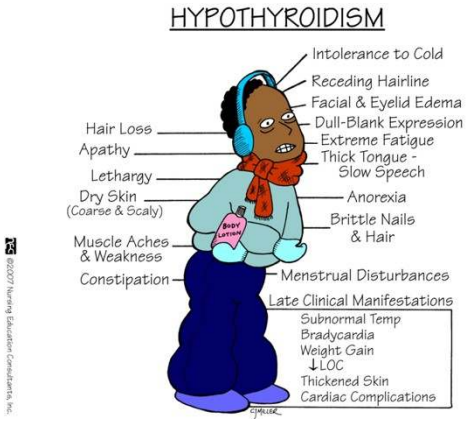
Med Surg Exam 3 - med surg exam 3 notes

Primary Concepts Of Adult Nursing (Nova Southeastern University)

Hypothyroidism

Hyposecretion of thyroid hormone→slowed metabolic rate

- Thyroid deficiency can affect all body functions and can range from mild, subclinical forms to myxedema (advanced, life threatening form)
- Most common cause in adults is autoimmune thyroiditis (Hashimoto's disease), in which the immune system attacks the thyroid gland

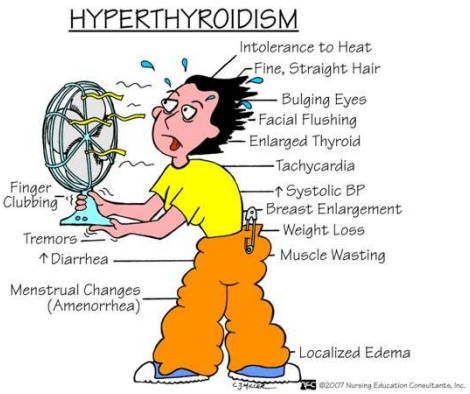


- **Clinical manifestations**
  - Extreme fatigue (makes it difficult for person to complete a full day's work)
  - Hair loss, brittle nails, dry skin, numbness and tingling of fingers
  - Menstrual disturbances
  - Myxedema coma: rare life threatening condition, decompensated state of severe hypothyroidism in which the patient is hypothermic and unconscious
    - Precipitated by infection, use of sedatives or opioids, cold weather, or forgetting to take thyroid medication
    - Patient initially shows signs of depression, diminished cognitive status, lethargy, and somnolence
    - Hyponatremia, hypoglycemia, hypoventilation, hypotension, bradycardia, hypothermia
- **Medical management**
  - Objectives: restore a normal metabolic state by replacing the missing hormone, as well as prevention of disease progression and complications
  - Pharmacologic therapy
    - Synthetic levothyroxine (Synthroid or Levothroid)
    - Myxedema coma: give T4 + T3. T3 given until patient is stable, continue T4
    - Cardiac dysfunction: long term hypothyroid patients usually have elevated cholesterol, atherosclerosis, and coronary artery disease→angina or dysrhythmias can occur when thyroid replacement is intiated because thyroid hormones enhance the cardiovascular effects of catecholamines (if angine or dysrhythmias occur, thyroid hormone administration is discontinued, may later be prescribed at lower dose)
- **Nursing management**
  - Medications are administered to the patient with extreme caution because of the potential for altered metabolism and excretion, depressed metabolic rate and respiratory status

Hyperthyroidism

form of thyrotoxicosis resulting from excessive synthesis and secretion of thyroid hormone by the thyroid

- Most common causes are Grave's disease, toxic multinodular goiter, and toxic adenoma
  - Grave's disease: autoimmune disorder that results from an excessive output of thyroid hormones caused by abnormal stimulation of thyroid gland by circulating immunoglobulins
- **Clinical manifestations**
  - Nervousness; emotionally hyper excitable, irritable, apprehensive, cannot sit quietly, palpitations, abnormally rapid pulse, tremor of hands, weight loss
  - Tolerate heat poorly, perspire freely, flushed skin, skin that is warm, soft, and moist
  - Exophthalmos (gives a startled impression, not always reversible)
  - Thyroid storm: form of severe hyperthyroidism, usually abrupt in onset. Patient is critically ill and requires observation and aggressive and supportive nursing care during and after
    - Usually precipitated by stress (injury, infection, pregnancy)
    - Clinical manifestations: high fever (>101), extreme tachycardia (>130), exaggerated hyperthyroid symptoms, altered mental status
    - Management: reduce body temperature and heart rate and prevent vascular collapse
      - Hypothermia blanket, humidified oxygen, IV fluids
- **Diagnostics**
  - Thyroid gland invariably enlarged, soft, may pulsate, thrill may be palpated, bruit may be heard
    - Signs of greatly increased blood flow through the thyroid gland
  - Decreased TSH and increased T4



