use a hair dryer on low setting to blow in cast, dries moisture.

Splint/Immobilizers

4-Prong Splints
finger protection

Alumafoam Splints
immobilization of finger

Immobilizer splint
Device made from CLOTH and FOAM that limit motion in the area of a painful but healing injury such as the neck and knee

Molded splint
Device made of rigid materials and are used for chronic injuries or diseases that provide prolonged support.
•Clients with repetitive motion disorders such as Carpal Tunnel Syndrome
•Used to provide prolonged support, limit movement to prevent further injury and pain, they maintain the body part in a functional position to prevent contractures and muscle atrophy

Traction

Traction
A pulling effect exerted on a part of the skeletal system it is a treatment measure for a musculoskeletal drama and disorders.
•Reduces muscle spasms
•Realign bones
•Relieves pain
•Prevents deformities

Manual traction
Pulling on the body using a person's hands and muscular strength, most often is used briefly to really any broken bones or replace a dislocated thumb into its original position within a joint

Skin traction
"Bucks's or Russel's Traction"
A pulling effect on the skeletal system by applying devices to the skin such as a pelvic belt in a cervical halter

Skeletal traction
Pull exerted directly on the skeletal system by attaching wires, pins or tongs into or through a bone

Internal

Internal Fixation
Surgically inserted at time of realignment, Biologically inert metal devices used(stainless steel, Vitallium, Titanium) Alignment evaluated by X-ray.

External Fixation

Metallic device: composed of metal pins inserted into bone and attached to external rods, Applies traction or compress fracture fragments, Immobilizes decreased fragments when cast of other traction is not appropriate.
Indicated in: simple fractures and complex fractures with extensive soft tissue damage, Correction of bony defects (congenital), Pseudoarthrosis, Nonunion or Malunion, Limb lengthening.

INFECTION CONTROL IS CRITICAL: infection signaled by: exudate, erythema, tenderness, pain. Instruct pt and family on meticulous skin care.

Opened Reduction (ORIF)

Closed Reduction

Complications (manifestation, nursing management)

Complications of Fractures
Indirect Complications: blood vessels and nerve damage: Compartment syndrome, DVT, FE

Compartment syndrome (5 P's)

Parasthesia
Pain: distal to injury that is not relieved by opioid analgesics and pain on passive stretch of muscle traveling through compartment
Pressure
Pallor
Paralysis
Pulselessness

KEY SYMPTOM: severe pain that is out of proportion or unrelieved by previous meds.

Compartment Syndrome: Clinical Manifestations
Urine output must be assessed b/c there is a possibility of muscle damage
Myoglobin released from damaged muscle cells precipitates as a gel-like substance.
Common signs of myoglobinuria:
Dark reddish brown urine
Clinical manifestations associated with acute renal failure
causes obstruction in renal tubules.

Compartment Syndrome: Collaborative Care
Prompt, accurate diagnosis, Extremity should not be elevated above heart level, elevation may raise venous pressure and slow arterial perfusion
DO NOT APPLY COLD
application of cold compress may result in vasoconstriction and may exacerbate compartment syndrome

Compartment Syndrome: Collaborative Care

May be necessary to remove or loosen bandage or bivalve cast
Reduction in traction weight may decrease external circumferential pressures
Surgical decompression may be necessary.

Fat Embolism

Serious clinical disorder occurring after trauma, orthopedic procedures and rarely in non-traumatic pts.
Develops S/S of various organ system dysfunction
Mechanical obstruction of capillaries by FE or due to hydrolysis of fat to fatty acids.
Lung, brain, and skin involvement develop after an asymptomatic period of 24-72hrs
Treatment remains supportive.
Can be prevented by early fixation of large bone fractures.

FAT EMBOLISM: S/S
irritability, restlessness, tachypnea, tachycardia, changes in mental status, diffuse crackles (a late finding), dyspnea, hypoxia, fever and petechiae in a vest distribution.
Nursing Intervention: HOB up High,
Apply O2, Chest x-ray, Get ABG.

