

N441 Week 11 Concepts:

1. Diabetes insipidus
 - Lab findings
 - Decreased urine specific gravity (<1.005)
 - Decreased urine osmolality (<200)
 - Decreased urine pH
 - Decreased urine sodium
 - Decreased urine potassium
 - Increased serum osmolality (>300)
 - Increased serum sodium
 - Increased serum potassium
 - Pharmacologic treatment and expected findings
 - Desmopressin =tX (replaces ADH)
 - Decreases urine volume
 - Increases urine concentration
 - Reduces frequent urination + thirst
2. SIADH
 - Manifestations
 - Early
 - HA
 - Weakness
 - Anorexia
 - Muscle cramps
 - Weight gain
 - Late
 - Personality changes
 - Hostility
 - Sluggish DTRs
 - N/V/D
 - Oliguria w/ dark yellow urine
 - Interventions
 - Restrict oral fluids (0.5-1 L/day)
 - Monitor I&O
 - Monitor VS for increased BP, tachycardia, and hypothermia
 - Auscultate lung sounds to monitor for PE
 - Weigh client daily
 - Report AMS
 - Reduce environmental stimuli
 - Monitor urine and blood chemistry

3. Cushing's

- Manifestations
 - Moon face/Buffalo hump
 - Purple striae on abdomen + back
 - Heavy trunk w/ thin extremities
 - Weight gain w/ **back + joint pain** (increased appetite)
 - **ED, irritable, depression, weak, fatigue, sleep disturbances**
 - Decreased immune + inflammatory response
 - Thin + fragile skin, petechiae
 - Tachycardia
 - Gastric ulcers
 - Hyperglycemic
 - Hypernatremic
- Interventions
 - Monitor I&O and daily weights
 - Assess for indications of hypervolemia
 - Maintain a safe environment to minimize r/o pathologic fracture or skin trauma
 - Prevent infection by performing frequent hand hygiene
 - Encourage physical activity within client's limitations
 - Provide meticulous skin care
 - Change client's position q 2 hr
 - Monitor for and protect against skin breakdown and infection
 - **Use surgical asepsis when performing dressing changes and any invasive procedures**

4. Addison's

- Causes
 - Damage or dysfunction of adrenal cortex
- Manifestations
 - Weight loss, weakness, fatigue
 - Craving for salt, hyperpigmentation
 - N/V, abdominal pain, constipation, diarrhea
 - Dizziness w/ orthostatic hypotension, dehydration
 - Hyponatremia, Hypoglycemia
 - Hypercalcemia, Hyperkalemia
 - Increased BUN/Creatinine

5. Pheochromocytoma

- Manifestations
 - Severe episodic HTN accompanied by
 - Severe/pounding HA

- Tachycardia w/ palpitations
- Profuse sweating
- Unexplained abdominal or chest pain
 - Triad = Severe HA, Tachycardia, Diaphoresis

6. Myxedema Coma

- Manifestations
 - Respiratory failure
 - Hypotension
 - Hypothermia
 - Hypoventilation
 - Bradycardia
 - Dysrhythmia
 - Hyponatremia
 - Hypoglycemia
- Nursing interventions
 - Maintain airway patency
 - Initiate aspiration precautions
 - Admin IV fluids as prescribed

7. Thyroid storm

- Causes
 - Uncontrolled hyperthyroidism occurring most often with Grave's disease
 - Or d/t infection, trauma, emotional stress, DKA, digitalis toxicity
- Manifestations
 - Hyperthermia/Hyperpyrexia (104-106 F)
 - HTN
 - Delirium/Agitation
 - Vomiting, Abd pain
 - Tachydysrhythmias, CP, dyspnea, palpitations
 - Cardiac manifestations**
- Pharmacologic treatment
 - Beta-blockers
 - Thionamide
 - Iodinated radiocontrast agent
 - Glucocorticoids
- Nursing interventions
 - Maintain patent airway
 - Provide continuous cardiac monitoring for dysrhythmias
 - Administer acetaminophen to decrease temperature
 - Cool pt. w/ cool packs or cooling blankets, cool IV fluids, monitor I&O, O2, sat

