ATI MedSurg Comprehensive Exam Remediation

Safety and Infection Control

Cancer Treatment Options: Nursing Care for Client Receiving Internal Radiation Therapy

- Internal administration of radiation therapy is known as brachytherapy and will cause the patient's body fluids to become contaminated with radiation.
- Radiation exposure to healthcare personnel and visitors is reduced by limiting indirect contact time, maintaining indicated distances from sources of radiation, and preventing direct contact with the source.
- Nursing Actions:
    - Place the client in a private room and keep the door closed as much as possible
    - Place a sign on the door warning of the radiation source
    - Wear a dosimeter badge that records personal amount of radiation exposure
    - Limit visitors to 30 min visits and have them remain 6 ft from source
        - No one pregnant, trying to conceive, or under 16
    - Wear a lead apron while providing care with front facing the radiation source.
    - A lead container should be kept in client's room for anything that becomes dislodged, use tongs to transfer
    - **All linens and dressing are kept in the client's room until the radiation source is removed to ensure it isn't lost in trash or laundry

Management of Care

Stroke: Discharge Planning for a Client Following an Ischemic Stroke

- Ischemic strokes are typically associated with a thrombus or embolus that provides a physical barrier to circulation
- Thrombotic strokes occur secondary to the development of a blood clot on an atherosclerotic plaque in a cerebral artery that gradually shuts it off and causes ischemia distal to the occlusion.
    - Manifestations evolve or appear over several hours or days.
- Embolic strokes are caused by an embolus traveling from another part of the body to a cerebral artery.
    - Blood to the brain distal to the occlusion is immediately shut off causing neurological deficits or a loss of consciousness to occur instantly
- Ischemic strokes can be reversed with fibrinolytic therapy using alteplase (tPa) if given within 3-4.5h of initial manifestations
    - Contraindicated if there is a source of active bleeding
- Antithrombotic medication or surgical removal of atherosclerotic plaques in the carotid artery can prevent subsequent occurrence of stroke.

Reduction of Risk Potential

Invasive Cardiovascular Procedures: Teaching About Left-Sided Cardiac Catheterization

- Used to improve blood flow for occluded arteries and veins and indicated after noninvasive interventions have failed (diet, exercise, medications)
- Maintain NPO status for 8h prior to procedure and witness informed consent
- Assess for iodine/shellfish allergy and ensure adequate renal function
- If the client takes metformin, ask them to withhold prior to and after the procedure up to 48h
- Leave dressing in place for first 24h after discharge
- Restrict lifting to less than 10 lbs, with no bending at the waist or straining for at least 24h

Basic Care and Comfort

Complication of Continuous Bladder Irrigation Following Transurethral Resection of the Prostate

- BPH can significantly impair the outflow of urine from the bladder, making a client susceptible to infection and retention. Excessive amounts of urine retained can cause reflux of urine into the kidney, dilating the ureter and causing kidney infections.
    - S/S: urinary frequency, urgency, hesitancy, incontinence; incomplete emptying of bladder; dribbling post-voiding; nocturia; diminished force of urinary stream; straining with urination; hematuria
    - Urinary stasis and persistent urinary retention leads to frequent UTIs
    - Backflow of urine into the ureters and kidney can lead to kidney damage.
- A transurethral resection of the prostate trims away excess prostatic tissue, enlarging the passageway of the urethra through the prostate gland.
    - **o** Uses epidural and spinal anesthesia
- Postoperative treatment for a TURP usually includes placement of an indwelling three-way catheter
    - Allows for drainage of urine and instillation of a continuous bladder irrigation (CBI) of normal saline or other prescribed solution to keep the catheter free from obstruction
    - Adjust CBI rate to keep irrigation pink or lighter. If bright-red or ketchup-appearing (arterial) bleeding with clots is observed, increase the CBI rate
    - If the catheter becomes obstructed (bladder spasms, reduced irrigation outflow), turn off CBI and irrigate with 50 mL irrigation solution using a large piston syringe or per facility protocol
        - Contact surgeon if unable to dislodge the clot
    - The catheter has a large balloon (30-45 mL), taped tightly to leg, creating traction so that the balloon will apply firm pressure to the prostatic fossa to prevent bleeding
        - Client feels continuous need to urinate
        - Instruct client not to void around catheter as this causes bladder spasms
        - Avoid kinks in tubing
- Administer medications (analgesics-pain; antispasmodics-bladder spasms; antibiotics-prophylaxis; stool softeners-avoid straining)