FAT EMBOLISM
Early recognition crucial in preventing potentially lethal course.
Most pts manifest symptoms 24-48 hrs after injury.
Fat globules transported to lungs cause a hemorrhagic interstitial pneumonitis.
Treatment:
Fluid resuscitation
Correction of acidosis
Replacement of blood loss
Encourage coughing and deep breathing.
Oxygen to treat hypoxia.

Venous thromboembolism (DVT, PE)

Veins of lower extremities and pelvis are highly susceptible to thrombosis
Precipitating factors: incorrectly applied cast or traction, local pressure on a vein, immobility.
Aggravated by inactivity of muscles that normally assist in pumping action of venous blood
Management: SCD's, prophylatic anticoagulant drugs.

Osteomyelitis

An infection of the bone by: extension of a soft tissue infection, direct bone contamination, hematogenous or blood-borne spread.

Those at risk for osteomyelitis
Elderly, obese, impaired immunity, poorly nourished, chronic illness, steroid therapy

Clinical signs and diagnostic studies of osteomyelitis
local: severe bone pain unrelieved by heat and worsens with activity.

Systemic: fever (101°F), night sweats, chills, restlessness, nausea and malaise

diagnostic studies: wound and/or blood cultures, tissue biopsy, sedimentation rate (higher), bone scans, MRI, CT

leukocytosis (I WBC count) because of infection, bone biopsy for diagnosis

collaborative care for osteomyelitis
antibiotics: Cipro (ciprofloxacin),Floxin (ofloxacin)
surgical debridement (bone graft might occur).
Hyperbaric O2 therapy - kills anaerobic bacteria (gum tissue is an example)why H2O to list with peroxide kills germs

Avascular necrosis

bone death due to lack of blood supply to the femoral head.

what does the typical avascular necrosis patient look like
occurs more in males
30-50yrs ole
60% bilat
can be caused by various things (trauma, steroids, ETOH, HTN, etc)

what are the sx of avascular necrosis
pain in the groin, thigh or butt
graudul onset
decrease activity because of pain
pain decreases with rest

what are the physical finding for avascualr necrosis
limp
painful ROM
groin tenderness

how is avascular necrosis dx
xray (early disease, "cresent sign")
MRI (most specific and sensitive for dx)
bone scan

what is conservative tx for avascular necrosis
NSAIDs
anticoagualtion
exercise
rest
statins

Failure of fracture to heal

When a **broken bone** fails to **heal** it is called a "nonunion." A "delayed union" is when a **fracture** takes longer than usual to **heal**.

What is the biggest cause of nonunion?
- **excessive motion** --> leads to inadequate immobilization

3. **Amputation** (Risk factors/indications, nursing management complications)

Which of the following are disease leading to impaired circulation that may result in the need for an amputation:
peripheral vascular disease
diabetes mellitus
arteriosclerosis

Above Knee (AKA)

above knee amputation
-transfemoral amputation

If the pt had an AKA they should lie ____ several times per day

Prone- to prevent flexion contracture

The #1 contracture problem in AKA is _____ of the _____.
Flexion of the hip

What will prevent hip flexion contracture after AKA?
Lying prone several times a day

Below Knee(BKA)

below knee amputation
-transtibial amputation

What is the #1 contracture problem after BKA?
Flexion of the knee

How do you prevent flexion contracture of the knee after BKA?
Remind the pt to straighten their knee constantly while standing

To prevent post op swelling, the stump should be ____for____to____ hours.
Elevated, for 12 to 24 hours

Positioning precautions: pts with a lower limb amputation should NOT
-put pillow under hip or knee
-lie in bed with knees bent or cross the legs
-place a pillow under the back when lying supine bc puts hip in flexion
-elevate the lower end of the bed under knees
-put a pillow between the thighs
-allow the residual limb to roll in or turn in toward the other leg
-let the legs fall outward while lying supine
-rest the residual limb over the edge of the bed or hospital

Why do they have these precautions
-how long do they last for?
-lots of them are to prevent contracture
-should think about for the rest of their lives but won't be a big issue once they start moving around