- Admin IV fluids

8. Diabetes mellitus

- Diagnostic labs and values pertinent to each
 - Diagnostic criteria for diabetes include 2 findings (on separate days) of at least 1 of the following:
 - Manifestations of diabetes (3 P's) plus casual blood glucose concentration >200 mg/dL (w/o regard to time since last meal)
 - Fasting blood glucose >126 mg/dL (fasting = no caloric intake x 8 hrs)
 - 2-hr glucose >200 mg/dL w/ oral glucose tolerance test
 - Glycosylated hemoglobin (A1C) >6.5%
 - Symptoms of diabetes plus casual plasma glucose concentration equal to or greater than 200 mg/dL (11.1 mmol/L). Casual is defined as any time of day without regard to time since last meal. The classic symptoms of diabetes include polyuria, polydipsia, and unexplained weight loss.

OR

- Fasting plasma glucose greater than or equal to 126 mg/dL (7.0 mmol/L). Fasting is defined as no caloric intake for at least 8 hours.

OR

- Two-hour postload glucose equal to or greater than 200 mg/dL (11.1 mmol/L) during an oral glucose tolerance test. The test should be performed as described by the World Health Organization, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.

OR

- A1C \geq 6.5% (48 mmol/mol).
- In the absence of unequivocal hyperglycemia with acute metabolic decompensation, these criteria should be confirmed by repeat testing on a different day. The third measure is not recommended for routine clinical use.

9. Hypoglycemia

- Manifestations
 - Mild: hunger, nervousness, palpitations, sweating, tachycardia, tremor
 - Moderate: confusion, double vision, drowsiness, emotional changes, HA, impaired coordination, inability to concentrate, irrational or combative behavior, lightheadedness, numbness of the lips and tongues, slurred speech
 - Severe: difficulty arousing, disoriented behavior, loss of consciousness, seizures
- Interventions
 - Check blood glucose level.
 - Follow guidelines outlined by the provider or diabetes educator.

- Instruct the client who has hypoglycemia (glucose of <70) to take 15-20g of readily absorbable carbohydrates (4-6 oz of fruit juice or regular soft drink, glucose tablets or glucose gel per package instructions, 6-10 hard candies, or 1 tbsp of honey) and recheck blood glucose in 15 min.
- Repeat the administration of carbohydrates if not WNL, and recheck blood glucose if 15 min.
- If blood glucose is WNL, have a snack containing a carbohydrate and protein (if the next meal is more than 1 hr away). Blood glucose increases approximately 40mg/dL over 30 min following ingestion of 10g of absorbable carbohydrate.
- If the client is unconscious or unable to swallow, administer glucagon subcutaneous or IM (repeat in 10 if still unconscious) and notify the provider. Place the client into a lateral position to prevent aspiration.
- In acute care, the nurse should administer 50% dextrose if IV access is available. Consciousness should occur within 20 min.
- Once consciousness occurs and the client is able to swallow, have the client ingest oral carbohydrates.

Simple Carbohydrates to Treat Hypoglycemia

- Commercially prepared glucose tablets
- 6-10 Life Savers or hard candy
- 4 tsp of sugar
- 4 sugar cubes
- 1 tbsp of honey or syrup
- ½ cup of fruit juice or regular (nondiet) soft drink
- 8 oz of low fat milk
- 6 saltine crackers
- 3 graham crackers

10. DKA

○ Manifestations

- Hyperglycemia (>300 - 1000)**
- Dehydration and electrolyte loss (d/t polyuria)**
- Metabolic acidosis**
- Hyperglycemia, dehydration (normal to lose 1-3L), electrolyte loss, metabolic acidosis
- Ketones in blood and urine
- Rapid onset
- Polyuria, polydipsia,
- HA, ortho hypotension -- > dehydration
- fatigue, blurred vision

