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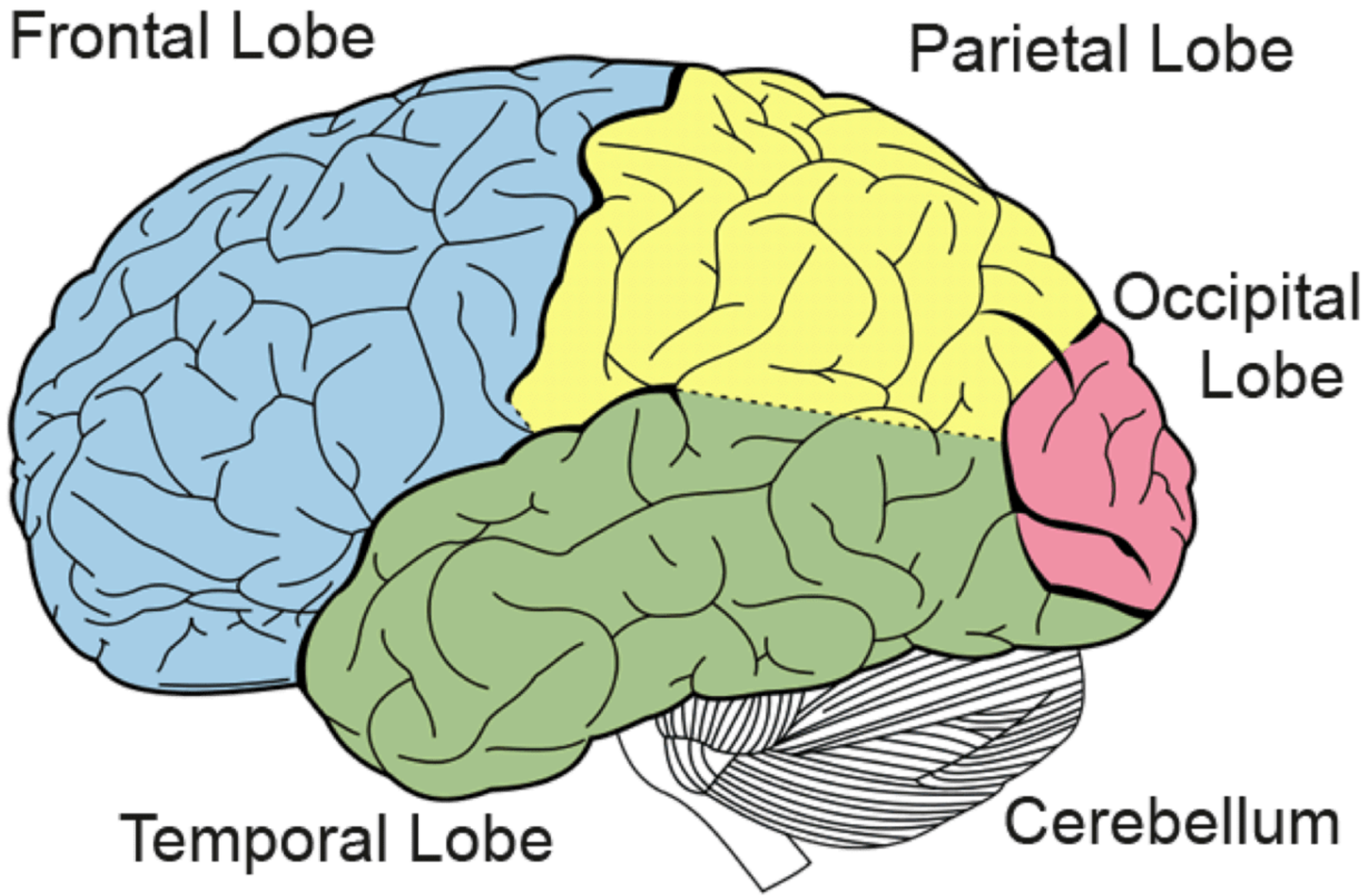

Frontal Lobe
Parietal Lobe
Occipital Lobe
Temporal Lobe
Cerebellum

Meningitis

•The meninges, which are the protective membranes that encircle the brain and spinal cord, become inflamed when someone has meningitis. Take DROPLET safety precautions!

Risk Factors:

• Viral, fungal, or bacterial infections, Immunosuppression, Contamination of spinal fluid, and Crowded living conditions (dormitories).

Signs & Symptoms:

•Positive Kernig's and Brudzinski's signs, headache, nuchal stiffness, photophobia, nausea and vomiting, fever and chills, and hyperactive deep tendon reflexes are some of the symptoms that may be present.

Diagnosis::

•analysis of the cerebrospinal fluid (CSF).
•Meningitis caused by bacteria if CSF is murky.
•Meningitis caused by a virus if CSF is clear.

Procedures:

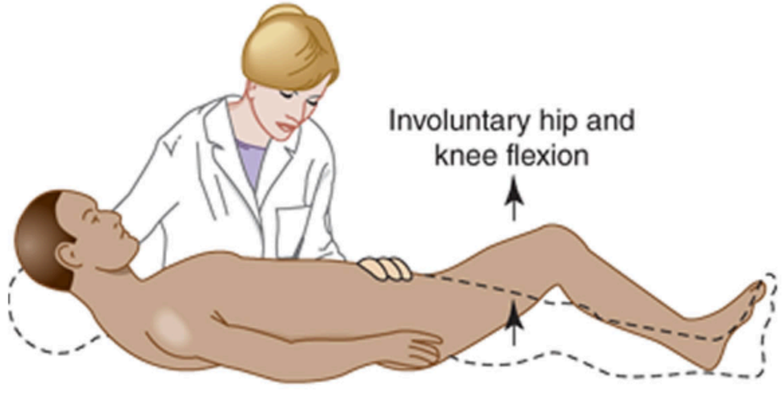
• Ceftriaxone and vancomycin together.

Kernig's and Brudzinski's Signs

A Kernig sign

Kernig's Sign

Leg extension brings on pain



B Brudzinski sign

Brudzinski's Sign

When you purposefully twist the patient's neck, the knees and hips flex.

Generalized Seizures

• A generalized seizure might start with an aura, which is a shift in feeling before to a seizure, and it affects both hemispheres.i includes atonic, myoclonic, and tonic rhythms

Risk Factors:

• Acute substance withdrawal, illness, acute fever, fluid and electrolyte imbalance, head injury, cerebral edema, abruptly stopping seizure medications, genetic risk. Start taking anti-seizure measures!

Tonic-Clonic-Signs & Symptoms:

• respiratory abnormalities, muscle stiffness, and loss of consciousness lasting one to two minutes.

Myoclonic-Signs & Symptoms:

• A momentary, fleeting stiffness or jerking of the extremities. Atonic

Atonic-Signs & Symptoms:

• A brief period of loss of muscular tone and confusion following the seizure.

Partial or focal seizures

• Seizures that are partial or focal only affect one hemisphere and can be either complex or partial.

Risk Factors:

• Acute substance withdrawal, illness, acute fever, fluid and electrolyte imbalance, head injury, cerebral edema, abruptly stopping seizure medications, genetic risk. Start

taking anti-seizure measures!

Complex partial seizure-Signs & Symptoms:

• Lip-smacking, plucking at clothing, falling asleep, and amnesia.

Simple partial seizure-Signs & Symptoms:

• There are no sensory abnormalities, heart rate changes, flushing, aberrant extremities movements, or loss of consciousness.

Partial or focal seizures

• One hemisphere is involved in just partial or focal seizures, which can be one of two types.

Risk Factors:

• Acute substance withdrawal, illness, acute fever, fluid and electrolyte imbalance, head injury, cerebral edema, abruptly stopping seizure medications, genetic risk. Start
taking anti-seizure measures!

Complex partial seizure-Signs & Symptoms:

• Lip-smacking, plucking at clothing, falling asleep, and amnesia.

Simple partial seizure-Signs & Symptoms:

• There are no sensory abnormalities, heart rate changes, flushing, aberrant extremities movements, or loss of consciousness.

Parkinson's

• Parkinson's disease inhibits motor function and is progressively devastating.

Risk Factors:

• Males between the ages of 40 and 70, genetic susceptibility, chronic antipsychotic use, exposure to pollutants in the environment, and chemical exposure.

Signs & Symptoms:

• Tremors, stiffness in the muscles, bradykinesia (slow movement/speech), a mask-like appearance, and difficulty swallowing and chewing. Observe aspiration safety
procedures!

Five Stages of Parkinson's

Stage 1: One-sided trembling or shaking of the body.
Stage 2: Walking issues, tremors or trembling on BOTH sides of the body, and mask-like features
Stage 3: Significant movement slowdown and postural instability in the patient.
Stage 4: ADLs become challenging due to muscle rigidity, akinesia (lack of mobility), and akinesia.
Stage 5: Patient is unable to stand, walk, or take care of themself

Alzheimer's

• Alzheimer's disease is a form of dementia that cannot be reversed. It progresses through three stages: mild, moderate, and severe.

Risk Factors:

• Advanced age, Hispanic or African American ancestry, female sex, and head injury history. • Down syndrome or Alzheimer's disease in the family.

Three Stages of Alzheimer's

Mild: Before

• Temporary loss of memory, losing things, and having trouble focusing and organizing. • Despite having memory loss, the person can still execute ADLs and is noticeable to family and close friends.