- **Medical management**
  - Appropriate treatment depends on underlying cause
  - Directed toward reducing thyroid hyperactivity to relieve symptoms and prevent complications
  - Grave's disease: radioactive iodine
  - Treatments: radioactive iodine, anti-thyroid medications, and surgery
    - Complications: relapse or recurrent hyperthyroidism or permanent hyperthyroidism
- **Nursing management**
  - Nutritional status: appetite is increased but may be satisfied by several well balanced meals of small size. Avoid highly seasoned foods to reduce diarrhea. Weight and dietary intake are recorded to monitor nutritional status.
  - Coping measures: avoid stressful experiences
  - Normal body temperature: finds normal room temperature too warm, maintain cold environment
  - Potential complication→thyroid storm: nurse monitors patient for signs and symptoms that may be indicative of thyroid storm
    - Cardiac and respiratory: vital signs, cardiac output, ECG, ABG, pulse ox
    - Oxygen is administered to prevent hypoxia, improve tissue oxygenation, and meet high metabolic demands
    - IV fluids given to maintain blood glucose levels and replace lost fluids

Thyroid Cancer/Thyroidectomy

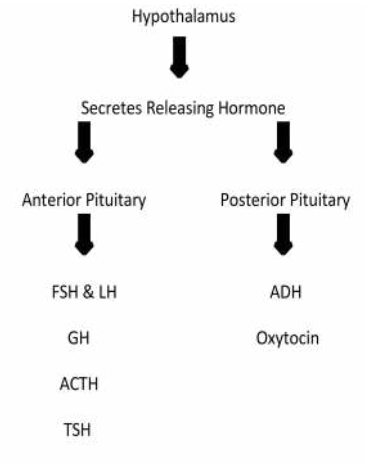
- **Diagnostics**
  - Lesions that are single, hard, and fixed on palpation
  - Needle biopsy used as an outpatient procedure to make a diagnosis
- **Medical management**
  - Treatment of choice→surgical removal (thyroidectomy)
    - Attempts are made to spare parathyroid tissue to reduce risk of post op hypocalcemia and tetany
    - After surgery, thyroid hormone is administered in suppressive doses to lower the levels of TSH to a euthryoid state (normal function). If remaining thyroid tissue is inadequate to produce sufficient thyroid hormone, thyroxine is required permanently
    - Later follow up includes clinical assessment for recurrence of nodules or masses in the neck and signs of hoarseness, dysphagia, or dyspnea
- **Nursing management**

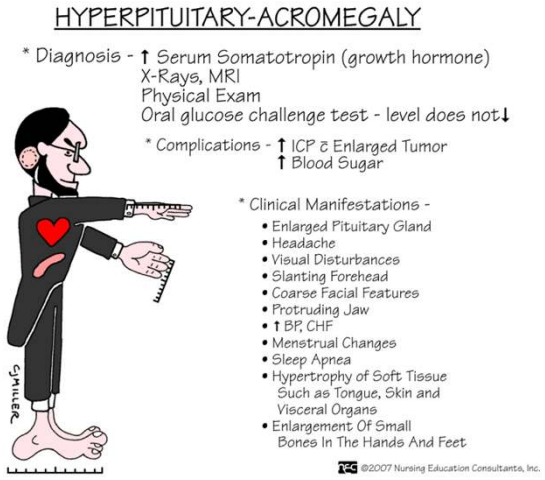
  - Important pre-op goals: prepare patient for surgery and reduce anxiety
    - Quiet and relaxing activities are encouraged
  - Pre-op teaching
    - Diet high in carbs and proteins and a high daily calorie consumption to keep up with increased metabolic activity and rapid depletion of glycogen reserves
    - Avoid tea, coffee, and other stimulants
    - Show how to support the neck with hand after surgery to prevent stress on incision
  - Post-op care
    - Periodically assess surgical dressings
      - Monitor BP and pulse for indication of internal bleeding→patient complains of fullness or pressure at incision site
    - Difficulty in respiration can occur due to edema of the glottis, hematoma formation, or injury to the laryngeal nerve→requires an airway be inserted(trach kit kept at bedside)
    - Intensity of pain is assessed and analgesics given
      - Most comfortable position is semi-Fowlers position with the head elevated and supported by pillows
    - IV fluids administered, water given as soon as nausea subsides and bowel sounds are present
      - May be some difficulty swallowing at first (use ice and cold fluids)
    - Patient advised to talk as little as possible to avoid edema of vocal cords
      - Note voice changes
    - Patient encouraged to be out of bed as soon as possible and eat foods easily swallowed
    - Monitor for signs of tetany (hyperirritability of the nerves→may cause laryngospasm→obstructs airway)
  - Home care
    - Discharged within 1-2 days
    - Rest, relaxation, adequate nutrition and avoid putting strain on incision

Pituitary Hypersecretion/Hyposecretion

anterior pituitary: FSH, LH, ACTH, TSH, GH

- **Hypersecretion**
  - Over secretion of GH in adults→**acromegaly**
    - Enlargement of peripheral body parts without an increase in height





  - Over secretion of GH in children→**gigantism**
    - Person may grow 7 or 8 feet tall
  - Over secretion of ACTH→**Cushing's**
- **Hyposecretion**
  - Can result from disease of pituitary gland itself or disease of hypothalamus
  - Result is extreme weight loss, emaciation, atrophy of all endocrine glands and organs, hair loss, impotence, amenorrhea, hypometabolism, and hypoglycemia
  - Coman and death occur if missing hormones are not replaces
  - Insufficient secretion of GH in children→**dwarfism**
  - "Panhypopituitarism": thyroid gland, adrenal cortex, and gonads atrophy because of loss of TSH

Hyperparathyroidism

caused by overproduction of parathormone by parathyroid glands and is characterized by bone decalcification and development of renal calculi containing calcium