- anorexia, n/v, abd pain (GI^{***})
 - fruity breath
 - alert, lethargic, or coma
 - Hyperventilation, deep but not labored resps = kussmaul resps
 - Ketoacidosis = low bicarb, pH, and PCO₃
 - increase in Cr, Hct, BUN
- Lab findings
 - Increased Cr/ BUN
 - Decreased serum pH
 - Treatment
 - Rehydration = #1
 - Initial fluid of choice is 0.9% NS □ rate of infusion dependent on clinical state of patient
 - If pt hypernatremic □ 0.45% saline in order to provide electrolyte free water
 - When BG reaches 200-300 or less □ change to D5W to prevent decline in blood glucose level and so that insulin can be continued to achieve ketone clearance
 - Restore electrolytes
 - Major electrolyte of concern □ POTASSIUM
 - Initial plasma concentration may be low, normal, or high, but more often than not tends to be high (hyperkalemia)
 - Rehydration leads to:
 - Increased plasma volume and subsequent decreases in serum potassium
 - Increased urinary excretion of potassium
 - Reverse acidosis
 - Reversed with the use of insulin
 - Insulin is usually infused IV at a slow, continuous rate (e.g., 5 units/hr)
 - Hourly blood glucose values must be measured
 - Regular insulin (only IV insulin) may be added to IV solutions
 - Insulin Administration
 - IV insulin @ rate of 5 units/ hr
 - Only “regular” insulin may be administered IV

11. HHS

- Treatment
 - Rehydration
 - Insulin administration

- Monitor fluid volume and electrolyte status
- Monitor for hypervolemia d/t massive rehydration

Week 12 Concepts:

12. Pancreatitis

- Manifestations
 - severe, constant, knife-like pain (LUQ, mid-epigastric, and/or radiating to back)
 - Sudden onset of severe, boring pain (goes through the body)
 - Epigastric, radiating to back, left flank, or left shoulder
 - Worse when lying down
 - Pain relieved somewhat by fetal position or sitting upright, bending forward
 - N/V/ Weight loss
 - Seepage of blood-stained exudates into tissue as a result of pancreatic enzymes actions
 - Ecchymosis on the flanks - Turner's sign
 - Bluish-gray periumbilical discoloration - Cullen's sign
 - Generalized jaundice
 - Absent or decreased bowel sounds
 - Warm, moist skin: fruity breath (hyperglycemia)
 - Ascites
- Lab findings
 - Serum lipase - increases slowly but remains elevated for up to 2 weeks
 - WBC count - increased d/t infection/inflammation
 - Serum liver enzymes and bilirubin - increased with associated biliary dysfunction
- Pain-relief interventions
 - Fetal, side-lying, HOB elevated, sitting up or leaning forward
 - Opioid analgesics
 - NPO/ rest the pancreas - TPN if severe
 - administer antiemetics
 - NG tube if vomiting or ileus
 - no alcohol consumption/ no smoking
 - limit stress, pain management

13. EGD

- Client education pre-procedure
 - NPO 6 – 12 hrs pre EGD

- May have Bloody sputum, sore throat after procedure
 - Nursing interventions
 - Assess gag reflex after
 - NPO 6 – 12 hrs pre EGD
 - Bloody sputum, sore throat
 - May be awake – twilight drug (propofol/ versed)
 - Make sure to educate PT before b/c meds will make them groggy

14. GI bleeds

- Priority assessment
 - Identify S/Sx of shock (low BP, high HR)
 - Monitor urine output
 - Administer isotonic fluids (LR or NS) and/or blood for volume replacement
 - First-line management □ endoscopy (performed w/in 24 hrs of onset of bleeding)

15. AKI

- Causes
 - Pre renal: Occurs as a result of volume depletion and prolonged reduction of blood flow to the kidneys, which leads to ischemia of the nephrons; occurs before damage to the kidney; early intervention restoring fluid volume deficit can reverse AKI and prevent CKD
 - Intra Renal: Occurs as a result of direct damage to the kidney from lack of oxygen (acute tubular necrosis)
 - Post Renal: Occurs as a result of bilateral obstruction of structures leaving the kidney
- Lab findings
 - Serum creatinine gradually increases 1-2 mg/dL every 24-48 hr, or 1-6 mg/dL in 1 week or less
 - BUN can increase 80 to 100mg/dL within 1 week
 - Urine specific gravity varies in postrenal type;
 - can be elevated up to 1.030 in prerenal type
 - diluted as low as 1.000 in intrarenal type
 - Serum electrolytes:
 - sodium can be decreased (prerenal azotemia) or increased (Intrarenal azotemia)
 - hyperkalemia, hyperphosphatemia, hypocalcemia
 - Hct: decreased
 - UA: presence of sediment (RBS, casts)
 - ABG: metabolic acidosis