4.**Glascow Coma Scale (GCS)**

what is glasgow coma scale used to measure?
depth of coma as a measure of severity w/in the first 24 hrs of the trauma

what is the range of possible scores on the glasgow?
3-15
eye opening (1-4)
best motor response (1-6)
best verbal response (1-5)
score for severe TBI?
8 or less

what is a generalized response?
stimulation triggers movement of a body part not associated directly with the actual stimulus (noise in environment may elicit chewing response)

what is a localized response?
noise occurs in environment: pt may turn to face stimulus (response is directly associated with the stimulus, I think)

5. **Intracranial Pressure(ICP)** (level, indications, nursing management)

ICP monitoring

ICP components
-brain tissue (1400 g)
-blood (75 mL)
-CSF (75 mL)
Volume & pressure of these 3 components are usually in a state of equilibrium

ICP is usually measured in
lateral ventricles of the brain

Normal ICP pressure
0-10 mm Hg

Highest normal ICP
15 mm Hg

Minor changes in blood & CSF volume occur as a result of
-changes in intrathoracic pressure (coughing, sneezing, straining)
-posture
-BP
-systemic O2 & CO2 levels

Elevated ICP results from
-head injury (most common)
-secondary responses to :
brain tumors
subarachnoid hemorrhage
toxic & viral encephalopathies

Increased ICP from any cause =
-↓ cerebral perfusion
-stimulates further swelling (edema)
-possible brain tissue shift resulting in herniation (freq. fatal)

In early stages of cerebral ischemia, vasomotor centers are stimulated causing
-↑ systemic BP to maintain cerebral blood flow
-slow bounding pulse
-irregular respirations
*These changes may suggest ↑ ICP

↑ in PaCO2 causes
cerebral vasodilation, leading to ↑ cerebral blood flow & ↑ ICP

↓ in PaCO2 causes
vasoconstriction, limiting blood flow to brain; ↓ venous outflow may also ↑ cerebral blood volume, thus ↑ ICP

Cerebral edema =
↑ brain tissue volume→ ↑ ICP

Changes in ICP are closely linked with

cerebral perfusion pressure (CPP)

7. **CPP (cerebral perfusion pressure)**

Level

Monitoring

CPP calculation
MAP - ICP = CPP
Ex: MAP = 100 mm Hg, ICP = 15 mm Hg
100 - 15 = 85 (CPP)

Normal CPP range
70 to 100 mm Hg

CPP < 50 mm Hg =
irreversible neurologic damage

CPP range to ensure adequate blood flow to the brain
70 to 80 mm Hg

If ICP is = to MAP
cerebral circulation ceases

Cushing's response
compensatory response that attempts to provide adequate CPP in the presence of rising ICP; caused by significant ↓ of cerebral blood flow

Cushing's response s/s
-↑ SBP
-Widening PP** (late sign requiring immediate intervention)
-reflex ↓ of HR

Earliest sign of ↑ ICP =

change in LOC

Cushing's Triad s/s
-bradycardia
-hypertension
-bradypnea
*grave sign

Failure to treat Cushing's Triad can lead to
-herniation ob the brain stem
-occlusion of cerebral blood flow

↑ ICP s/s
-LOC changes
-severe headache
-restlessness & irritability
-slowness to react
-dilated or pinpoint pupils
-altered breathing pattern (Cheyne Stokes respirations, hyperventilation, apnea)
-deterioration in motor function
-abn posturing (decerebrate, decorticate, flaccidity)

decortication
abnormal flexion of upper extremities & extension of lower extremities

decerebration
extreme extnsion of the upper & lower extremities

Diagnostic procedure avoided in pts w/↑ ICP
Lumbar puncture; because sudden release of pressure in lumbar area can cause brain to herniate

↑ ICP Complications
-brain stem herniation
-Diabetes Insipidus
-Syndrome of inappropriate antidiuretic hormone (SIADH)

↑ ICP medical mgmt goals

-↓ cerebral edema
-↓ CSF volume
-↓ cerebral blood volume while maintaining cerebral perfusion

↑ ICP nursing goals
-Maintain patent airway
-Achieve adequate breathing pattern
-Optimize cerebral tissue perfusion
-Maintain negative fluid balance
-Prevent infection
-Monitor/Manage potential complications