Moderate:

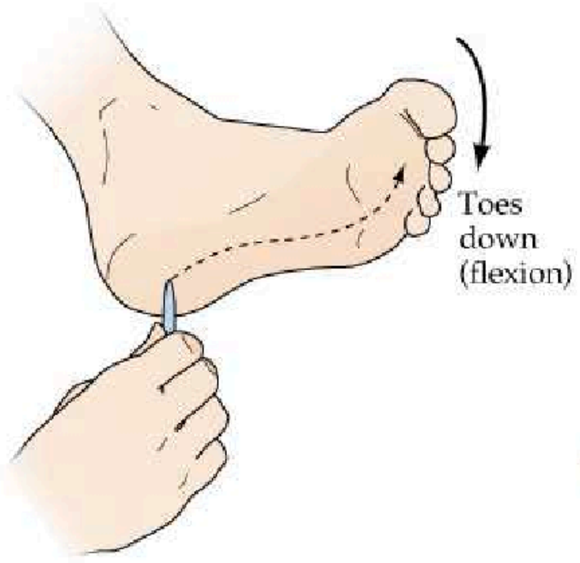
• Forgetting important life events, having trouble handling money and paying bills, alterations in attitude and conduct, changes in sleeping habits, and memory loss that is apparent to others. Serious: Late

• Has trouble conversing, is unconscious, incontinent, prone to infection, has trouble walking and swallowing, and needs a lot of help with ADLs.

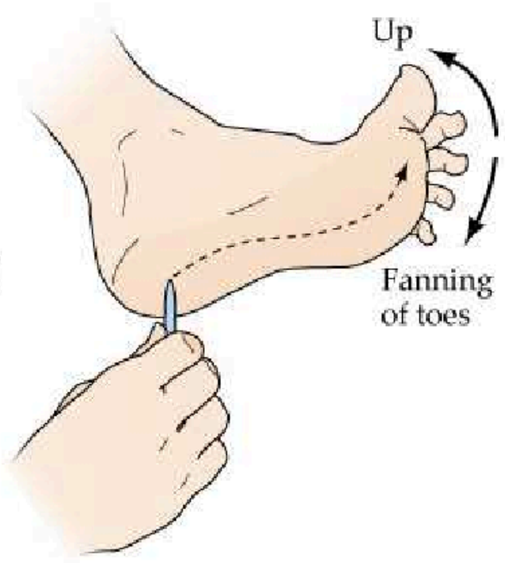
Romberg and Babinski Signs

Romberg Test: A balance test. •Test result: Loss of balance. • Negative test: No loss of balance was detected.

Babinski's Sign: Stimulation of the foot's sole. •Toes flex downward as a normal reaction. • Pathological reaction: upward flexion of the toes.



Normal plantar response



Extensor plantar response
(Babinski sign)

Multiple sclerosis

• Multiple sclerosis is an autoimmune condition that affects the ability of the voluntary muscles to contract.

Risk Factors:

• Female sex, family history, interleukin (IL)-7 and IL-2 receptor genes.

Signs & Symptoms:

• Disturbances of bowel and bladder function, pain, diplopia, visual abnormalities (Uhthoff's sign), vertigo and tinnitus, dysarthria (slurred speech), muscle weakness or ataxia.

Diagnosis:

• MRI will show plaques on the brain and spine.

Triggers:

• Physical harm, anxiety, exhaustion, extremely hot or cold weather, overexertion, and pregnancy.

Nursing Considerations:

• When treating patients with dysarthria, use a communication board.
• Cover the patient's diplopia with eye patches and teach them to turn their heads side to side to survey their surroundings.

Headache

Risk Factors:

• Hormonal changes, exhaustion or lack of sleep, strong smells, bright lights, alcohol, and environmental allergies.

Migraine Headache: Can occur with or without an aura. Signs & Symptoms:

• Irritation and vomiting, photophobia, and phonophobia (sensitive to noises), which are all unilateral symptoms of eye or ear pain.

Cluster Headaches Signs & Symptoms:

• Drooping eyelids, miosis (contraction of the pupils), bradycardia, nausea, and vomiting are all symptoms of intense, non-throbbing pain.

Nursing Considerations:

• Keep the patient in a calm, dark, and quiet environment. Teach the patient to stay away from foods that contain tyramine, such as pickles, cheese, beer, and wine.

To track headache patterns and triggers, encourage the patient to keep a notebook.

Macular Degeneration

• A macula-specific central vision loss. There are two: dry and wet.

Dry Macular Degeneration

• The most frequent, and it's brought on by a blockage in the arteries that supply the retina.

Wet Macular Degeneration

•Can happen at any age and is brought on by young, flimsy blood vessels that leak blood and fluid.

Risk Factors:

• Inadequate consumption of vitamin E and carotene, smoking, being a woman, being short in stature, and having a history of hypertension.

Signs & Symptoms:

• Loss of central vision, fuzzy vision, a lack of depth awareness, and blindness.

Diagnosis:

• Opthalmoscopy and Snellen and Rosenbaum eye charts.

Cataracts

a cloudiness in the lens causing visual problems.

Risk Factors:

• Eye damage, genetics, diabetes, smoking, advanced age, chronic corticosteroid, beta-blocker, or miotic-drug use.

Signs & Symptoms:

reduced visual acuity, diplopia (double vision), and absence of the red reflex are all symptoms.

Medications:

• Anticholinergic medications (1% solution of atropine).

Patient education:

• Encourage people over the age of 40 to have yearly eye exams and to wear sunglasses while they are outside.

Primary open-angle glaucoma

• More frequently, obstructions cause a reduction in aqueous fluid outflow. Intraocular pressure (OP) gradually rises as a result of obstructions.

Risk Factors:

• Increased intraocular pressure (IOP) between 22 and 32 mm Hg, halos around lights, loss of peripheral vision, slight discomfort, and headache.

Signs & Symptoms:

reduced visual acuity, diplopia (double vision), and absence of the red reflex are all symptoms.

Medications:

• Cholinergic agents (Pilocarpine), and beta blockers (Timolol).

Patient education:

• If more than one medicated eye drop is suggested, wait 5–10 minutes in between administrations, then press firmly on the inner corner of the eye.

Primary angle-closure glaucoma

• Angle between the iris and sclera closes suddenly, causing a rapid rise in intraocular pressure (IOP).

Risk Factors:

• Advanced age, infections, diabetes, hypertension, retinal detachment, tumors, eye trauma, and genetic predisposition.

Signs & Symptoms:

• Sudden elevation of IOP >30 mm Hg, blurred vision, photophobia, severe eye pain, colored halos seen aorund lights, and pupils nonreactive to light.

Medications:

• Cholinergic agents (Pilocarpine), beta blockers (Timolol), and osmotics (IV mannitol).

Patient education:

• Avoid activites that increase IOP such as bending over at the waist, coughing, sneezing, straining, and sexual intercourse.

Head Iniuries

Concussion

• Mild injury, no brain damage, but there is a change in the patient's neurological function.

Contusion

• The patient has a time of unconsciousness and bewilderment due to the wounded brain.

Diffuse axonal injury

• A buildup of blood in the intracranial, subdural, or epidural spaces.

Risk Factors:

• Falls, assaults with guns, sports-related injuries, car accidents, and usage of illegal drugs and alcohol.

Signs & Symptoms:

• Poor motor function, headache, nausea, vomiting, dilated or pinpoint pupils, and change in respiration.

Nursing Considerations:

•A late discovery of elevated intracranial pressure is the Cushing's Triad! The three symptoms of Cushing's Triad are bradycardia, expanding pulse pressure, and severe hypertension.
• Look for the HALO sign, which is a yellow coloured ring enclosing a drop of blood, if a patient has clear discharge from their ears or nose!

Stroke

• Strokes can be hemorrhagic or ischemic and are classified by hemisphere.

Risk Factors:

• Smoking, the use of oral contraceptives, hyperlipidemia, atherosclerosis, being overweight, having high blood pressure, and diabetes.

Left Hemispheric Stroke Signs & Symptoms:

• Agnosia, which is the inability to perceive objects, aphasia, which is the inability to talk or understand, alexia, which is the inability to read, agraphia, which is the inability to write, and right extremity weakness.

Right Hemispheric Stroke Signs and Symptoms:

• Abilities are overestimated, depth perception is lost, visual alterations occur, impulse control is poor, and one side is neglected.