- Conditions that involve lowered, not elevated, serum calcium levels may contribute to hyperparathyroidism because as calcium levels decrease, parathyroid hormone levels increase
- **Clinical manifestations**
  - May be asymptomatic
  - Apathy, fatigue, muscle weakness, nausea, vomiting, constipation, hypertension, cardiac dysrhythmias (all are attributable to the increased concentration of calcium in the blood)
  - Neuro: varies from irritability and neurosis to psychoses (direct action of calcium on brain)
  - Musculoskeletal: skeletal pain or tenderness, pain on weight bearing, pathological fractures, deformities, and shortening of body stature (caused by demineralization of bones)
  - Major complication: kidney stones in one or both kidneys (nephrolithiasis) related to an increased urinary retention of calcium and phosphorus
- **Diagnostics**
  - Elevation of serum calcium levels and an elevated concentration of parathormone
  - Bone changes detected on XRAY or bone scan in advanced diseases
  - Double antibody parathyroid hormone test: distinguishes between primary hyperparathyroidism and malignancy as a cause of hypercalcemia
- **Medical**
  - recommended treatment: surgical removal of abnormal parathyroid tissue (parathyroidectomy)
  - Daily fluid intake of 2000mL to prevent calculus formation, avoid dehydration
  - Thiazide diuretic avoided → decrease renal excretion of calcium, further elevating levels
  - Encourage patient to be mobile, bed rest increases calcium excretion and renal calculi
  - Patient advised to avoid a diet with restricted or excess calcium
- **Nursing**
  - Airway patency, dehydration, immobility, diet
  - Closely monitor for signs of tetany (may be early post op complication)
- **Complication: hypercalcemic crisis**
  - Acute hypercalcemic crisis can occur with extreme elevation of serum calcium levels
    - Levels greater than 13 mg/dL (3.25mmol/L) result in life threatening neurologic, cardiovascular, and kidney symptoms
  - Monitored for life threatening complications (airway obstruction)
  - Rapid rehydration and large volumes of IV solutions combined with calcitonin
    - Calcitonin promoted renal excretion of excess calcium and reduces bone resorption
    - Monitored for fluid overload → loop diuretic

Hypoparathyroidism

caused by abnormal parathyroid development, destruction of glands, and vitamin D deficiency

- Most common cause is near total removal of the thyroid gland
- Result: inadequate secretion of parathormone
    - Results in increased blood phosphate and decreased blood calcium levels
- **Clinical manifestations**
    - Irritability of neuromuscular system
    - Tetany → general muscle hypertonia, with tremor and spasmodic or uncoordinated contractions
        - Latent tetany: numbness, tingling, cramps in extremities, stiffness in hands and feet
        - Overt tetany: bronchospasm, laryngeal spasms, carpopedal spasms, dysphagia, photophobia, cardiac dysrhythmias, and seizures
- **Diagnostics**
    - Positive Chvostek's sign
        - Sharp tapping over facial nerve causes spasm or twitching of mouth, nose & eye
    - Positive Trousseau's sign
        - Carpopedal spams is induced by occluding the blood flow to the arm for 3 minutes with a blood pressure cuff
    - Labs
        - Low serum calcium levels
        - Increased serum phosphate levels
        - XRAY shows increased bone density
- **Medical**
    - Goal: increase serum calcium level to 9 or 10 mg/dL (2.2 to 2.5 mmol/L) and to eliminate symptoms of hypocalcemia and hyperphosphatemia
    - Hypocalcemia and tetany post thyroidectomy → immediate treatment is administration of IV calcium gluconate
    - Diet high in calcium and low in phosphorus
        - Milk, milk products, and egg yolk are restricted due to high phosphate
- **Nursing**
    - Care of post op patient directed toward detecting early signs of hypocalcemia and anticipating signs of tetany, seizures, and respiratory difficulties
    - Calcium gluconate should be available for emergency IV administration
    - Cardiac patient requires continuous cardiac monitoring and assessment

Pheochromocytoma

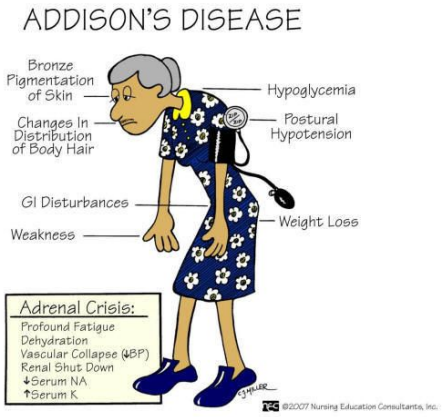
tumor that is usually benign and originates from chromaffin cells of the adrenal medulla