Nursing interventions to maintain patent airway in ↑ ICP pt
-Suction PRN w/care to prevent ↑ ICP
-Discourage coughing
-Auscultate lungs q8h for adventitious sounds or areas of congestion
-Elevate HOB to aid in clearing secretions & improve venous drainage of brain

nursing interventions/care to achieve adequate breathing pattern in pt w/↑ ICP
-Monitor for Cheyne-Stokes respirations (due to ↑ pressure on frontal lobes or deep midline structures)
-Hyperventilation therapy to ↓ ICP (causes cerebral vasoconstriction & ↓ in cerebral blood volume) *RN collaborates w/resp therapist in monitoring PaCO2 which is usually maintained at <30 mm Hg

Nursing interventions/care to optimize cerebral perfusion in pt w/↑ ICP
-Proper positioning (head is kept in neutral (midline)position, maintained w/cervical collar if needed, to promote venous drainage)
-HOB elevated 30-45 degrees
-Extreme rotation/flexion of neck avoided because compression or distortion of jugular veins ↑ ICP
-Avoid extreme hip flexion to prevent ↑ in intra-abd & intra-thoracic pressures which can ↑ ICP
-Avoid Valsalva maneuver

Nursing interventions/care to manage potential complications in pt w/↑ ICP
Detect early indications of ↑ ICP by doing freq. neuro checks for:
-disorientation, restlessness, confusion, ↑ resp effort, purposelss mvmts
-Pupillary changes & impaired extraocular mvmts
-Weakness in 1 extremity or on 1 side of body
-Constant headache

Detect later indications of ↑ ICP by assessing:
-LOC
-VS (especially widening of PP)
-Altered resp patterns
-Projectile vomiting
-Hemiplagia or decorticate or decerebrate posturing
-Loss of brain stem reflexes (pupillary, corneal, gag, swallowing)
**Monitor ICP pressure

Controlling ICP interventions
-HOB elevated
-Maintain head & neck in neutral position
-Prevent Valsalva maneuver w/stool softeners
-Maintain PaO2 >60 mm Hg
-Maintain calm atmosphere
-Avoid environmental stimuli (noise, conversation)
-Maintain CPP >70 mm Hg
-Use mannitol in bolus form
-Administer sedation & paralytic agents before initiation of nursing activities

Osmotic diuretic

Osmotic diuretics (mannitol) SIADH tx

6. **Level of Consciousness (LOC),** (Indication, nursing management complications)

1) Alert
2) Confused
3) Disoriented
4) Obtunded
5) Stuper
6) Coma
Conscious to Unconscious levels

Confused
-Unable to think clearly
-Poor memory and Judgement (shouldn't be walking alone)
-Short attention span

Disoriented
Unaware of Time, Place, and Person

Obtunded
Lethargic/Somnolent
-Responds to stimuli. but quickly drifts back to sleep
-Responds to pain

Stupor
Generally Unresponsive
Partial or only temporary arousal by vigorous and repeated stimulation (sternal rub)
-Communication is minimal/nonexistent
-Moaning/groaning

Coma
Reduction is neuronal function
-State of unarousable unresponsiveness
-No spontaneous movements, eyes closed
-No intelligent speech

Decorticate Posture
-Flexor to the Cord
-Stiff with bent arms
-Arms bent toward body
-Wrist and fingers bent and held on chest

Decerebrate Posture
Extensor
-Arms and legs being held straight out
-Toes pointed straight down
-Muscles tight/rigid
-WORSE

Conscious
GCS: 14-15

Deep coma
GCS: 3

8. **Head Injury (**indication, manifestation, nursing management complications).

Head injury management
Assume cervical spine injury until this is ruled out
Therapy to preserve brain homeostasis and prevent secondary

Treatment of Head injury
Treat cerebral edema
maintain cerebral perfusion
Treat hypotention, hypovolemia, and bleeding
Monitor and manage ICP
Maintain OX as well as cardiovascular and resp funct
Manage fluid and electrolyte balance

Brain Damage: Primary Injury
Contusions, lacerations, damage to blood vessels, acceleration/deceleration injury, or foreign object penetration
Results from the physical stress within the brain tissue caused by open or closed trauma

Brain Damage: Secondary Injury
Due to cerebral edema, ischemia, or chemical changes associated with the trauma
Any neurologic damage that occurs after the initial injury.