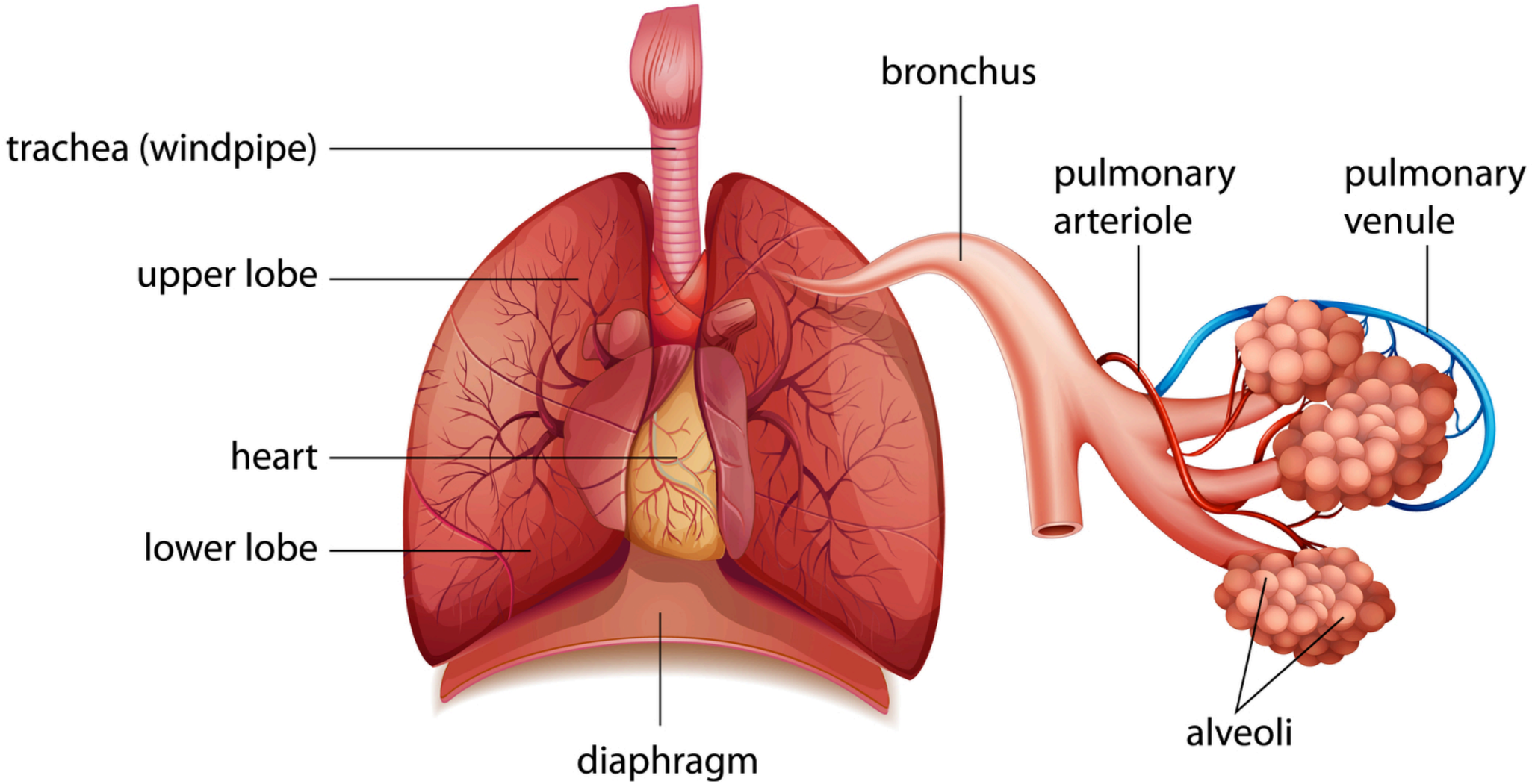
Nursing Considerations:

• Implement seizure precautions!

Respiratory

- Asthma
- COPD
- Tuberculose
- Pulmonary thrombosis
- Hemothroax and Pneumothorax
- The syndrome of acute respiratory distress
- a cold
- Sinusitis.
- Swine flu
- Chest lungs

Human Respiratory System



Asthma

• Intermittent and reversible airflow obstruction in the bronchioles.

Risk Factors:

• Smoking, exposure to secondhand smoke, allergies to the environment, GERD, advanced age, and family history.

Signs & Symptoms:

• Anxiety, barrel chest, usage of auxiliary muscles, coughing, wheezing, prolonged exhalation, mucus formation.

Triggers:

• Seasonal allergies, stress, exercise, perfume/cologne, air pollution, and viral respiratory tract infections.

Medications:

• Anti-inflammatory drugs and bronchodilators (inhalers).

Chronic Obstructive Pulmonary Disease

• A persistent and permanent blockage of airflow. Emphysema and chronic bronchitis are two conditions covered by COPD. When lung elasticity is lost and lung tissue hyperinflates, emphysema develops. Inflammation of the bronchi and bronchioles is known as chronic bronchitis.

Risk Factors:

• Old age, smoking, being exposed to pollution, and a lack of alpha 1 antitrypsin (AAT).

Signs & Symptoms:

• Long-lasting breathlessness, hypoxemia, the employment of accessory muscles, a productive cough, barrel chest, wheezes and crackles, clubbing of the fingers and

toes, and lower baseline oxygen levels.

Medications:

• Corticosteroids, mucolytic drugs, and bronchodilators (inhalers).

Emphysema vs Chronic Bronchitis

Emphysema ("Pink Puffer"): Lung tissue hyperinflates

Signs & Symptoms:

• Pale skin, tachypnea, a barrel chest, cachexia (loss of skeletal muscle and fat), limited cough, and diminished breath sounds.

Chronic Bronchitis ("Blue Bloater"): Inflammation of bronchi and bronchioles

Signs & Symptoms:

• Hemoptysis, peripheral edema, persistent cough, purulent sputum, cyanosis, and crackles.

Nursing Considerations:

• Place the patient in high-fowlers, keep their oxygen levels between 88% and 92%, and teach them to puff on their lips when they experience dyspneic episodes.

Tuberculosis

Start taking airborne measures! Tuberculosis (TB) is an airborne infectious illness caused by Mycobacterium tuberculosis.

Risk Factors:

• Immunocompromised, low socioeconomic position, congested surroundings, old age, recent travel/immigration, substance use, and healthcare occupation.
• Frequent and close contact with an untreated person.

Signs & Symptoms:

• Night sweats, weight loss, exhaustion & lethargy, a persistent cough lasting more than three weeks, and purulent sputum.

Diagnosis:

• Chest x-ray and Mantoux test.

Medications;

• Ethambutol, rifampin, pyrazinamide, and isoniazid. These drugs are administered for six to twelve months.

Pulmonary Embolism

When a material enters the venous circulation and blocks the pulmonary system, it causes a pulmonary embolism (PE).

Risk Factors:

• Using oral contraceptives, smoking, being obese, being older, being immobile, having hypercoagulability, being pregnant, having surgery, having cancer, having sickle

cell anemia, and having long-bone fractures.

Signs & Symptoms:

• Petechia, tachycardia, hypotension, hemoptysis, crackles, dyspnea, cough, and hemoptysis.

Medications:

• Thrombolytic therapy (Alteplase), factor Xa inhibitors (Heparin, enoxaparin, and warfarin), and anticoagulants (heparin, enoxaparin, and warfarin).

Procedures;

• Embolectomy and Vena cava filter

Pneumothorax & Hemothorax

• A pneumothorax happens when air cannot escape from the pleural space after entering during inspiration. The compressed air puts pressure on the heart and lungs, reducing cardiac output and venous return. An collection of blood in the pleural space is known as a hemothorax.

Risk Factors:

• Advanced age, COPD, a penetrating chest wound, blunt chest trauma, a closed or occluded chest tube.

Signs & Symptoms:

Tachypnea, tachycardia, hypoxia, tracheal deviation to the unaffected side, asymmetrical chest wall movement, diminished or absent breath sounds on the affected side,

and subcuta- neous emphysema are also symptoms.

Medications:

• Benzodiazepines (Lorazepam), and opioid agonists (Morphine Sulfate).

Acute Respiratory Distress Syndrome

•ARDS, an inflammatory reaction, damages the alveolar-capillary membrane and results in fluid buildup in the lung cavity.

Risk Factors:

• Drug toxicity or ingestion, shock, sepsis, smoke or gas inhalation, aspiration, pneumonia, pulmonary emboli, disseminated intravascular coagulation (DIC), injury to the central nervous system.

Signs & Symptoms:

• Tachycardia, hypotension, orthopnea (difficulty breathing while lying down), disorientation, substernal/suprasternal retractions, and atypical breath sounds.

Diagnosis:

• Diffuse infiltrates and a ground-glass look will be visible on a chest x-ray.

Medications:

• Benzodiazepines (Lorazepam), corticosteroids (Methylprednisolone), and antibiotics (Vancomycin.

Rhinitis

• Rhinits is the inflammation of nasal mucosa due to infection or allergens.

Risk Factors:

• Immunocompromised, younger and older populations, recent exposure to viral or bacterial illnesses, environmental pollutants, and lack of immunization.

Signs & Symptoms:

• Nasal mucosa swelling, congestion, itchy eyes, and rhinorrhea (runny nose).

Medications:

• Antipyretics (Acetaminophen), decongestants (phenylephrine), antihistamines (pseudoephedrine), and antibiotics.

Nursing Considerations:

• Encourage the patient to use a home humidifier, get 8 to 10 hours of sleep each day, and drink 2 to 3 liters of water.

Sinusitis

• Inflammation of the sinuses' mucous membranes.

Risk Factors:

• Inhaled pollutants, nasal polyps, a deviated nasal septum, facial injuries, and immunocompromised people.

Signs & Symptoms:

• Nasal congestion, coughing, fever, headache, and facial areas that seem painful to the touch.

Medications:

• Non-opioid analgesics (NSAIDs), antibiotics, and nasal decongestants (phenylephrine)

Patient Education:

Inform the patient to call the doctor if they get a headache that gets worse, nuchal rigidity (neck discomfort or stiffness), or a high temperature.

Influenza

Influenza is a virus that is extremely contagious and spreads quickly in crowded areas.

Risk Factors:

•Young children and older people, chronic illnesses, immunocompromised people, obesity, pregnant women, and people who live in tight spaces.

Signs & Symptoms:

• Headache, chills, weakness, exhaustion, fever, and aches in the muscles.

Nursing Considerations:

• Maintain droplet precautions!

Medications:

• Antivirals (rimantadine), and annual Influenza vaccines.

Patient Education:

• Patients should obtain their annual flu shot, wash their hands properly, stay away from crowded areas, and drink more fluids.

Pneumonia

• Alveoli that are infected become inflamed and may become pus- or fluid-filled.

Bisk Factors:

• Immunocompromised, pregnant women who are obese, young children and older adults with chronic health concerns, and people who live in cramped or congested
environments.

Signs & Symptoms:

• Fear, drowsiness, exhaustion, weakness, cough, fever, chills, flushed cheeks, wheezing, crackles, and yellow or rust-colored sputum; reduced pulse oximetry; and pleuritic chest discomfort.