- Cause of high blood pressure in 0.1% of patients with hypertension and is usually fatal is undetected
- Peak age 40-50 years-old, men and women affected equally
- High incidence in family members→should be screened for tumor
- **Clinical manifestations**
  - Typical triad: headache, diaphoresis, and palpitations in patients with hypertension
  - Tremors, headache, flushing, and anxiety
  - Blood pressures exceeding 250/150 are life threatening and can cause cardiac dysrhythmias, aneurysm, stroke, and acute kidney failure
- **Diagnostic**
  - 5 Hs
    - Hypertension, headache, hyperhidrosis (excessive sweating), hypermetabolism, and hyperglycemia
  - Measurements of urine and plasma levels of catecholamines and metanephrine (MN), a catecholamine metabolite, are the most
  - direct and conclusive tests for overactivity of adrenal medulla→free MN detected in plasma
    - 24-hour urine sample
- **Medical**
  - During an attack of hypertension, tachycardia, anxiety, and the other symptoms of pheochromocytoma, bed rest with head of the bed elevated is prescribed to promote an orthostatic decrease in blood pressure
  - Definitive treatment is surgical removal of the tumor, usually with adrenalectomy
    - Watch for hypertensive crisis
    - Corticosteroid replacement required for bilateral, only temporary for removal of a single adrenal gland
    - Post op: hypoglycemia and hypotension may occur in response to sudden withdrawal of excessive amounts of catecholamines
- **Nursing**
  - Post op: monitored until stable with special attention to ECG changes, arterial pressures, fluid and electrolyte balance, and blood glucose levels. IV access required
    - Patient teaching: corticosteroids may be needed, describe medications and importance, teach to monitor blood pressure, teach to collect 24-hour sample
  - Periodic check ups required due to risk of recurrence of hypertension

Adrenal Insufficiency (Addison's Disease)

occurs when adrenal cortex function is inadequate to meet the patient's need for cortical hormones

- Autoimmune or idiopathic atrophy of the adrenal glands is responsible for the vast majority of cases
- Therapeutic use of corticosteroids is the most common cause of adrenocortical insufficiency
    - Symptoms may result from sudden cessation of exogenous adrenocortical hormonal therapy, which suppresses the body's normal response to stress → adrenal insufficiency should be considered in any patient who has been treated with corticosteroids

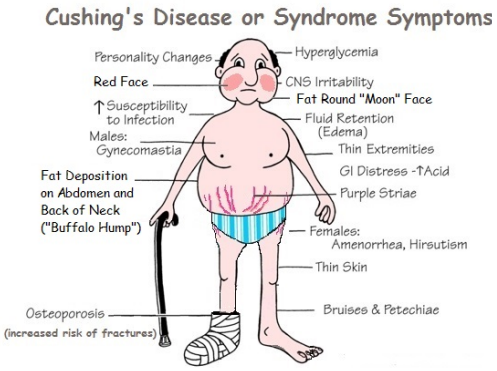


- **Clinical manifestations**
    - Muscle weakness, anorexia, GI symptoms fatigue, emaciation, dark pigmentation of mucous membranes and skin
    - Labs: low blood glucose, low serum sodium, high serum potassium
    - Addisonian crisis: hypotension, cyanosis, fever, nausea, vomiting, and classic signs of shock
        - May be caused by slight overexertion, exposure to cold, acute infection, or a decrease in salt intake
        - May lead to circulatory collapse, shock, and death if untreated
- **Diagnostics**
    - Confirmed by lab tests (hypoglycemia, hyponatremia, hyperkalemia, leukocytosis)
- **Medical**
    - Immediate treatment is directed toward combating circulatory shock
        - Restore blood circulation, administer fluids and corticosteroids, monitor vital signs, place patient in recumbent position with legs elevated
- **Nursing**
    - Assessing the patient
        - Presence of symptoms of fluid imbalance and patient's level of stress
        - Monitor blood pressure and pulse as patient moves from lying, sitting, and standing
            - Assessing for inadequate fluid volume
            - Decrease in systolic (20 or more) may indicate depletion of fluid volume
        - Skin assessed for changes in color and turgor
        - Assessed for changes in weight, muscle weakness, fatigue
    - Monitor and manage addisonian crisis
        - Monitoring for shock, hypotension, rapid and weak pulse, rapid respiratory rate, pallor, and extreme weakness
        - Stressors may include cold exposure, overexertion, infection, and emotional stress
        - Requires immediate treatment with IV fluids (glucose, sodium, missing steroid hormones, vasopressors)
    - Restore fluid balance
        - Encourage patient to consume foods and fluids that assist in restoring and maintaining fluid and electrolyte balance
            - Select foods high in sodium during GI disturbances and in hot weather

