Test 2 Concepts

- Fluid volume deficit
    - Manifestations
        - Acute weight loss
        - Decreased skin turgor
        - Oliguria
        - Concentrated urine
        - Prolonged cap refill time
        - Low CVP
        - Decreased BP
        - Flattened neck veins
        - Dizziness, weakness
        - Thirst and confusion
        - Increased pulse
        - Muscle cramps
        - Sunken eyes
        - Increased temperature
        - Cool, clammy, pale skin
    - Diagnostic findings
        - Increased Hemoglobin and hematocrit
        - Increased serum and urine osmolality and specific gravity
        - Decreased urine sodium
        - Increased BUN and Creatinine
        - Increased urine specific gravity and osmolality
- Fluid volume overload
    - Manifestations
        - Acute weight gain
        - Peripheral edema and ascites
        - Distended jugular vein
        - Crackles
        - Elevated CVP
        - SOB
        - Increased BP
        - Bounding pulse
        - Cough
        - Increased respiratory rate
        - Increased urine output
    - Nursing interventions
        - Measure I+Os
        - Daily weights

        - Assess breath sounds
        - Monitor degree of edema
        - Promote rest
        - Restrict sodium intake
        - Monitor parenteral fluid therapy
        - Administer appropriate medications
    - Complications
        - Pulmonary edema
        - CHF
        - COPD
- Normal Electrolyte Ranges
    - Be able to identify abnormalities
        - Sodium: 135-145
        - Potassium: 3.5-5.0
        - Calcium: 8.6-10.2
        - Magnesium 1.3-2.3
        - Phosphate 2.5-4.5
        - Chloride: 97-107
- Electrolyte imbalances
    - General risk factors
        - Age
        - NG suctioning
    - Understand which elevated or decreased values can cause severe conditions
        - Hypo/hyperkalemia
- Sodium imbalances (hypo/hyper)
    - Manifestations
    - Hypo
        - Poor skin turgor
        - Dry mucosa
        - Headache
        - Decreased salivation
        - Decreased BP
        - Nausea
        - Abdominal cramping
        - Neuro changes (Confusion)
    - Hyper
        - Thirst

        - Elevated temperature
        - Increased BP
        - Dry, swollen tongue
        - Sticky mucosa
        - Neuro symptoms
        - Restlessness, weakness
- Potassium imbalances (hypo/hyper)
    - Manifestations
    - Hypo
        - Fatigue
        - Anorexia
        - Nausea/Vomiting
        - Muscle weakness and cramps
        - Paresthesia
        - Glucose intolerance
        - Decreased muscle strength
        - Decreased DTR
    - Hyper
        - Cardiac changes and dysrhythmias
        - Muscle weakness with potential respiratory impairment
        - Paresthesia
        - Anxiety
        - GI manifestations
    - Nursing interventions
    - Hypo
        - Assessment
        - Monitor EKG and ABGs
        - Dietary potassium
        - Nursing care for IV potassium
    - Hyper
        - Monitor EKG
        - Monitor potassium levels
        - Mix IVs with potassium well
        - Potassium restriction
    - Treatment
    - Hypo
        - Potassium Chloride (needs to be diluted)
        - Increase potassium rich foods
    - Hyper

        - Limit potassium
        - Kayexalate (polystyrene sulphanate)
        - IV sodium bicarbonate
        - IV calcium gluconate
        - Regular insulin
        - Hypertonic Dextrose
        - Beta-2 adrenergic agonists
        - Loop or Thiazide diuretics (If no renal impairment)
        - Dialysis
    - Patient education
    - Hypo
        - Teach about potassium rich foods
    - Hyper
        - Potassium restriction/dietary teaching
    - EKG changes
    - Hypo
        - Prominent U-wave
    - Hyper
        - Peaked T-wave
- Calcium imbalances (hypo/hyper)
    - Manifestations
    - Hypo
        - Tetany
        - Circumoral numbness
        - Paresthesia
        - Hyperactive DTR
        - Trousseaus sign
        - Chvostek’s sign
        - Seizures
        - Respiratory symptoms of dyspnea and laryngospasm
        - Abnormal clotting
        - Anxiety
    - Hyper
        - Muscle weakness
        - Incoordination
        - Anorexia
        - Constipation