Nursing Considerations:

• Maintain the patient in high-fowlers, induce coughing and spirometry with incentives, and promote daily fluid intake of 2 to 3 liters.

Diagnosis:

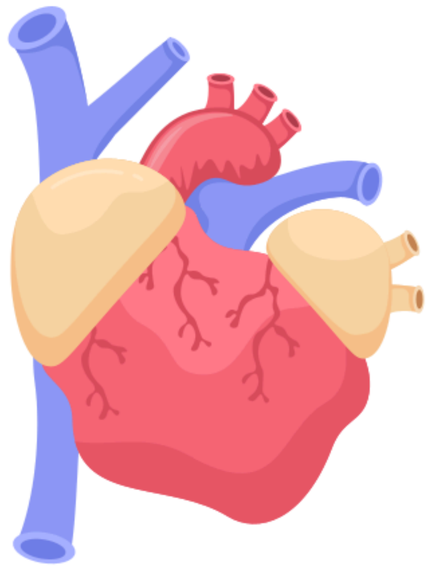
• X-ray will show consolidation of lung tissue.

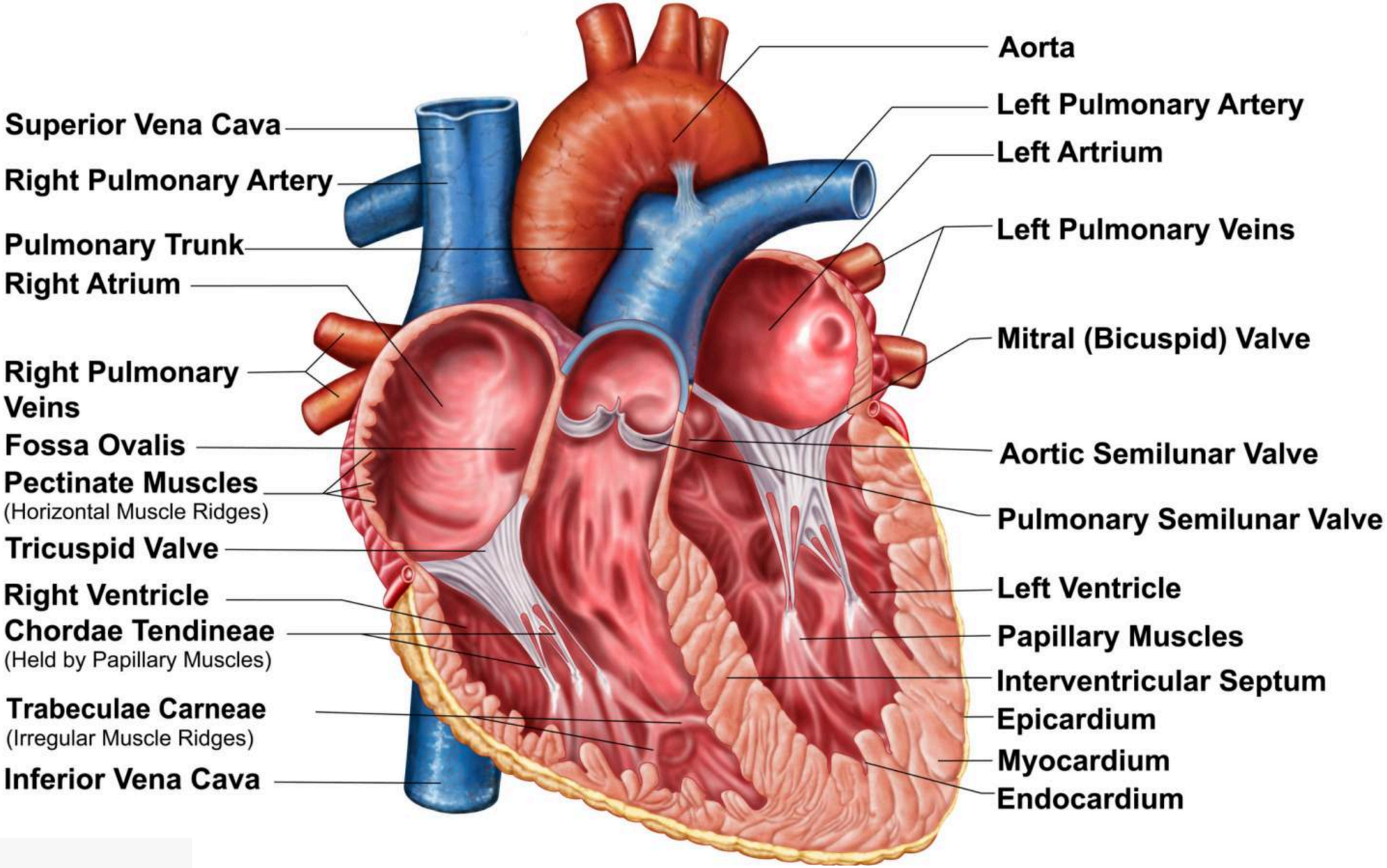
Medications;

• Antibiotics (penicillin), bronchodilators (albuterol), and glucocorticoids (prednisone).

Cardiovascular

- Chest pain
- Heart Disease
- Vascular Conditions of the Periphery
- Heart Valvular Disease
- Hypertension.
- Shock
- Aneurysms
- EKGs




Aorta
Left Pulmonary Artery
Left Artrium
Left Pulmonary Veins
Mitral (Bicuspid) Valve
Aortic Semilunar Valve
Pulmonary Semilunar Valve
Left Ventricle
Papillary Muscles
Interventricular Septum
Epicardium
Myocardium
Endocardium
Superior Vena Cava
Right Pulmonary Artery
Pulmonary Trunk
Right Atrium
Right Pulmonary Veins
Fossa Ovalis
Pectinate Muscles
(Horizontal Muscle Ridges)
Tricuspid Valve
Right Ventricle
Chordae Tendineae
(Held by Papillary Muscles)
Trabeculae Carneae
(Irregular Muscle Ridges)
Inferior Vena Cava

Angina

Types of Angina:

- Stable: Relieved by rest or nitroglycerin and brought on by exercise.
- Unstable: Increases in frequency, severity, and duration with exertion or at rest.
- Prinzmetal's: Occurs most frequently while one is at rest and is brought on by a coronary artery spasm.

Signs & Symptoms:

- Anxiety, nausea & vomiting, chest pain, and dizziness.

Risk Factors:

- Men or patients who have recently gone through menopause, stimulant usage, stress, obesity, hyperlipidemia, tobacco use, sedentary lifestyle, and hypertension.

Medication:

A maximum of three doses of nitroglycerin can be administered sublingually every five minutes. If nitroglycerin does not work after the first dose, the patient needs to call emergency services right away!

Heart Failure

Right Sided Heart Failure:

Bisk Factors:

•Pulmonary fibrosis, COPD, or right ventricular myocardial infarction.

Signs & Symptoms:

• Myocardial infarction, hypertension, valvular disease, and coronary artery disease.

Left Sided Heart Failure: Bisk Factors:

• Myocardial infarction, hypertension, valvular disease, and coronary artery disease.

Signs & Symptoms:

• Keep in mind the acronym (CHOP) for Cough, Hemoptysis, Orthopnea, and Pulmonary Congestion.

Medications;

• Vasodilators, beta-blockers, ACE inhibitors, diuretics, and anticoagulants.

Peripheral Venous Disorder

Peripheral venous diseases are vein issues that result in insufficient blood flow return from the lower extremities.

Risk Factors:

• Systemic disorders, prolonged standing jobs, pregnancy, thrombophlebitis, heart failure, females, and obesity.

Signs & Symptoms:

• Stasis dermatitis, which causes the lower extremities to turn brown and cause aching discomfort, a heaviness in the legs, edema, and other symptoms.

Medications;

• Anticoagulants such as heparin or warfarin.

Patient Education:

• Patients should avoid crossing their legs, elevate their legs for 30 minutes, four to five times per day, and use elastic compression stockings.

Peripheral Arterial Disease

• Peripheral arterial disease is characterized by insufficient blood flow and is caused by atherosclerosis in the arteries of the lower limbs.

Risk Factors;

• Hyperlipidemia, hypertension, diabetes, obesity, tobacco use, sedentary lifestyle, female sex, and advanced age.

Signs & Symptoms:

• Intermittent Claudication: Symptoms include muscle atrophy, cyanotic or pale limbs, reduced capillary refill, thicker toenails, burning, cramps, and pain in the legs during activity.

Medications:

• Antiplatelet medications and statins.

Patient Education:

Patients should keep their legs straight, refrain from smoking, and stay out of the cold.

Valvular Heart Disease

• Valvular heart disease may be acquired or congenital. Congenital: • Affects all cardiac valves and results in stenosis or insufficiency. Acquired: • Degenerative: Long-term harm brought on by stress, atherosclerosis, and high blood pressure. • Rheumatic: Gradual calcification and fibrotic alterations. • Infectious endocarditis: the valves are destroyed by a streptococcal infection.

Risk Factors:

• Papillary muscle dysfunction, Marfan syndrome, hypertension, congenital deformities, and rheumatic fever.

Signs & Symptoms:

• Palpitations, a murmur, orthopnea, tiredness, and an enlarged left ventricle.

Medications;

• Diuretics, ACE Inhibitors, beta Blockers, and anticoagulants.

Hypertension

• Hypertension is defined as a blood pressure reading of 130/80 mm Hg or higher.

Risk Factors:

• Sedentary lifestyle, hyperlipidemia, smoking, stress, family history, obesity, and an excessive intake of sodium and alcohol.

Signs & Symptoms:

• Headaches, lightheadedness, syncope (fainting), flushing of the face, and vision problems. • Keep in mind that not all patients will have symptoms!