Cushing Syndrome

excessive adrenocortical activity

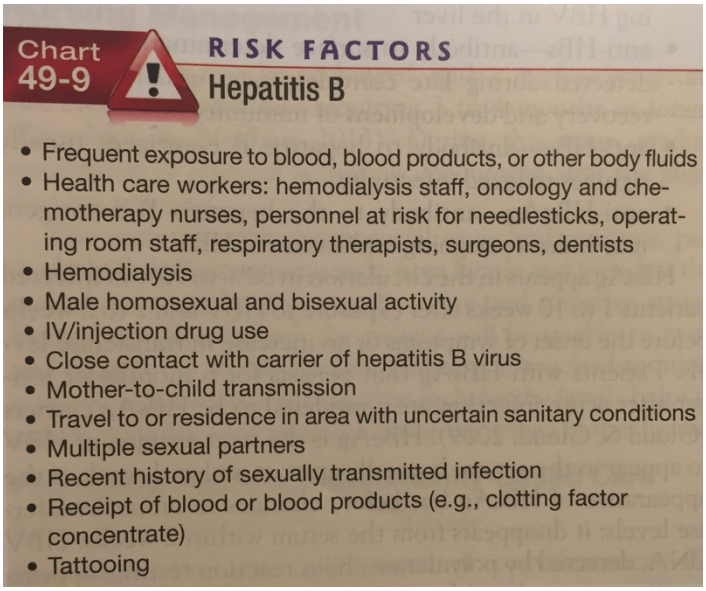
- Commonly caused by the use of corticosteroid medications and is infrequently the result of excessive corticosteroid production secondary to hyperplasia of the adrenal cortex
- **Clinical manifestations**
  - Central type obesity (buffalo hump in the neck, a heavy trunk, relatively thin extremities)
  - Skin is thin, fragile, and easily traumatized (ecchymosis and striae develop)
  - Patient complains of weakness, lassitude, sleep is disturbed
  - Protein catabolism→kyphosis, backache, compression fractures of vertebrae
  - Retention of sodium→hypertension and heart failure
  - Virilization develops in women
- **Diagnostics**
  - Serum cortisol, urinary cortisol, and low dose dexamethasone
    - Two of the three need to be unequivocally abnormal to diagnose
  - Indicators: increase in sodium and glucose, decrease in potassium
- **Medical**
  - Surgical removal of tumor is treatment of choice; radiation has also been successful
    - Post op: symptoms of adrenal insufficiency may appear 12-48 hours after surgery
  - If it is a result of administration of glucocorticoids, an attempt is made to reduce or taper the medication to a lower dosage



- **Nursing**
  - Major goals include decreased risk of injury, decreased risk of infection, increased ability to carry out self care activities, improved skin integrity, improved body image, improved mental function, and absence of complications
  - Decrease risk of injury: patient is weak and may require assistance. Foods high in protein, calcium, and vit D minimize muscle wasting and osteoporosis
  - Promote skin integrity: avoid traumatizing patient's fragile skin
  - At risk of addisonian crisis after treatment
  - Assess for fluid and electrolyte status by monitoring lab values and daily weight
    - Increased risk of glucose intolerance and hyperglycemia → blood glucose monitoring

Hepatitis

- Systemic viral infection that causes necrosis and inflammation of liver cells
- **Hepatitis A:** fecal oral transmitted
  - No jaundice, many asymptomatic, mild flu like symptoms
  - Prevent with vaccine and hand washing
  - Treatment: bed rest and nutritious diet
- **Hepatitis B:** blood, saliva, semen, vaginal secretions
  - Major cause of cirrhosis and liver cancer (related to alcoholics)
  - Prevent with vaccine, hand hygiene, safe sex
  - Treatment: adequate rest and nutrition
- **Hepatitis C:** blood, sexual contact
  - Not curable, no benefit from rest or diet
  - No vaccine



Portal Hypertension

- Increased pressure throughout portal venous system that results from obstruction of blood flow through and into damaged liver
  - Associated with hepatic cirrhosis
  - Two major consequences: ascites and esophageal varices

Ascites

increased abdominal girth and rapid weight gain, fluid in peritoneal cavity

- Failure of liver to metabolize aldosterone results in increased sodium and water retention by kidneys
- **Clinical manifestations**
  - Increased abdominal girth and rapid weight gain
  - Short of breath, striae, distended veins over abdominal wall, umbilical hernia, fluid and electrolyte imbalances
- **Diagnostics**
  - Percussion of abdomen (shifting dullness and fluid wave), daily measurements of abdominal girth and body weight
- **Medical**
  - Dietary modifications
    - Goal: negative sodium balance to reduce fluid retention
    - Added salts, butters, canned foods, should be avoided
  - Pharmacologic therapy: use of diuretics along with sodium restriction is successful in 90% of pts
  - Bed rest: upright posture is associated with activation of renin angiotensin aldosterone system
  - Paracentesis: removal of fluid from the peritoneal cavity through a puncture in abdominal wall
    - Now performed primarily for diagnostic examination of ascetic fluid
    - 5-6L for severe ascites
    - Patient teaching
      - Signed consent, empty bladder, upright position, monitor for hypovolemia, report increase in temperature, check site for leakage
- **Nursing**
  - Monitor I&O, abdominal girth, and daily weight
  - Closely monitor respiratory status because large volumes of ascites can compress the thoracic cavity and inhibit adequate lung expansion
  - Monitor for indications of encephalopathy (ammonia, creatinine, electrolyte levels)
  - Home teaching: avoid *all* alcohol, low sodium diet, take medication

Hepatic Cirrhosis

replacement of normal liver tissue with fibrosis that disrupts the structure and function of the liver