Stroke: Caring for a Client Who Has Left-Sided Hemiplegia

- With one-sided neglect, teach them to protect and care for the affected extremity to avoid injuring it
- Encourage range of motion exercises q2h (active for unaffected extremities, passive for affected)
- Elevate affected extremities to promote venous return and reduce swelling

Pharmacological and Parenteral Therapies

Gastrointestinal Therapeutic Procedures: Maintaining an IV Infusion of Total Parenteral Nutrition

- TPN administration is usually through a central line and standard IV bolus therapy is usually no more than 700 cal/day.
    - Clients will present with weight loss >10% of BW and NPO or unable to eat or drink for more than 5d
    - May show muscle wasting, poor tissue healing, burns, bowel disease, acute kidney failure

- Obtain daily laboratory values, including electrolytes as this allows for daily customization of the solution for the client
- Never abruptly stop TPN, and speeding up/slowing down the rate is contraindicated as abrupt changes can alter blood glucose levels significantly
- Assess v/s q4-8h and weights daily.

Cardiovascular Diagnostic and Therapeutic Procedures: Discharge Teaching for Peripherally Inserted Central Catheter Lines

- The site and type of vascular access device is determined by the characteristics of the prescribed therapy (medication type, pH and osmolality, length of time for therapy)
- Peripherally inserted central catheters (PICC) can be maintained for up to 12 months and are typically used for administration of blood, long-term administration of chemotherapeutic agents, antibiotics, and TPN
- Advise client should not be immersed in water, so cover when showering.
- Venipuncture and blood pressure should not be performed in this arm
- Use 10 mL syringe to flush and don't apply force if resistance is met (before, during, after meds; after drawing blood use 20 mL; flush with 5 mL heparin if not actively in use)

Physiological Adaptation

Renal Calculi: Dietary Recommendations for a Low-Purine Diet

- The majority of calculi are composed of calcium phosphate or calcium oxalate, but they can contain other substances (uric acid, struvite, cystine)
    - A diet high in calcium isn't believed to increase the risk for calculi formation unless there is a preexisting metabolic disorder or renal tubular defect.
- Metabolic defects that may predispose include increased absorption/decreased excretion of calcium and increased oxalate production (genetic) or inability to metabolize oxalate from foods, and the increased production or decreased clearance of purines
    - Oxalate—Black tea, spinach, beets, Swiss chard, chocolate, peanuts, rhubarb, pecans, strawberries, okra, cocoa, wheat germ, lime peel.
- Sources of purine in the diet include organ meats, poultry, fish, gravies, red wine, and sardines

Head Injury: Responding to a Change in LOC

- Even if the level of consciousness is decreased, explain to the client the actions being taken and why as hearing is the last sense affected by head injury
- Changes in LOC detected through use of the Glasgow Coma Scale provide the earliest indication of neurologic deterioration
- Implement actions that decrease ICP:
    - Elevate HOB 30 degrees to promote venous drainage
    - Avoid extreme flexion, extension, or rotation of the head, and maintain body in a midline neutral position
    - Maintain a patent airway and provide mechanical ventilation as indicated
    - Administer oxygen as indicated to maintain PaO_2 > 60 mm Hg.
    - Give the client stool softeners and avoid the Valsalva maneuver
    - Provide a calm, restful environment (limit visitors and minimize noise)
    - Brief periods of hyperventilation can be used for the intubated client after the first 24h following injury to help lower ICP.
        - Before that, may cause cerebral vasoconstriction and therefore ischemia.