Medications:

• Diuretics, calcium-channel blockers, ACE Inhibitors, and beta blockers.

Complications:

Blood pressure >180/120 mm Hg: Hypertensive crisis. A patient needs IV antihypertensives right away if they are going through a hypertensive crisis. Blood pressure
should not fall below 140/90 mm Hg, but should be reduced by 20% to 25% within an hour.

Stages of Hypertension

	Systolic BP (mm Hg)	Diastolic BP (mm Hg)
Expected Elevated	Less than 120	Less than 80
Stage 1 Hypertension	120 to 129	Less than 80
Stage 2 Hypertension	130 to 139	80 to 89
	Greater than or equal to 140	Greater than or equal to 90

Stages of shock

• Organ failure and death may result from inadequate tissue perfusion in shock. • There are four stages of shock:

Initial:

• The patient's state does not change noticeably during the early stages of shock; only cellular changes take place.

Compensatory;

• The body raises cardiac output during the compensatory phase of shock to reestablish tissue perfusion and oxygenation.

Progressive:

• At this stage, the compensatory mechanisms begin to fail.

Refractory:

• Total body and organ failure, as well as irreversible shock, characterize the refractory stage.

Types of Shock

Cardiogenic:

• Cardiogenic shock happens when the heart's ability to pump properly is compromised. can result from a MI, cardiomyopathy, dysrhythmias, cardiac failure, and valve rupture or stenosis, among other conditions.

Hypovolemic:

• A 15% to 30% decrease in intravascular volume. An excessive amount of fluid is lost due to trauma, blood loss, diuresis, vomiting, diarrhea, burns, or diabetic ketoacidosis in hypovolemic shock.

Obstructive:

• Heart damage brought on by a non-cardiac source, such as a blocked major artery! tension pneumothorax, pulmonary embolism, cardiac tamponade, or aortic dissection.

Distributive;

• Neurogenic: Head injury, spinal cord damage, or epidural anesthesia all result in a decrease of sympathetic tone.
• Anaphylactic: Vasodilation brought on by exposure to an allergen, such as food, latex, antibiotics, or bee stings.
• Septic: Endotoxins promote vasodilation in septic shock.

Aneurysms

A weak spot in an artery that results in bulging of the vessel wall is called an aneurysm. There are mostly three kinds.

Risk Factors:

• Males, advanced age, atherosclerosis, trauma, uncontrolled hypertension, and hyperlipidemia.

Signs & Symptoms; Abdominal Aortic Aneurysm (AAA):

• Low back discomfort, dull stomach ache, a pulsating mass in the belly (do not palpate!), hypertension, and bruit over the aneurysm.

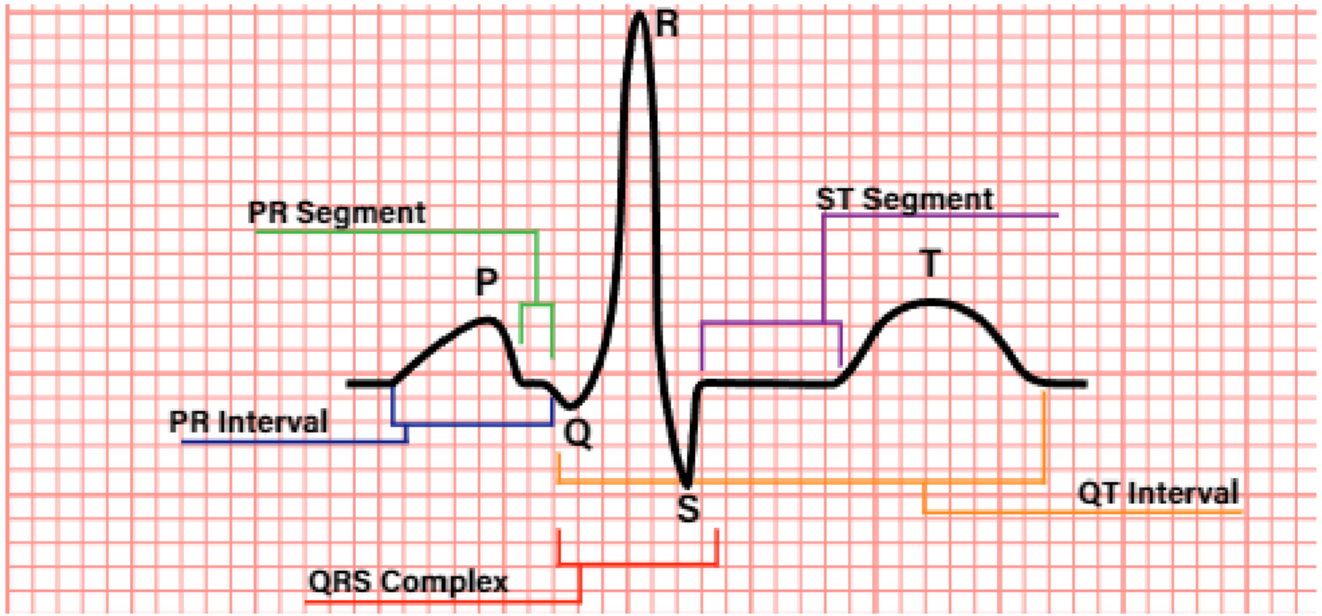
Thoracic aortic aneurysm:

•Oliguria (decreased urine output), coughing, shortness of breath, back pain, and oliguria.

Aortic dissections:

• An abrupt "ripping" or "tearing" pain in the back or abdomen, along with hypovolemic shock symptoms.

EKG Basics


R
PR Segment
ST Segment
T
P
PR Interval
Q
S
QT Interval
QRS Complex

Normal Sinus Rhythm

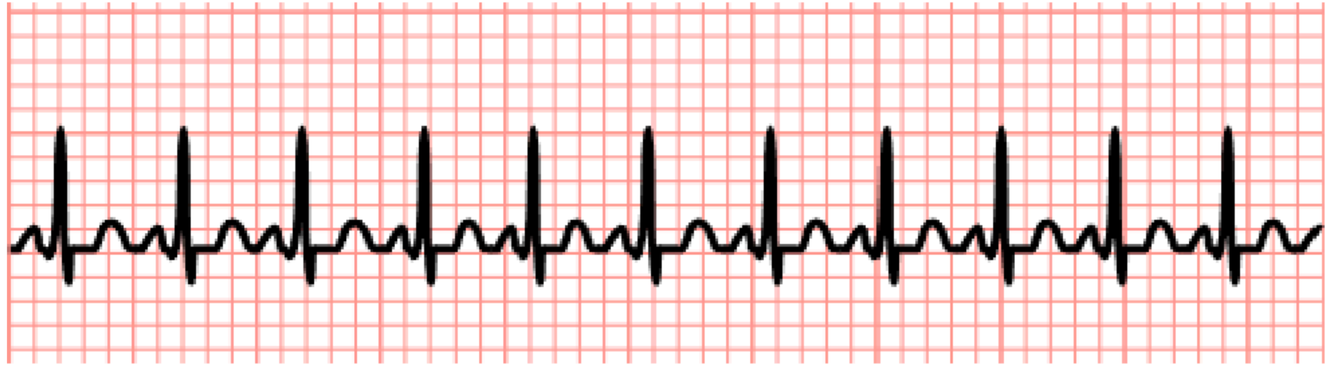
- Beats per minute: 60 to 100.
- Normal and equally spaced complexities throughout.

Sinus Bradycardia

• The heart rate is fewer than 60 beats per minute, despite all complexes being normal and well spaced.

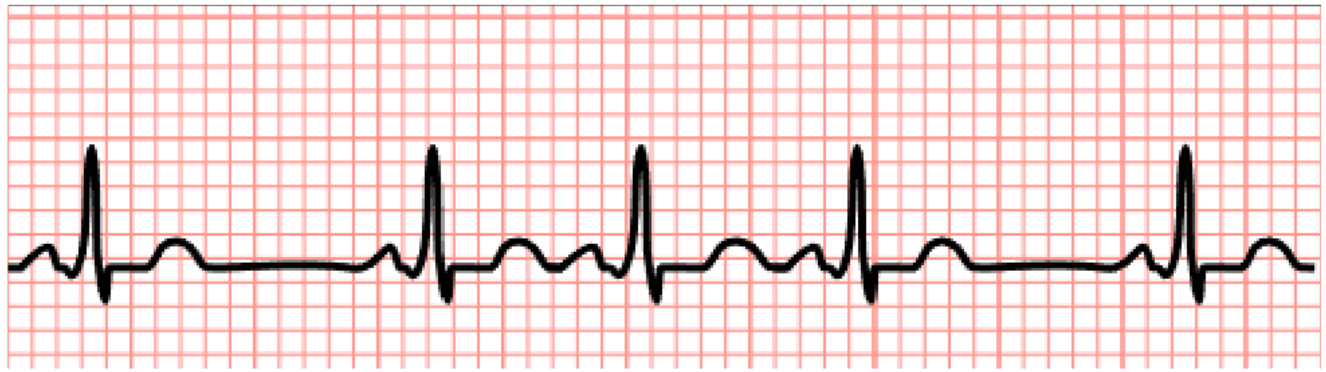
· Don't intervene unless the patient is exhibiting symptoms.

Sinus Tachycardia



- The heartbeats per minute range from 100 to 150.

Sinus Arrhythmia



- Beats per minute: 60 to 100.
- All complexes are healthy, although their rhythms are erratic.