- **Clinical manifestations:** liver enlargement, portal obstruction, ascites, infection, peritonitis, edema, anemia, mental deterioration
    - Compensated cirrhosis: less severe and often vague symptoms
- **Diagnostics**
    - Low albumin, increased bilirubin, increased cholesterol, increased PT PTT & INR
    - Ultrasound used to measure difference in density of cells and scar tissue
    - CT/MRI used to show liver size, blood flow, and obstruction
    - Diagnosis confirmed with biopsy
    - ABG: ventilation-perfusion imbalance and hypoxia
- **Medical**
    - Management based on presenting symptoms
        - Antacids used to decrease gastric distress and minimize GI bleeding risk
        - Vitamins promote healing of damaged liver cells
        - Adequate diet and avoidance of alcohol are essential
- **Nursing:** promote rest, improve nutritional status, provide skin care, reduce risk of injury
    - Jaundice (hyperbilirubin), ascites (low albumin), altered LOC, paracentesis to drain fluid, give albumin
    - Backflow of blood → vomiting blood, splenomegaly, pancreatitis → stent bridge put in
    - Promote rest: reduces demands on the liver and increases the liver's blood supply
        - weight and I&O measured daily
    - Improve nutritional status
        - If ascites is present, small frequent meals are tolerated better than 3 large meals
        - Protein is restricted if encephalopathy develops
    - Skin care: subcutaneous edema, immobility, jaundice, infection, and risk of skin breakdown
    - Reduce risk of injury: protect from falls, at risk for bleeding from abnormal clotting
    - Monitor for complications
        - Bleeding and hemorrhage: decreased production of prothrombin and coag factors
        - Hepatic encephalopathy and coma
        - Fluid volume excess: increased cardiac output and decreased peripheral vascular resistance
    - Home teaching: exclusion of alcohol from the diet, sodium restriction in diet

Hepatic Encephalopathy

neuropsychiatric manifestation of hepatic failure associated with portal hypertension and shunting of blood from portal venous system into the systemic circulation

- Life threatening complication of liver disease that occurs with profound liver failure
- This reversible metabolic form of encephalopathy can improve with recovery of liver function
- Onset is insidious and subtle
- Ammonia is considered a major etiologic factor in the development of encephalopathy
- **Clinical manifestations**
  - Earliest symptoms: mental changes and motor disturbances
  - Asterixis: involuntary flapping of hands (seen in stage 2)
    - Handwriting sample taken daily
    - Constructional apraxia: inability to reproduce a simple figure in two or three dimensions
  - Fetor hepaticus: sweet, slightly fecal odor to the breath that is presumed to be of intestinal origin
- **Diagnostics**
  - Electroencephalogram shows generalized slowing, increase in amplitude of brain waves, and characteristic triphasic waves
- **Medical**
  - Focuses on identifying and eliminating the precipitating cause, initiating ammonia lowering therapy, minimizing potential medical complications of cirrhosis and depressed consciousness, and reversing the underlying liver disease
  - Correction of the possible reasons for deterioration such as bleeding, electrolyte abnormalities, or sedation is essential
  - Lactulose given to reduce ammonia levels
    - Monitor stools for water diarrhea → medication overdose
    - No other laxatives given during lactulose administration
  - IV glucose given to minimize protein breakdown
  - ABX (Flagyl, Xifaxan) used to reduce levels of ammonia forming bacteria in the colon

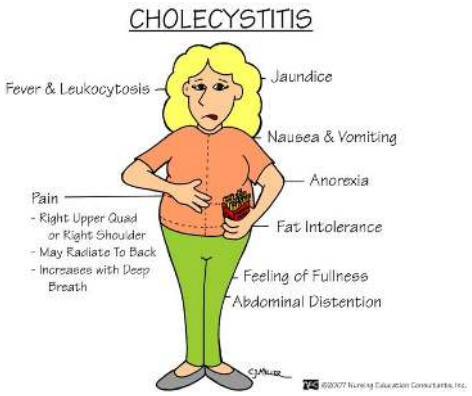
Neuro status assessed frequently	Mental status monitored (handwriting)	I&O and body weight recorded daily	Vital signs every 4 hours
Ammonia levels monitored	Protein intake restricted	Assess sites of infection	Electrolyte status monitored

- **Nursing**
  - Maintain a safe environment to prevent injury, bleeding, and infection
  - Potential for respiratory compromise is great given the patient's depressed neurologic status
    - Encourage deep breathing and position changes to prevent development of atelectasis, pneumonia, and other respiratory complications
  - Protein intake should not be restricted so severely, has been shown worsens nutritional status and increases mortality

Cholecystitis

inflammation of the gallbladder

- Causes pain, tenderness, and rigidity of the upper right abdomen that may radiate to the mid sternal area or right shoulder and is associated with nausea, vomiting, and usual signs of acute inflammation
- Calculous cholecystitis: gallbladder stone obstructs bile outflow → bile initiates a chemical reaction → autolysis and edema occur → blood vessels in gallbladder become compressed → vascular supply compromised → gangrene and perforation may result
- Acalculous cholecystitis: acute gallbladder inflammation in the absence of obstruction by gallstones
    - Occurs after major surgical procedures, severe trauma, or burns