CSF Otorrhea
CSF leakage d/t basilar skull fracture

Signs of TBI
CSF Otorrhea
Halo Sign
Raccoon's eyes
Battle's sign

Halo Sign
ring of CSF around a blood stain from drainage --may show up on the dressing covering an open skull fx, or collect the otorrhea or rhinorrhea drainage on a piece of gauze.

Raccoon's eyes
periorbital ecchymosis-damage at the time of a facial fracture tears the meninges and causes the venous sinuses to bleed into the soft tissue around the eyes. Common with head injuries, craniotomies, etc. - treat with cool compresses to eyes. This is a normal finding and requires no other intervention other than cool compresses for comfort

Battle's sign
mastoid ecchymosis - fx allows bleeding into this area-basilar skull fx

Contusion impact
Primary: Coup (towards the frontal bone)
Secondary: Contrecoup (towards occipital bone)

9. **Stroke** (indications, manifestation, nursing management complications).

Hemorrhagic

a burst blood vessel may allow blood to seep into and damage brain tissues until clotting shuts off the leak

Where are the two places a hemorrhagic stroke can occur?
brain tissue itself
- intracerebral/intraparenchymal

subarachnoid space or ventricles
- blood clogs up the CSF system
- LP performed

Hemorrhagic stroke:

Intracerebral hemorrhage
Bleeding within brain caused by rupture of a vessel, **hypertension is most common cause**

symptoms (often severe HA w/N&V) begin abruptly and hemorrhage often occurs during activity

poor prognosis, with mortality rate of 40-80% w/in 30 days

clinical manifestations:
Neurologic deficits
Headache
Nausea and/or vomiting
Decreased levels of consciousness
Hypertension

progresses over 24 hours

hemorrhagic stroke:

Subarachnoid hemorrhage (SAH)
Intracranial bleeding into cerebrospinal fluid-filled space between the arachnoid and pia mater

Common causes:
rupture of a cerebral aneurysm AVM
trauma
drug abuse (cocaine, meth)
sudden emotional distress can trigger event (e.g., a really scary movie)

Ischemic

a) Embolic: a blood clot or other debris circulates in the blood and reaches an artery in the brain that is too narrow to pass through, where it becomes lodged and blocks blood flow
symptoms develop rapidly

b) Thrombotic: clot forms in artery, narrowing the lumen and eventually blocking blood flow
most common cause of stroke, 60%
-2/3 are associated w/HTN and DM
symptoms develop slowly

What are clinical manifestations of left-sided brain damage (stroke on left side of brain)?
• Paralyzed right side: hemiplegia
• **Impaired speech/language aphasias**
• Impaired right/left discrimination
• Slow performance, cautious
• Aware of deficits: **depression, anxiety** (frustration and depression are common in 1st year following stroke)
• Impaired comprehension related to language, math

What are clinical manifestations of right-sided brain damage (stroke on right side of brain)?
• Paralyzed left side: hemiplegia
• **Left-sided neglect**
• Tends to deny or minimize
problems
• Rapid performance, short attention span
• **Impulsive, safety problems**
• Impaired judgment
• Impaired time concepts

• **Spatial-perceptual deficits**, which patient may not be aware of
- incorrect perception of self and illness
- unilateral neglect
- agnosia: inability to recognize object by sight, touch or hearing
- apraxia: inability to carry out learned sequential movements on command

What are some visual problems that may occur with a stroke?
Diplopia (double vision)
Loss of the corneal reflex
Ptosis (drooping eyelid)
Homonymous hemianopsia (R or L sided visual field loss)

Clinical Manifestations of Stroke:

Motor function
Symptoms are caused by the destruction of motor neurons in the pyramidal pathway (nerve fibers from the brain that pass through the spinal cord to the motor cells)

impairment of:
Mobility
Respiratory function
Swallowing and speech
Gag reflex
Self-care abilities

most obvious effect of stroke

- Loss of skilled voluntary movement (Akinesia)
- Impairment of integration of movements
- Alterations in muscle tone
- Alterations in reflexes (hyporeflexia -> hyperreflexia)

period of flaccidity (nerve damage) followed by spasticity (interrupted upper motor neuron influence)

What are the three types of aphasia?
Expressive: inability to produce language

Receptive: loss of comprehension

Global: total inability to communicate
- occurs in massive stroke

nonfluent: minimal speech activity with slow speech
fluent: speech is present but contains little meaningful communication

What are the different patterns of aphasia based on affected areas of the brain?
Broca's

Wernicke's

Global

Other (damage to different language areas of brain)

Broca's Aphasia
• A type of nonfluent aphasia (minimal speech activity with slow speech)
• Damage to frontal lobe of brain.

Wernicke's Aphasia
• A type of fluent aphasia (speech is present but contains little meaningful communication)
• Damage occurs in left temporal lobe, although it can result from damage to right lobe.
word salad

Diagnosis of Stroke (Including Extent of Involvement)
• Computed tomography (CT) scan: lesions/rule out hemorrhagic
• CT angiography (CTA): can provide an estimate of perfusion and detect filling defects in cerebral arteries

- **Antiplatelet drugs** are used for patients with hx of TIA related to atherosclerosis, **ASA is #1**

Ischemic Stroke
• Tissue plasminogen activator (tPA) IV or intraarterial
• Stent retrievers
• MERCI retriever

Hemorrhagic Stroke
• Surgical decompression if indicated
• Clipping or coiling of aneurysm

Increased ICP more likely to occur in hemorrhagic but can occur ischemic strokes (from cerebral edema)

What is the window for tPA?
Must be administered within 3 to 4.5 hours of onset of clinical signs of ischemic stroke

door to drug time is 1 hour

Name some of the exclusion criteria for tPA
- hemorrhagic stroke
- coagulation disorders
- recent history of gastrointestinal bleeding, stroke, or head trauma within the past 3 months
- major surgery within 14 days
- hypertension
- seizures

10. **Spinal Cord Injury** (indications, manifestation, nursing management, complications).

Functions Affected (Levels of Injury)
• Breathing (C1-4)*
• Head/neck movement (C2)
• Heart rate (C4-C6)and shoulder movement (c-5)
• Wrist & elbow movement (C-5)
• Hand & finger movement (c7-T1)
*cervical & lumbar injuries are most common b/c of flexibility

Paraplegia
-thoracic, lumbar, or sacral spinal cord is damaged--paralysis and loss of sensation in leg (below T1)

Spinal Cord Injuries- Risk factors
*Males 16-30 yr old
-high risk activities (driving)
-impact sports (football/diving)
-acts of violence (gunshot/knife wounds)

Nursing Care site of accident
A- leave pt in position they are in till paramedics arrive w/ immobilization equi. Only remove from site if danger

B. Immoilization w/ head & neck in neutral position (transfer board, philadelphia collar, use jaw thrust for CPR **DO NOT hyperextend the neck**

Autonomic Dysreflexia
syndrome characterized by abrupt onset of excessively high blood
pressure caused by uncontrolled sympathetic nervous system discharge in persons with spinal cord injury. Persons at risk for this problem generally have injury levels above T-6

Autonomic Dysreflexia- S&S
• Hypertension (blood pressure greater than 200/100)
• Pounding headache (secondary to hypertension/vasodilatation)
• Flushed (reddened) face (secondary to vasodilatation)
• Red blotches on the skin above level of spinal injury (secondary to vasodilatation)
• Sweating above level of spinal injury (secondary to vasodilatation)
• Nasal stuffiness (secondary to vasodilatation)
• Nausea (secondary to vagal parasympathetic stimulation)
• Bradycardia - slow pulse <60 beats per minute-(secondary to vagal parasympathetic
• stimulation)
• Piloerection ("goose bumps") below level of spinal injury
• Cold, clammy skin below level of spinal injury

Autonomic Dysreflexia Triggers
• Bladder (most common)
• Bowel
• Skin-related Disorders
• Sexual Activity
• Labor and delivery