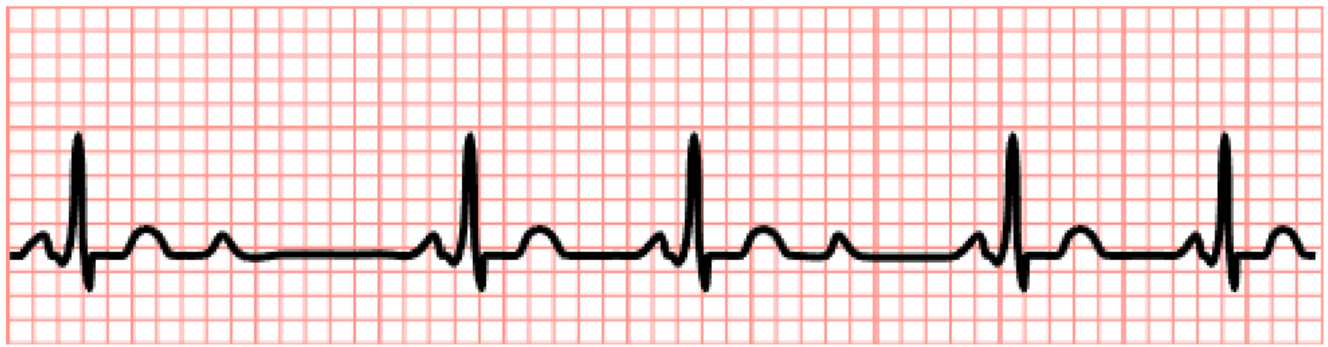
1st Degree AV Block

- P-wave for every QRS complex.
- PR interval is prolonged.

2nd Degree AV Block Type 1

- PR intervals extending until a dropped QRS is reached, at which point the cycle is repeated.

2nd Degree AV Block Type 2

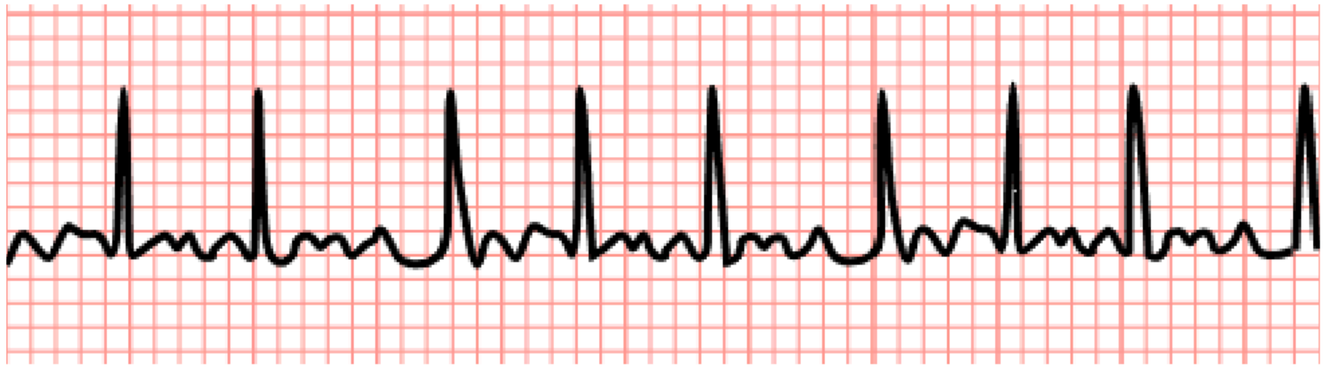


- The PR intervals remain constant.
- Lack of QRS following P-waves.

3rd Degree AV Block

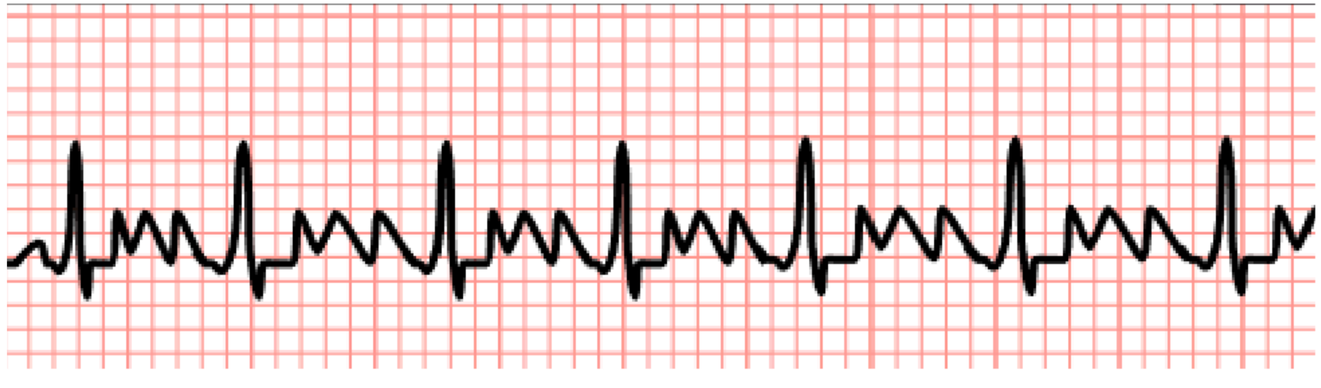
- P and R waves occur regularly.
- There won't be a P-wave with the QRS complex.
- The PR intervals can change.

Atrial Fibrillation



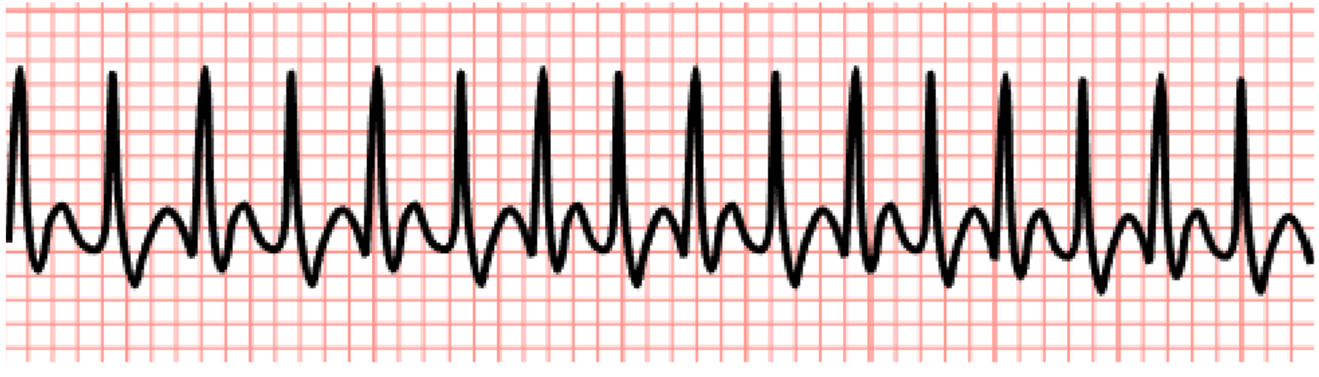
- Avoid P waves!
- Disorder in the atrium.
- Said to be extremely irregular.
- 300 to 600 beats per minute are the possible ranges for atrial rate.

Atrial Flutter



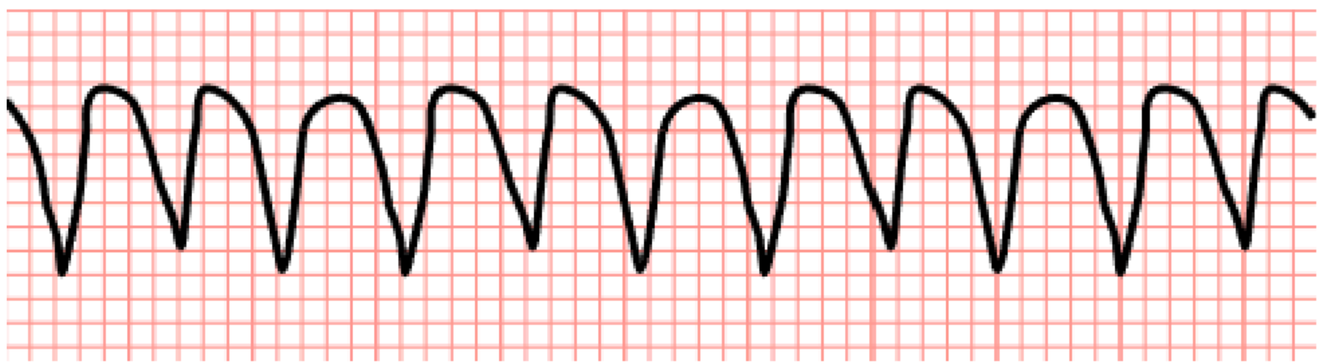
- Avoid P waves! Those are so-called Flutter waves (F-waves).
- Waves that flutter in a saw-tooth pattern.
- The atrium is firing quickly.
- Less than 0.12 seconds pass during the QRS complex.