Gallbladder Surgery

- Goals of surgery: relieve persistent symptoms, remove cause of biliary colic, treat acute cholecystitis
- Surgery may be delayed until the patient's symptoms have subsided or may be performed as an emergency procedure, if necessary
- Nursing goals: relief of pain, adequate ventilation, intact skin, improved biliary drainage, optimal nutritional intake, absence of complications
- Preop
    - Chest xray, ECG, and liver function tests may be performed
    - Vitamin K may be administered if prothrombin level is low
- Post op
    - Low Fowlers position
    - Fluids administered IV, soft diet started after bowel sounds return (usually next day)
    - NG suction (was inserted immediately before surgery) relieves abdominal distention
    - Pain: administer analgesics, help patient turn, cough, breathe deeply, cover with pillow
    - Improve respiratory status: deep breaths and cough every hour to expand lungs fully and prevent atelectasis (incentive spirometer, early ambulation)
    - Maintain skin integrity: drainage tube must be connected immediately, patient is observed for indications of infection, leakage of bile into the peritoneal cavity, and obstruction of bile drainage
        - If bile is not draining, obstruction is probably causing the bile to be forced back into the liver and into bloodstream→assess sclera for jaundice
        - Nurse observes stool color daily
    - Improve nutritional status: eat a diet low in fats and high in carbohydrates and proteins immediately after surgery
    - Monitor complications: bleeding (monitor vital signs and inspect surgical incision and drains for bleeding, report any change of color in stool)
        - Laparoscopic: asses for anorexia, vomiting, pain, abdominal distention, and temperature elevation → infection or disruption of GI tract

Cholelithiasis

calculi/gallstones

- Form in the gallbladder from solid constituents of bile; vary greatly in size, shape and composition
- More prevalent with increasing age
- Types of gallstones
    - Pigment: form when unconjugated pigments in bile precipitate to form stones
        - Risk increases in patients with cirrhosis, hemolysis, and infection of biliary tract
        - Cannot be dissolved and must be removed surgically
    - Cholesterol: cholesterol-saturated bile predisposes to the formation of gallstones and acts as an irritant that produces inflammatory changes in the mucosa of the gallbladder
        - Risk increases in patients who use oral contraceptives, estrogens, or clofibrate
        - Can be dissolved
- **Clinical manifestations**
    - Symptoms are either due to disease of the gallbladder itself or due to obstruction of the bile passages by a gallstone
    - Epigastric distress, such as fullness, abdominal distention, and vague pain in the RUQ of abdomen
    - Pain and biliary colic: usually associated with nausea and vomiting, noticeable several hours after a heavy meal
    - Jaundice: usually occurs with obstruction of the common bile duct (bile is then absorbed by blood and gives skin a yellow color, frequently marked by pruritus of the skin)
    - Changes in urine and stool color: feces no longer colored with bile→grayish or clay colored
    - Vitamin deficiency: obstruction of bile flow interferes with absorption of fat soluble vitamins
- **Diagnostics**
    - Ultrasonography is diagnostic procedure of choice because it is rapid and accurate and can be used in patients with liver dysfunction and jaundice
- **Medical**
    - Major objectives are to reduce the incidence of acute episodes of gallbladder pain and cholecystitis
    - Nutritional and supportive therapy: rest, IV fluids, NG suction, analgesia, and antibiotic agents
        - Diet immediately after an episode: low fat liquids
        - Fatty foods may induce an episode of cholecystitis

Acute Pancreatitis

auto digestion of the pancreas leading to inflammation

- Pancreatic duct becomes temporarily obstructed, accompanied by hyper secretion of the exocrine enzymes of the pancreas, which enter the bile duct, become activated, mix together with bile and back up (reflux) into pancreatic duct
- **Clinical manifestations**
  - Severe abdominal pain is major symptom that causes patient to seek medical care
  - Abdominal pain and tenderness and back pain result from irritation and edema of the inflamed pancreas (typically mid epigastric pain), usually frequent in onset (24-48 hours after heavy meal or alcohol)
    - Pain accompanied by abdominal distention, poorly defined palpable mass, decreased peristalsis, and vomiting that fails to relieve pain or nausea
  - Rigid or board like abdomen usually indicates peritonitis
  - Fever, jaundice, mental confusion, agitation
  - Hypotension reflects hypovolemia and shock → tachycardia, cyanosis, cold clammy skin
  - Respiratory distress and hypoxia
- **Diagnostics**
  - Serum amylase and serum lipase are elevated
  - Increased WBC and hypocalcemia also present
  - XRAY differentiated pancreatitis from other disorders that may cause similar symptoms
- **Medical**
  - All oral intake withheld to inhibit stimulation of pancreas and its secretion of enzymes
  - NPO/enteral route preferred over parenteral
  - Pain relief: may required parenteral opioids such as morphine or fentanyl
  - Intensive care: correction of fluid and blood loss and low albumin levels is necessary to maintain fluid volume and prevent renal failure
  - Respiratory care: indicated because of high risk of elevation of the diaphragm, pulmonary infiltrates, effusion, and atelectasis
- **Nursing**
  - Relieve pain and discomfort
  - Improve breathing pattern: semi Fowlers position to decrease pressure on the diaphragm by a distended abdomen and to increase respiratory expansion
    - Frequent position changes are necessary to prevent atelectasis
  - Improve nutritional status
    - Daily weights are useful
    - Enteral/parenteral feeding→monitor glucose every 4 to 6 hours
    - As condition improves, oral feedings are gradually reintroduced (high in protein and low in fat)
  - Maintain skin integrity
    - At risk for skin breakdown because of poor nutritional status, enforced bed rest, and restlessness which may result in pressure ulcers and breaks skin integrity
    - Even more increased risk in patient with drains put in (monitor drains for leakage)
    - Turned every 2 hours
  - Monitor complications