Burns: Assessment Findings of Early Phase Injury

- Inhalation damage findings include singed nasal hair, eyebrows, and eyelashes; sooty sputum; hoarseness; wheezing; edema of nasal septum; and smoky smelling breath.
    - Indications of impending loss of airway include hoarseness, brassy cough, drooling or difficulty swallowing, audible wheezing, crowing, and stridor
- Carbon monoxide findings from burns in an enclosed area include headache, weakness, dizziness, confusion, erythema (pink/cherry red skin), and upper airway edema
    - Followed by sloughing of respiratory tract
- Hypovolemia and shock can result from fluid shifts from the intercellular and intravascular space to the interstitial space
    - Additional findings include hypotension, tachycardia, and decreased cardiac output.

Electrolyte Imbalances: Treatment for Hypokalemia

- The normal range for potassium is 3.5-5 mEq/L, so hypokalemia is a potassium deficiency with levels > 3.5 mEq/L
- To treat, administer a prescribed potassium replacement orally or I.V., but never IM or SubQ which can cause necrosis of tissues
- For oral replacement, encourage foods high in potassium: avocados, broccoli, dairy products, dried fruit, cantaloupe, bananas, juices, melons, lean meats, milk, whole grains, and citrus fruits or provide potassium supplements
- Never administer I.V. potassium by bolus as this can cause cardiac arrest
- The maximum recommended rate is 10 mEq/hr with a concentration of no more than 1 mEq of potassium per 10 mL solution
    - Assess for phlebitis or tissue irritation.

Nasogastric Intubation and Enteral Feedings: Selecting Equipment for Gastric Lavage

- Lavage is used to wash out the stomach as a treatment for active bleeding, ingestion of poison, or for gastric dilation
    - Tubes types include Ewald, Levin, and Salem sump
- Salem sump tubing has a blue pigtail for negative air release, preventing vacuum pressure if the tube adheres to the stomach lining while allowing secretions to drain continuously
    - Do not clamp it when the tube is attached to suction
- Supplies needed for insertion will include NG tube, tape or commercial fixation device, clean gloves, water-soluble lubricant, topical anesthetic, cup of water and straw, catheter-tipped syringe (usually 30-60 mL), basin, pH strips, stethoscope, disposable towel, clamp or plug to close tubing after insertion, suction apparatus if attaching the tube to continuous or intermittent suction, gauze square to clean the outside of tubing after insertion, and a safety pin or elastic band or commercial device to secure tubing and prevent accidental removal.

Hepatitis and Cirrhosis: Priority Finding to Report

- Signs and symptoms include influenza-like manifestations (fatigue, decreased appetite with nausea, abdominal and joint pain), fever, vomiting, dark-colored urine, clay-colored stool, jaundice
- Normal levels of liver enzymes are as follows:
    - ALT: 4-36 units/L.
    - AST: 0-35 units/L.
    - ALP: 30-120 units/L
    - Total bilirubin level: 0.3-1 mg/dL
- Hepatic encephalopathy s/s are changes in neurologic status that can progress to stupor, asterixis (hand flapping), fetor hepaticus (fruity, musty breath odor), seizures, and coma.

- If esophageal varices develop, report abnormal vital signs, a decrease in hemoglobin level, or any signs of bleeding.

Electrocardiography and Dysrhythmia Monitoring: Identifying First-Degree Heart Block

- To conduct a rhythm analysis, perform the following steps:
    - Determine the heart rate
    - Determine whether the rhythm is regular or irregular
    - Analyze P waves for regularity and shape
    - Measure the PR interval for consistency (0.12-0.2 sec).
    - Measure the QRS duration and for consistency in appearance
    - Examine the ST segment. Depression or elevation is expected
    - Assess the T wave
    - Measure the QT interval
- This heart block causes a delay in travel of the signal through the heart, so ECG may show normal sinus rhythm with bradycardia
- Expect a PR interval >0.20 sec without disruption of atrial or ventricular conduction, just slower.