        - Nausea/vomiting
        - Abdominal and bone pain
        - Polyuria
        - EKG changes and dysrhythmias
    - EKG changes
    - Hypo
        - Prolonged QT and ST interval
    - Hyper
        - Short QT and ST segment
        - Widened or flat T-wave
- ABG
    - Components of ABG
        - pH 7.35-7.45
        - CO2 35-45
        - HCO3 22-26
        - PaO2 80-90
    - Interpreting results (Acid-Base imbalances)
    - EKG findings from imbalances
        - Peaked T-waves with respiratory acidosis
- Respiratory Alkalosis
    - Nursing interventions
        - Oxygen through non-rebreather, let bag fill up
        - Correct the cause
        - Breath into bag
- Septic shock
    - Assessment findings
        - Persistent decreased BP
        - Hypoxia
        - Increased temperature
        - Increased WBC
        - Increased HR
        - Increased RR
        - Flushed skin
    - Nursing interventions
        - IV access

        - Secure airway
        - Hand washing
        - Antibiotics
        - Fluids
        - ABG
        - Blood cultures
        - Serum lactate and CBC
- MODS
    - Nursing interventions
        - Set clear expectation
        - Supporting the patient and monitoring organ perfusion
        - Provide information and support family members
        - Address end of life decisions
        - If they survive inform them of goals of rehab and expectations for progress
    - Priority
        - Prevention is top priority
        - Early detection
- Cardiogenic shock
    - Causes
        - Acute MI
        - Severe hypoxemia
        - Tension pneumothorax
        - Cardiomyopathies
        - Valvular stenosis or regurgitation
        - Cardiac tamponade
        - Dysrhythmias
        - Blunt cardiac injury
    - Nursing interventions
        - Preventing
        - Monitoring hemodynamic status
        - Administer medications, IV fluids
        - Maintain intra-aortic balloon counter pulsation
        - Ensure safety, comfort
    - Treatment goals
        - Limit further myocardial damage
        - Preserve healthy myocardium
        - Improve cardiac function by increasing cardiac contractility, decreasing ventricular afterload or both
        - Correct underlying goals

        - Initiate first line treatment
- Anaphylactic shock
    - Treatment
        - Epinephrine
        - Diphenhydramine and ranitidine
        - Nebulized bronchodilators
        - Fluid restriction
        - Maintain patent airway
- Neurogenic shock
    - Manifestations
        - Hypotension
        - Bradycardia
        - Dry warm skin
- Hypovolemic shock
    - Manifestations
        - Anxiety
        - Decreased urine output
        - Increased HR, CO, RR
        - Decreased BP, CVP
    - Resuscitation fluid options
        - Depends on cause- blood, NS, Hypo/hypertonic fluids
- Stages of shock
    - Manifestations
    - Compensatory
        - BP = Normal
        - HR > 100
        - RR >20/min, $PaCO_2$ <32
        - Skin = cold, clammy
        - Urinary output = decreased
        - Mentation = confusion or agitation
        - Acid base = respiratory alkalosis
    - Progressive
        - Lungs fail first
        - BP = Systolic < 90; MAP < 65 requires fluid resuscitation to support BP
        - HR > 150
        - RR = rapid, shallow, crackles, PaO_2 <80, $PaCO_2$ > 45
        - Skin = mottled, petechiae
        - Urine output = < 0.5 mL/kg/hr

        - Mentation = lethargy
        - Acid base = metabolic acidosis
    - Refractory
        - BP = requires mechanical or pharmacologic support
        - HR = Erratic or asystole
        - RR = requires intubation and mechanical ventilation and oxygenation
        - Skin = Jaundice
        - Urinary output = anuria, requires dialysis
        - Mentation = unconscious
        - Acid base = profound acidosis
    - Family education
        - Explain the situation and what is being done

- Shock
    - Manifestations
        - Anxiety or agitation/restlessness.
        - Bluish lips and fingernails.
        - Chest pain.
        - Confusion.
        - Dizziness, lightheadedness, or faintness.
        - Pale, cool, clammy skin.
        - Low or no urine output.
        - Profuse sweating
    - Interventions
        - Identify the cause of shock
        - Administering IV fluids and O2
        - Obtain necessary lab test to r/o
        - Treat metabolic imbalances or infection
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    - Key assessments