Exam Three: MED-SURG Concept

Nursing actions for traction

- Assess neurovascular status of the affected body part every hour for 24 hrs and every 4 hr after that
- Maintain body alignment and realign if the client seems uncomfortable or reports pain
- Avoid lifting or removing weights
- Ensure that weights hang freely and are not resting on the floor
- If the weights are accidentally displaced, replace the weights; if the problem is not corrected, notify the provider
- Ensure that pulley ropes are free of knots, fraying, loosening, and improper positioning at least every 8 to 12 hrs
- Routinely monitor skin integrity and document
- Use heat/massage as prescribed to treat muscle spasms
- Use therapeutic touch and relaxation techniques

- **Goals of Traction**:

- Prevent soft tissue injury
- Realign of bone fragments
- Decrease muscle spasms and pain
- Correct or prevent further deformities

Neurovascular Assessment

- Essential throughout immobilization
- Assessments are performed every 1 hr for the 1st 24 hrs and every 1-4 hrs thereafter
- Includes:

- **Pain** → assess pain level, location, and frequency; assess pain using 0 to 10 pain scale, and have the client describe the pain; immobilization, ice, and elevation of the extremity with the use of analgesics should relieve most of the pain

- **Sensation** → assess for numbness or tingling of the extremity; loss of sensation can indicate nerve damage

- **Skin temperature** → check the temperature of the affected extremity; extremity should be warm, not cool, to touch; cool skin can indicate decreased arterial perfusion
- **Capillary refill** → press nail beds of affected extremity until blanching occurs; blood return should be within 3 seconds; prolonged refill indicates decreased arterial perfusion; nail beds that are cyanotic can indicate venous congestion
- **Pulses** → should be palpable and strong; pulses should be equal to the unaffected extremity; edema can make it difficult to palpate pulses, so Doppler ultrasonography might be required
- **Movement** → client should be able to move affected extremity in active motion

Compartment Syndrome

Manifestations:

- Assessed by using the five P's:
- pain
- paralysis
- paresthesia
- pallor
- pulselessness

Risk Factors

- Usually affects extremities and occurs when pressure within 1 or more of the muscle compartments (an area covered with an elastic tissue call fascia) of the extremity compromises circulation, resulting in an ischemia-edema cycle
- Pressure can result from external sources, such as a tight cast or a constrictive bulky dressing
- Internal sources, such as an accumulation of blood or fluid within the muscle compartment, can cause pressure as well

Fat Embolism

Manifestations:

- Early manifestations:
    - Dyspnea, increased RR, decreased O2sat
    - HA
    - Decreased mental acuity r/t low arterial O2 level
    - Respiratory distress
    - Tachycardia
    - Confusion
    - Chest pain
- Late manifestations:
    - Cutaneous petechiae (pinpoint-size subdermal hemorrhages that occur on neck, chest, upper arms, and abdomen from blockage of capillaries by fat globules)
    - This is discriminating finding from pulmonary embolism

Amputations

- Prevent post-complications (hypovolemia, pain, infection)
- Assess surgical site for bleeding
- Monitor tissue perfusion of end of residual limb
- Monitor for manifestations of infection and non-healing of incision; infection can lead to osteomyelitis
- Nursing Actions: Preparing for a prosthesis
    - ROM exercises and proper positioning immediately after surgery
    - To prevent knee or hip flexion contractures → may elevate extremity <u>for 24-48hrs</u> to reduce swelling/discomfort, <u>then no more elevation</u>
    - Have client lay prone 20-30 min several times a day to help prevent hip flexion contractures

- Increased ICP

Manifestations

- Changes in LOC
- Any change in condition
- Restlessness, confusion, increasing drowsiness, increased respiratory effort, purposeless movements
- Pupillary changes and impaired ocular movements
- Weakness in one extremity or one side
- Headache: constant, increasing in intensity, or aggravated by movement or straining

- Late:

Respiratory and vasomotor changes

- VS: Increase in systolic blood pressure, widening of pulse pressure, and slowing of the heart rate; pulse may fluctuate rapidly from tachycardia to bradycardia; temperature increase
- Cushing's triad: bradycardia, hypertension, bradypnea
- Projectile vomiting
- Further deterioration of LOC; stupor to coma
- Hemiplegia, decortication, decerebration, or flaccidity
- Respiratory pattern alterations including Cheyne-Stokes breathing and arrest
- Loss of brainstem reflexes: pupil, gag, corneal, and swallowing
    - Severe HA, N/V, deteriorating LOC, restlessness, irritability, dilated or pinpoint non-reactive pupils, cranial nerve dysfunction, altered in breathing patterns, deterioration in motor function, Cushing's triad (late sign), seizures

Pharmacologic treatment

- Mannitol

CPP

What is it, what is a normal value?

- CPP = MAP (mean arterial pressure) – ICP
- Normal CPP is 70 to 100

Cushing's triad

- bradycardia, hypertension, bradypnea
-

<u>Normal ICP is 10-15mmHg</u>

Methods for keeping ICP within normal limits

Nursing interventions

- Elevate HOB at least 30 degrees (promote venous drainage)
- Avoid extreme flexion, extension, or rotation of head, maintain the body in a midline neutral position
- Maintain patent airway
- Administer O2 to keep PaO2 >60
- Consider hyperventilation to decrease ICP
- Maintain c-spine stabilization
- Maintain safety and seizure precautions

ABC prioritization

Altered LOC

Diagnostic tools

- Labs
  - Based upon underlying cause
- Diagnostic tests
  - Based upon underlying cause
- Management:
  - ABCs
  - Consider intubation
  - Treat underlying cause

Manifestations

- Infection
- Withdrawal
- Acute metabolic causes
- Trauma
- CNS causes
- Hypoxia
- Deficiencies (nutritional)
- Endocrinopathies
- Acute vascular causes
- Toxins or drugs
- Heavy metals

GCS

Scoring:

- Eye opening (E): best eye response
    - 4= eye opening occurs spontaneously
    - 3= eye opening occurs to sound
    - 2= eye opening occurs secondary to pain
    - 1= eye opening does not occur
- Verbal (V): best verbal response
    - 5= conversation is coherent and oriented
    - 4= conversation is incoherent and oriented
    - 3= words are spoken but inappropriately
    - 2= Sounds are made, but no words
    - 1= vocalization does not occur
- Motor (M): best motor response
    - 6= commands are followed
    - 5= local reaction to pain occurs
    - 4= general withdrawal to pain
    - 3= decorticate posture (flexion of elbows & wrists)
    - 2= decerebrate posture (extension of elbows & wrists)
    - 1= motor response does not occur

Stroke

Hemorrhagic

- Symptoms depend on the location and size of the affected area
- Some clients have transient manifestations, such as visual disturbances, dizziness, slurred speech, and a weak extremity → transient ischemic attack (TIA)

Right versus left hemisphere

Manifestations of each

- Left cerebral hemisphere →responsible for language mathematics, and analytic thinking
    - Expressive and receptive aphasia, agnosia, alexia, agraphia, right extremity hemiplegia or hemiparesis, slow cautious behavior, depression, anger, visual changes such as hemianopia

  - Right cerebral hemisphere → responsible for visual and spatial awareness and proprioception
    - Altered perception of deficits, unilateral neglect, loss of depth perception, poor impulse control, visual changes

- **Dysphagia and aspiration**
  - Dysphagia is a common disorder in patients who have suffered a stroke, occurring in 50–60% of acute stroke patients. It is associated with an increased risk of aspiration, pneumonia, prolonged hospital stay, disability, and death. Swallow screening is critical in the rapid identification of risk of aspiration in patients presenting with acute stroke symptoms. Because formal swallowing evaluation is not warranted in all patients with acute stroke, the purpose of a swallowing screen is to identify those who do not need a formal evaluation and who can safely take food and medication by mouth. Formal swallowing evaluations can be done in patients who don't pass the initial screening.