Hemodynamic Shock: Client Positioning

- All types of shock progress through the same stages and produce similar effects on body systems
    - Initial: No visible changes in client parameters; only changes on the cellular level
    - Compensatory: Measures to increase cardiac output to restore tissue perfusion and oxygenation
    - Progressive: compensatory mechanisms beginning to fail
    - Refractory: irreversible shock and total body failure
- Expect to see decreased blood pressure with widening pulse pressure, client is at risk for postural hypotension
- For hypotension, place client flat with both legs elevated to increase venous return

Pacemakers and Implantable Cardioverter/Defibrillators: Monitoring Client's Permanent Pacemaker Rhythm

- When monitoring a client's pacemaker by ECG, should see a pacer spike followed by a P wave for atrial pacing or a QRS complex for ventricular pacing
- Compare ECG rhythm to prescribed pacemaker settings and notify provider of any discrepancies
- Clients should check pulse daily at the same time and notify the provider if heart rate is less than pacemaker rate.

Hypertension: Actions for Hypertensive Crisis

- Hypertensive crisis is often the result of patient noncompliance with prescribed antihypertensive medications
- Manifestations include severe headache, extremely high blood pressure (SBP> 180 mm Hg, DBP >120 mmHg), blurred vision, dizziness, disorientation, and epistaxis
- Administer antihypertensive medications IV (nitroprusside, nicardipine, labetalol)
    - Goal is to lower BP by 20-25% the first hour but not drop to less than 140/90 mm Hg
    - Before, during, and after administration of an IV antihypertensive, monitor blood pressure q5-15 min.
    - Assess neurologic status (pupils, LOC, muscle strength) to monitor for cerebrovascular damage.

    - Monitor ECG to assess cardiac status.

Blood and Blood Product Transfusions: Monitoring for Transfusion Reaction

- Remain with the client for the first 15-30 minutes of the infusion as most severe reactions occur at this time and monitor vitals signs and infusion rate per facility policy.
- For older adult clients, monitor v/s q15 minutes throughout the transfusion because changes in pulse, blood pressure, and respiratory rate can indicate fluid overload or can be the only indicators of a transfusion reaction
- Acute hemolytic transfusion reaction: chills, fever, low back pain, tachycardia, flushing, hypotension, chest tightening or pain, tachypnea, nausea, anxiety, hemoglobinuria, impending sense of doom
- Febrile reaction: chills, increase of 1 degree or greater from the pretransfusion temperature, flushing, hypotension, tachycardia
- Allergic reaction: itching, urticaria, flushing if mild or bronchospasm, laryngeal edema, hypotension, and shock if anaphylactic
- Bacterial reaction: wheezing, dyspnea, chest tightness, cyanosis, hypotension, shock

Peripheral Vascular Disease: Caring for a Client Who Has Venous Insufficiency

- Venous insufficiency occurs secondary to incompetent valves in the deeper veins of the lower extremities, which allows pooling of blood and dilation of veins.
    - Veins inability to carry fluid and wastes from the lower extremities precipitates the development of swelling, venous stasis ulcers, and in advanced cases, cellulitis.
- Factors associated with venous insufficiency include sitting or standing in one position for a long period of time, obesity, pregnancy, thrombophlebitis
- Expected findings are stasis dermatitis (dark brown along ankles up to calves), edema, stasis ulcers typically around ankles
- Patients should elevate legs 4-5x daily for at least 20 minutes and elevate above the level of the heart when in bed
    - Avoid crossing legs and wearing constrictive clothing or stockings
    - Wear elastic compression stockings applied after legs have been elevated and swelling is at a minimum.