- Fluid and electrolyte disturbances (note skin turgor and mucous membranes, weigh daily, measure I&O, assess for ascites and abdominal girth daily)

Chronic Pancreatits

progressive destruction of the pancreas that leads to inflammation

- Cells are replaced by fibrous tissue with repeated attacks of pancreatitis
- Alcohol consumptions and malnutrition are major causes
- **Clinical manifestations**
  - Severe upper abdominal and back pain, accompanied by vomiting
  - Pain is so severe that even opioids do not provide relief→risk of opioid dependence is high
  - Weight loss, usually caused by decreased dietary intake secondary to anorexia or fear that eating will precipitate another attack
  - Malabsorption occurs late in the disease, when as little as 10% of pancreatic function remains
    - Digestion of proteins and fats is impaired→stools become more frequent, frothy, and foul smelling because of impaired fat digestion→steatorrhea
- **Diagnostics**
  - ERCP is most useful
- **Medical**
  - Directed toward preventing and managing acute attacks, relieving pain and discomfort, and managing exocrine and endocrine insufficiency of pancreatitis
  - Nonsurgical→non-opioid methods
    - Antioxidants, yoga, avoiding alcohol and foods that produced abdominal pain in the past
  - Surgical→indicated to relieve persistent abdominal pain & discomfort, restore drainage of pancreatic secretions, & reduce the frequency of acute attacks of pancreatitis & hospital stays
    - Patient teaching: may experience weight gain and improved nutritional status

Diabetes Mellitus

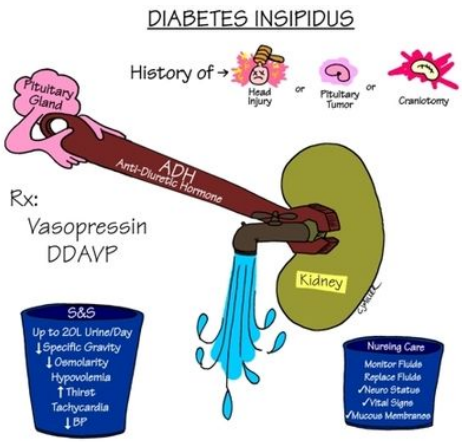
- **Type 1**
  - Combines genetic, immunologic, and possibly environmental factors contribute to beta cell destruction
  - Destruction of beta cells results in decreases insulin production, unchecked glucose production by the liver, and fasting hyperglycemia
- **Type 2**
  - Insulin resistance and impaired insulin secretion
  - To overcome insulin resistance and to prevent the buildup of glucose in the blood, increased amounts of insulin must be secreted to maintain the glucose level at a normal of slightly elevated level
    - If beta cells cannot keep up with the increased demand for insulin, the glucose level rises and type 2 diabetes develops
  - Usually detected incidentally
- **Clinical manifestations**
  - Class 3 Ps
    - Polyuria and polydipsia: occur as a result of the excess loss of fluid associated with osmosis diuresis
    - Polyphagia: results from catabolic state induced by insulin deficiency and the breakdown of proteins and fats
  - Fatigue and weakness, sudden vision changes, tingling or numbness in hands or feet, dry skin, skin lesions or wounds that are slow to heal, and recurrent infections
- **Diagnostics**
  - Elevated A1C
- **Medical**
  - Main goal is to normalize insulin activity and blood glucose levels to reduce the development of vascular and neuropathic complications
    - Complications: retinopathy, nephropathy, and neuropathy
  - Therapeutic goal for diabetes management is to achieve normal blood glucose levels without hypoglycemia while maintaining a high quality of life
  - Nutrition and exercise
- **Nursing**
  - Manage glucose control in hospital setting (blood glucose target 140-180)
- **Hypoglycemia**
  - Blood glucose falls below 70, insulin reaction
  - Can occur when there is too much insulin, too little food, or excessive physical activities
  - 15g fast acting carbohydrates given (no table sugar added)
  - Unconscious patient→1 mg glucagon
  - Prevented by consistent pattern of eating (snacks may be needed), insulin, and exercise

Mild	Sweating, tremor, tachy, palpitation, nervousness, hunger
Moderate	Inability to concentrate, headache, lightheadedness, confusion, slurred speech
Severe	Disoriented, seizures, difficulty swallowing, loss of consciousness

Diabetes Insipidus

deficiency of ADH

- ADH (vasopressin) retains water
  - Without ADH, there is an enormous daily output
- May occur secondary to head trauma, brain tumor, or surgical ablation of pituitary gland
- **Clinical manifestations**
  - Daily output greater than 250mL per hour of very dilute urine
  - Intense thirst→patient drinks 2-20L of fluid daily
- **Diagnostics**
  - Fluid deprivation test (withhold fluids for 8-12 hours)
- **Medical**
  - Replace ADH
  - Ensure adequate fluid replacement
  - Identify and correct underlying intracranial pathology
- **Nursing**
  - Physical assessment and patient education
    - Signs and symptoms of hyponatremia



SIADH

excessive ADH secretion

- Patients cannot excrete a dilute urine, retain fluids, and develop a sodium deficiency
- **Medical**
  - Eliminate underlying cause, if possible
  - Restrict fluid intake
  - Diuretic agents
- **Nursing**
  - Close monitoring of fluid I&O
  - Daily weight