Thrombolytic therapy

Indications and contraindications

- **<u>Thrombotic</u>**
  - Occurs secondary to the development of a blood clot on an atherosclerotic plaque in a cerebral artery that gradually shuts off the artery and causes ischemia distal to the occlusion
  - Manifestations evolve over a period of several hours to days

SCI

Autonomic dysreflexia interventions

- **Respiratory status:**
  - First priority!
  - Provide O2, assist w/ intubation & mechanical ventilation if necessary, assist client to cough by applying abdominal pressure when attempting to cough, teach client about IS and encourage DB frequently
- Tissue perfusion:
  - NEUROGENIC SHOCK!
  - Sudden loss communication within the SNS that maintains the normal muscle tone in blood vessel walls → results in peripheral vasodilation that leads to venous pooling in the extremities → decreased CO and HR and life-threatening decrease in BP

  - Monitor for hypotension, dependent edema, and loss of temperature regulation
  - When in upright position, client who was in neurogenic shock will experience postural hypotension; transferring to WC should occur in stages
- Intake & output
  - May be NPO for several days; regulation of fluid balance and nutrition is necessary
  - Neurologic status
  - Determine baseline, then monitor for increasing loss of neurologic function
  - Muscle strength and tone
  - Determine baseline, then monitor for an increasing loss of muscular strength in affected extremities
  - Mobility
  - If complete injury then will not regain mobility
  - If incomplete injury then may regain some mobility
  - Bowel & bladder function
  - Spastic neurogenic bladder → for males consider condom catheter or stimulated micturition reflex by tugging on pubic hair; for females use indwelling urinary catheter
  - Flaccid neurogenic bladder → intermittent catheterization
  - For bowels → stool softeners or bulk-forming laxatives
  - Skin Integrity
  - Change position every 2 hrs (every 1 hr while in WC)
  - Sexual function
  - Reflexogenic erections are possible
  - Ejaculation coordinated with emission might not occur
  - If incomplete injury then may be capable of both reflexogenic and psychogenic erections
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Risk factors

- Male clients age 16-30, high risk activities (extreme sports or high speed driving), participation in impact sports, acts of violence (GSW or knife wounds), alcohol or drug use, disease (metastatic cancer or arthritis of spine), falls (especially older adults)

- **Head injuries:**

Epidural hematoma

Manifestations

- Patient may have a brief loss of consciousness with return of lucid state; then as hematoma expands, increased ICP will often suddenly reduce LOC
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- **Subdural hematoma**
  - Manifestations
  - Acute or subacute
  - Acute: symptoms develop over 24 to 48 hours
  - Subacute: symptoms develop over 48 hours to 2 weeks
  - Requires immediate craniotomy and control of ICP
  - Chronic
  - Develops over weeks to months
  - Causative injury may be minor and forgotten
  - Clinical signs and symptoms may fluctuate
  - Treatment is evacuation of the clot
  -

Basal Skull Fracture

Nursing interventions

- Support family → if brain death consider whether or not to donate organs
- Assess/monitor the client at regularly scheduled intervals:
- Respiratory (priority assessment)
- Cranial nerve function
- Assess pupils (PERRLA)
- Bilateral sensory and motor responses
- If increased ICP:
- Elevate HOB at least 30 degrees (promote venous drainage)
- Avoid extreme flexion, extension, or rotation of head, maintain the body in a midline neutral position
- Maintain patent airway
- Administer O2 to keep PaO2 >60
- Consider hyperventilation to decrease ICP
- Maintain c-spine stabilization
- Maintain safety and seizure precautions
- Craniotomy
  - Craniotomy or craniectomy to remove clot and control hemorrhage; this may not be possible because of the location or lack of circumscribed area of hemorrhage
  -

Meningitis

Lumbar Puncture (spinal tap)

- Pharmacologic treatment options
- Detect presence of some diseases (multiple sclerosis, syphilis, meningitis), infection, and malignancies
- May be used to reduce CSF pressure, instill a contrast medium or air for diagnostic tests, or administer medications or chemotherapy directly to spinal fluid