Supraventricular Tachycardia



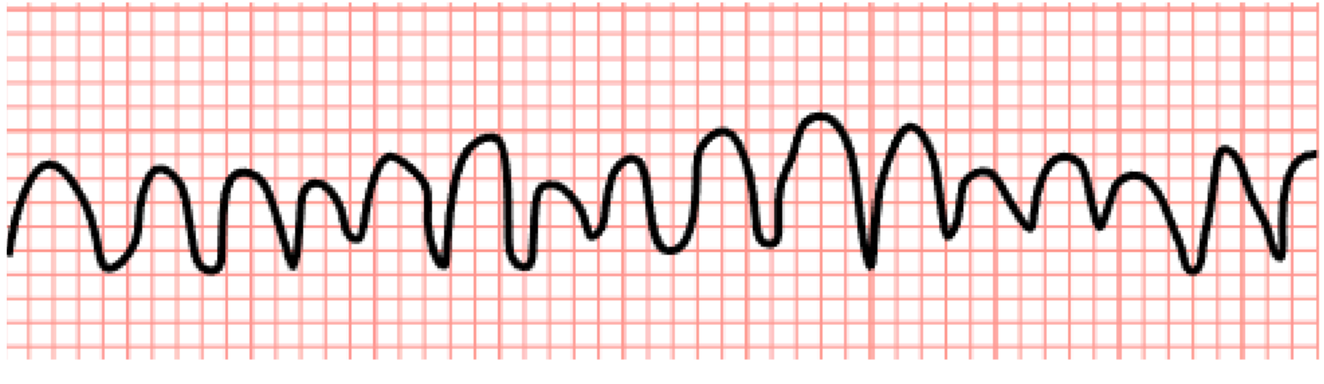
- Has its origin above the ventricles.
- A consistent, narrow QRS complex.
- A person's heart rate may range from 150 to 250 beats per minute.

Ventricular Tachycardia



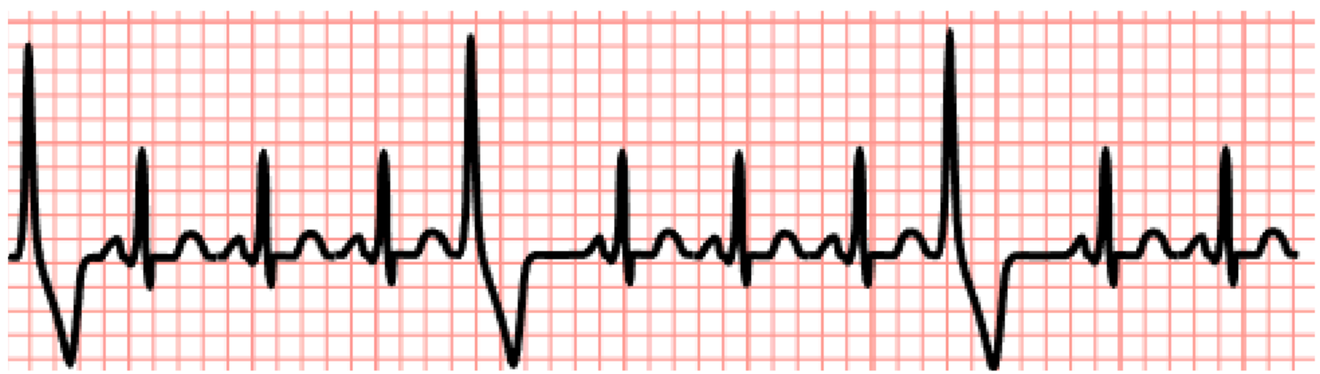
- A row of three or more PVCs.
- Rate typically exceeds 150 beats per minute.

Ventricular Fibrillation



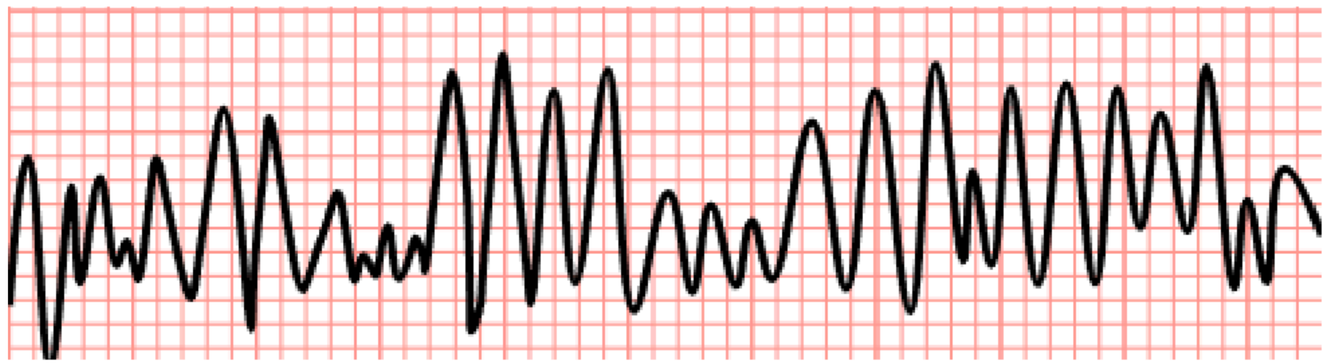
- A fatal dysrhythmia that needs to be treated right away!
- Multiple chaotic impulses fire quickly in the ventricles.

Premature Ventricular Contractions



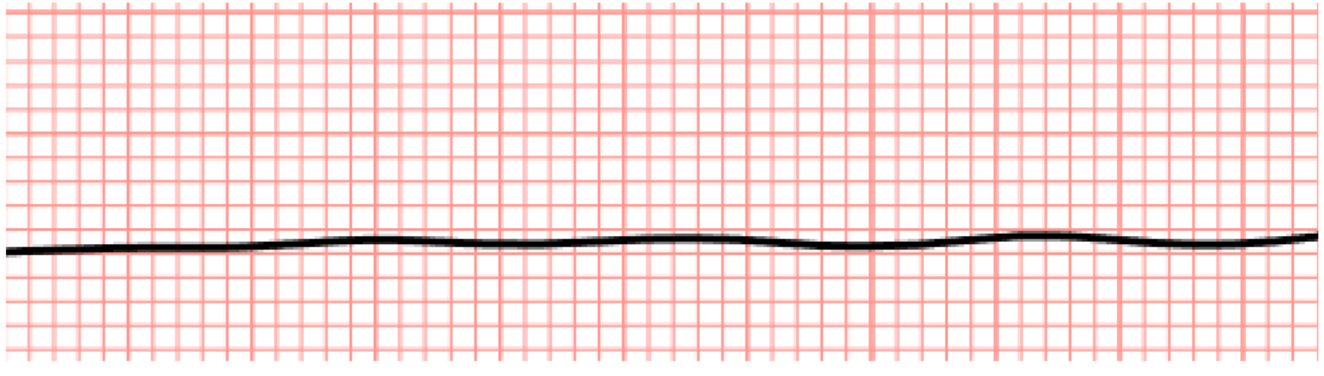
- Early firing wide and unusual QRS complexes in the ventricles.
- There were no P waves preceding the QRS.

Torsades de Pointes



- A particular variety of polymorphic ventricular tachycardia.
- Is characterized by a twisting of the QRS and a progressive change in amplitude.

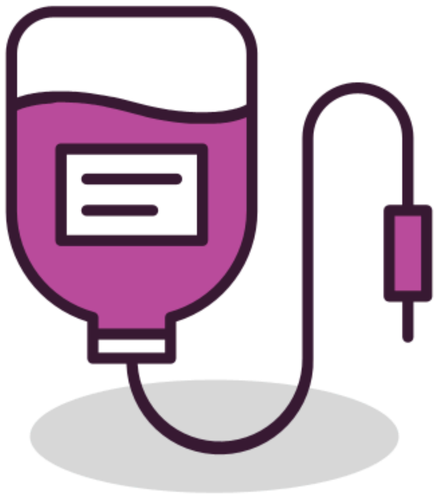
Asystole



- There is no detectable electrical activity.
- Chest compressions should begin right away.

Hematologic Disorders

- Blood
- Blood product transfusion
- Anemias
- Coagulation disorders



Blood Type Compatibility

Blood Type	Antigen	Antibodies Against	Compatible with
A	A	B	A,O
B	B	A	B, O
AB	AB	None A,	A, B, AB, O
O	None	B	O

Types of Transfusions

Standard Transfusion:

• Patient receives blood from a compatible donor.

Autologous Transfusion:

• The patient's blood is drawn for an autologous transfusion before any elective operation that might necessitate one. Patients can have their blood drawn up to six weeks before surgery, and if their hemoglobin and hematocrit levels are steady, they can donate blood once a week.

Intraoperative Blood Salvage:

Sterile blood may be drawn, filtered, and reinfused during a procedure, however the reinfusion must take place within six hours of the blood draw.

Transfusion Reactions

Acute Hemolytic Transfusion Reaction

* When incompatible blood is transfused, this transfusion response manifests right away.

Signs & Symptoms:

• Chills, lower back pain, fever, tachycardia, tachypnea, anxiety, flushing, and an impending sense of doom.

Nursing Considerations;

• Halt the transfusion and begin a 0.9% sodium chloride infusion with new tubing. While doing so, keep an eye on the patient's vital signs and send the blood bag to the lab for analysis.

Febrile Transfusion Reaction * Usually occurs within 2 hours Signs & Symptoms:

• Fever, chills, a 1-2 degree rise in body temperature, hypotension, tachycardia, and flushing.

Nursing Considerations:

•Stop the transfusion and administer antipyretics.

Transfusion Reactions Cont.

Allergic Transfusion Reaction

• This transfusion reaction can occur up to 24 hours after the transfusion.

Signs & Symptoms:

Urticaria (hives), flushing, and itching. The patient may have bronchospasm, hypotension, laryngeal edema, and shock if the reaction is severe.

Nursing Considerations:

Halt the transfusions now! Give an antihistamine if the reaction is mild. Give epinephrine, oxygen, corticosteroids, or vasopressors if necessary if the reaction is severe.

Circulatory Overload

This reaction occurs when the blood product is transfused too quickly.

Signs & Symptoms:

• Dyspnea, cough, crackles, jugular venous distention (JVD), and tachycardia.

Nursing Considerations:

Depending on the doctor's instructions, reduce or stop the transfusion. As necessary, seat the patient down and give him or her oxygen.

Anemias

Anemia is characterized by an abnormally low hemoglobin concentration, a low red blood cell count, or both. This results in a reduced ability of tissues and organs to transport oxygen.