16. CKD

- o Dietary restrictions with examples of each
 - Restrict dietary Na⁺, K⁺, Ph⁻, and Mg⁺
 - Provide a diet that is high in carbohydrates and moderate in fat
 - Restrict intake of fluids (based on urinary output)
 - Limit OTC NSAIDs, salt, alcohol, smoking

- o Lab findings
 - UA: hematuria, proteinuria, and decrease in specific gravity
 - Serum creatinine: gradual increase over months to years
 - BUN: gradual increase with elevated serum Cr over months to years
 - Serum electrolytes:
 - Decreased Na⁺ (dilutional) and calcium
 - increased K⁺, Ph⁻, Mg⁺
 - CBC: decreased Hgb and Hct from anemia secondary to loss of erythropoietin in CKD

- o Nursing interventions
 - Report & monitor irregular findings
 - Assess and monitor vascular access or peritoneal dialysis insertion site
 - Obtain a detailed medication and herb history to determine the client's risk for continued kidney injury
 - Control protein intake based on the client's stage of CKD and type of dialysis prescribed
 - Restrict dietary Na⁺, K⁺, Ph⁻, and Mg⁺
 - Provide a diet that is high in carbohydrates, moderate in fat, low in protein/ fluids
 - Restrict intake of fluids (based on urinary output)
 - Adhere to meticulous cleaning of areas on skin not intact and access sites to control infections
 - Balance the client's activities and rest
 - Prepare the client for hemodialysis, peritoneal dialysis, and hemofiltration if indicated
 - Provide skin care in order to increase comfort and prevent breakdown
 - Provide emotional support to the client and family
 - Encourage the client to ask questions and discuss fears
 - Administer medications as prescribed

17. Peritoneal dialysis

- o What is it, how does the system work
 - Involves instillation of hypertonic dialysate solution into the peritoneal cavity and subsequent dwell times; drain the dialysate solution that includes the waste productions; the peritoneum serves as the filtration membrane

18. ESRD

- o Manifestations
 - End-stage kidney disease exists when 90% of the functioning nephrons are destroyed and are no longer able to maintain fluid, electrolyte, and acid-base homeostasis
 - Dialysis or kidney transplantation can maintain life, but neither is a cure for CKD

19. Kidney biopsy

- o Nursing interventions
 - Clients receive sedation and ongoing monitoring
 - Pre-procedure
 - Obtain informed consent
 - Obtain urine specimen
 - Review coagulation studies
 - NPO for 4-6 hrs
 - Post-procedure
 - Monitor VS following sedation
 - Assess dressings and UO (hematuria)
 - Review Hgb and Hct values
 - Administer prn pain medications

20. Kidney transplants

- o Contraindications
 - Conditions that increase the risks involved in kidney transplantation surgery, lifelong immunosuppression, and organ rejection
 - Age <2, Age >70
 - Advanced, untreatable cardiac disease
 - Chemical dependency
 - Chronic infections or system diseases
 - Coagulopathies and certain immune diseases
 - Morbid obesity, DM/ COPD
 - Untreated GI diseases, such as peptic ulcer disease

21. Organ rejection manifestations

- Hyperacute: w/in 48hr after surgery
 - Fever, HTN, pain at transplant site
- Acute: 1wk-2yrs after surgery
 - Oliguria, anuria, low-grade fever, HTN, tenderness of new kidney, lethargy, azotemia, fluid retention

- Chronic: gradual over months-years
 - fever, increased BP, swelling/tenderness over new kidney, Oliguria, gradual return of azotemia, fluid retention/ edema/ wt gain, electrolyte imbalance, fatigue,
 - Pts taking cyclosporine may be asymptomatic – only has rise in Cr

22. Dialysis types

- Peritoneal
 - tX for choice for older adults
 - Involves instillation of hypertonic dialysate solution into the peritoneal cavity and subsequent dwell times; drain the dialysate solution that includes the waste productions; the peritoneum serves as the filtration membrane
 - Client should have an intact peritoneal membrane without adhesions from infection or multiple surgeries
- Hemodialysis
 - Shunts blood from the body through a dialyzer and back into circulation
 - Requires vascular access
 - Indications:
 - Renal insufficiency, AKI, CKD
- Both:
 - Functions:
 - Rids the body of excess fluid and electrolytes
 - Achieves acid-base balance
 - Eliminates waste products
 - Restores internal homeostasis by osmosis, diffusion, and ultrafiltration