Autonomic Dysreflexia **CLASS NOTES**
pale, cold, sniffle, bradycardia, BP elevated ***HTN crisis can lead to stroke**

#1 thing to do is figure out stimuli that started the trigger-if you remove stimuli no meds needed (most common is distended bladder, 2nd is bowel impaction) other stimuli is Skin stimuli (ingrown toe nail)
Tx for HTN- hyperset IV, Nitroglycerine ointment

Halo Traction
#1 concern is infection (meningitis)- do pin care (sterile swaps, diff swab for each, if scab keep in place b/c help to prevent infection, mon for red/swell)
*usually on for 6 weeks

Neurogenic Bladder Dysfunction
Autonomous Neurogenic Bladder
lower motor neuron/flaccid bladder.
Disruption of the voiding reflex center (S2-S4) - involuntary voiding, have overflow incontinence; bladder emptying problems.

Management of Reflex Incontinence
• Triggering Techniques: used to stimulate the sacral voiding reflex
• Intermittent Catheterization
• Anticholinergics: Ditropan, Detrol, or Banthine
• Antimuscarinics: trospium chloride (Sanctura); darifenacin (Enablex); solifenancin succinate (Vesicare)
• Monitor Post-Void Residuals
• External Catheters/Absorbent Pads
• Adequate Fluid Intake
• Smooth Muscle Relaxants
• Foley and Suprapubic Catheters are the LAST RESORT

11. **Dementia** (indications, manifestation, nursing management).

An acquired syndrome consisting of a decline in memory and other cognitive functions. Dementia is used as an umbrella term to group all diseases in which there is some form of memory loss. DEMENTIA IS NOT A DISEASE.

Symptoms of dementia emerge slowly,
worsen over time and restrict ability to function. Because depression can sometimes affect memory and cognition, it is often difficult to clearly differentiate it from dementia.

Diagnosis of Dementia
Memory impairment impaired ability to learn new information or to recall old information AND at least one of the following: Aphasia, apraxia, agnosia, or abstract thinking/executive function impairments. Cognitive deficits result in impairment in social and/or occupational function. Symptoms not explainable by another disorder (delirium or psychiatric condition)

Apraxia
motor impairments (impaired ability to carry out motor activities despite intact motor action)

Agnosia
sensory impairments (failure to recognize or identify objects despite intact sensory function)

Symptoms of Dementia
-- Memory loss
-- Difficulty communicating
-- Inability to learn or remember new information
-- Difficulty with planning and organizing
-- Difficulty with coordination and motor functions
-- Personality changes
-- Inability to reason
-- Inappropriate behavior
-- Paranoia
-- Agitation
-- Hallucinations

12. **Delirium** (indications, manifestation, nursing management, prevention).

Delirium

Acute disturbance of consciousness with reduced ability to focus, and attention that fluctuates throughout the day
Acute Brain Failure

Delirium Prognosis
If not treated, can persist for months
Increased risk in hospital death
Nosocomial Complication
Increased Length of Stay
Increased discharge to Nursing Home

Delirium Diagnosis
Need 1 and 2 and (3 or 4)
1. Acute change in mental Status
2. Inattention
3. Disorganized Thinking
4. Altered Level of Consciousness

Risk of Delirium
Advanced Age
Pre-existing Dementia
Impairment of Activities of Daily Life: Bathing, Dressing, toileting, Grooming, Feeding, Bed to chair, etc.
Medical Comorbidities: Heart failure, etc.;

Factors that Precipitate Delirium Mnemonic
I WATCH DEATH

Factors that Precipitate Delirium
Infection
Withdrawal
Acute Metabolic - esp Drug SE, Sedating Drugs, Anticholinergics
Trauma
CNS Pathology
Hypoxia
Deficiencies - B12
Endocrinopathies
Acute Vascular
Toxins
Heavy Metals

People Treatment of Delirium
Hospital Environment - Quiet, Lighting, Soft Music, Get them out of bed
Cognitive Reconditioning - Reorient to time, place, event 3X a day
Do Activities of Daily Life when possible
Empower Family
Discharge Planning