Risk Factors:

• Blood loss (due to trauma, menorrhagia, or a gastrointestinal bleed), fast metabolic activity (due to pregnancy or an illness), insufficient nutritional intake or malabsorption, and bone marrow suppression.

Signs & Symptoms:

* Pallor, fatigue, irritability, dyspnea, pain, sensitivity to cold temperatures, tachycardia, nail bed deformities, beefy red tongue (Vit B12 deficiency), and paresthesias.

Medications:

• Erythropoietin, folic acid, vitamin B12, and iron supplements.

Procedures:

• If the patient's symptoms are severe, a blood transfusion might be done.

Heparin-induced Thrombocytopenia

• Heparin administration can result in a clotting disease called heparin-induced thrombocytopenia (HIT), which lowers platelet counts.

Risk Factors:

* Female sex, exposure to unfractionated heparin, and receiving heparin for more than 7 days.

Signs & Symptoms:

• Hematuria, tachycardia, hypotension, and respiratory distress; redness, discomfort, and swelling of the lower extremities; epistaxis (nosebleed); petechiae and ecchymoses; and.

Medications:

• Anticoagulants such as argatroban or lepirudin.

Nursing Considerations:

• For all patients with clotting disorders, take precautions against bleeding. Avoid needles, use an electronic razor, and brush your teeth with soft bristles.

Thrombocytopenic Purpura

• Platelet life expectancy is shortened by idiopathic thrombocytopenic purpura (ITP). IT may result in serious hemorrhages.

Risk Factors:

• Females between the ages of 20 and 50, autoimmune diseases, and concomitant illnesses (HIV, hepatitis C).

Signs & Symptoms:

• Respiratory distress, hematuria, tachycardia, hypotension, petechia and ecchymoses, and epistaxis (nosebleed).

Medications:

• Corticosteroids and immunosuppressants.

Procedures:

• A splenectomy might be done if the patient doesn't respond to treatment.

Disseminated Intravascular Coagulation

The condition known as disseminated intravascular coagulation (DIC) results in simultaneous clotting and anticlotting. DIC is a serious condition that needs to be treated right away.

Risk Factors:

• Cancer, cardiopulmonary arrest, septicemia, trauma, allergic reactions, and obstetric complications.

Signs & Symptoms:

•There is bleeding everywhere! respiratory distress, tachycardia, hypotension, hematuria, epistaxis (nosebleed), petechiae, and ecchymoses.

Medications:

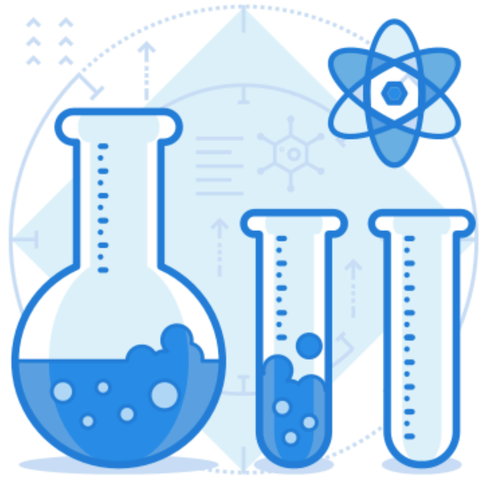
• Anticoagulants like heparin.

Nursing Considerations:

• Monitor the patient for signs of microemboli (severe pain and/or cyanotic nail beds).

Fluid and Electrolytes

- Imbalances in fluid
- Imbalances with electrolytes
- Acid-base equilibrium
- ABG reference guide



Electrolyte Reference

Sodium	136 to 145 mEq/L 9.0
Calcium	to 10.5 mg/dL 3.5 to
Potassium	5.0 mEq/L 1.3 to 2.1
Magnesium	mEg/L 98 to 106
Chloride	mEq/L 3.0 to 4.5
Phosphorus	mg/dL

Dehydration

• A deficiency in bodily fluids. can result from excessive loss or insufficient intake.

Risk Factors:

* Diarrhea, diaphoresis, bleeding, burns (third spacing), vomiting, and decreased oral intake.

Signs & Symptoms:

* Tachycardia, tachypnea, weakness, dry mouth with wrinkles, and vertigo.

Labs:

• Hematocrit will increase, BUN >25mg/dL, Urine specific gravity > 1.030, and Sodium >145 mEq/L.

Nursing Considerations:

• Rehydrate the patient with oral/IV fluids and electrolytes; keep an eye out for changes in their mental state; and check their weight every eight hours.

Overhydration

• The body having too much fluid. either due to excessive consumption or poor clearance from the body.

Risk Factors:

• Burns, hyperaldosteronism, kidney failure, heart failure, cirrhosis, and SIADH. • Prolonged usage of corticosteroids.

Signs & Symptoms:

• Ascites, edema, crackles, tachycardia, bounding pulses, tachypnea, convulsions.

Labs:

• There are decreases in hematocrit, hemoglobin, BUN, and urine specific gravity.

Nursing Considerations:

• Maintain hydration and sodium restrictions, evaluate lung sounds, weigh the patient every day (1 kg is equal to 2.2 lbs), and keep an eye on I80.

Hyponatremia

* A sodium level less than 136 mEq/L.

Risk Factors:

* Diaphoresis, diuretics, nephrotic syndrome, heart failure, SIADH, NG tube suction, advanced age, and fluid overload.

Signs & Symptoms:

Tachycardia, hypotension, rapid reduced pulses, headache, confusion, seizures, altered deep tendon reflexes, and overactive bowels are some of the symptoms.

Treatments;

* Sodium replacement - should not exceed 12 mEq/L a day.

Patient Education:

* Inform the patient to weigh oneself every day (at the same time, on the same scale), and to let the doctor know if they gain more than three pounds in a week or
more than two to three pounds in a day.

Hypernatremia

* A sodium level greater than 145 mEq/L.

Risk Factors:

* Water deprivation, Cushing's syndrome, renal failure, aldosteronism, diabetes insipidus, and high sodium intake.

Signs & Symptoms:

* A tachycardia, heat, thirst, twitching of the muscles, a loss of deep tendon reflexes, convulsions, and dry mucous membranes.

Treatments:

* Drinking more water and cutting back on sodium. * Giving diuretics to people with renal failure.

Patient Education:

The patient should be instructed to weigh oneself every day at the same time on the same scale. and to alert the provider if they gain more than three pounds in a week

or 1-2 pounds in 24 hours.

• Eat a low-sodium diet and drink more water.

Hypokalemia

• A potassium level less than 3.5 mEq/L.

Risk Factors:

* Kidney disease, Cushing's syndrome, excessive use of diuretics or corticosteroids, and Gl tract loss.

Signs & Symptoms:

* Hypotension, a thready pulse, disorientation, T waves that are inverted or flat on an EKG, shallow breathing, and hypoactive bowel movements.

Treatments:

* Never inject potassium intravenously (IV) or topically (subcutaneously).

Patient Education:

* Encourage the patient to eat potassium-rich foods including avocados, broccoli, dairy, cantaloupe, whole grains, and citrus fruits.

Hyperkalemia

* A potassium level greater than 5.0 mEq/L.

Risk Factors:

* Kidney disease, hyperuricemia, diabetic ketoacidosis, and insufficiency of the adrenal glands.

Signs & Symptoms;

* Hyperactive bowels, peaked waves on the EKG, weak pulse, hypotension, and restlessness.

Treatments:

* Calcium gluconate (for severe hyperkalemia), sodium polystyrene sulfonate, and loop diuretics (furosemide).

Nursing Considerations:

+ If you are giving the patient medication to lower their potassium levels, keep an eye on their I80, put them on a heart monitor, and watch for signs of hypokalemia.

Hypocalcemia

* A calcium level less than 9.0 mg/aL.

Bisk Factors:

* Diarrhea, hyperphosphatemia, poor calcium or vitamin D intake, end-stage kidney disease, and parathyroid removal.

Signs & Symptoms;

tetany, paresthesias, hyperactive deep tendon reflexes, muscle twitching, and spasms are positive Chosteks' and Trousseau's symptoms.

Treatments:

* Calcium gluconate.

Nursing Considerations:

* Take seizure safety precautions, and counsel the patient to consume more dairy, sardines, and leafy greens.

Hypomagnesemia

• A magnesium level less than 1.3 mg/dL.

Risk Factors:

• Alcohol consumption, diarrhea, heart failure, Celiac or Crohn's disease, and malnutrition.

Signs & Symptoms:

• Positive Chvostek's and Trousseau's signs, hyperactive deep tendon reflexes (DRs), paresthesias, tetany, seizures, and hypoactive bowels.

Treatments;

• Calcium gluconate is available to treat hypermagnesemia if necessary. • Magnesium sulfate - check DRs during delivery.

Patient Education:

Encourage the patient to eat foods high in magnesium, such as seafood, whole grains, green leafy vegetables, and nuts.

Chvostek's and Trousseau's Signs

Positive Chvostek's Sign

Positive Trousseau's Sign

Acid-Base Buffers

Chemical Buffers:

* The initial line of defense is comprised of chemical buffers because of how fast they adapt to pH fluctuations. Hydrogen ions are either released or bound by chemical buffers.

Respiratory Buffers:

* Respiratory buffers, which use carbon dioxide (CO_2) to manage hydrogen ion levels, are the second line of defense. * Hyperventilation: increasing CO_2 (an acid) exhalation to increase pH's basicity. * Hypoventilation: Holding onto CO_2 to raise pH.

Kidney Buffers:

The third line of defense, the kidneys, are the least quick to respond yet most effective. The transport of bicarbonate is regulated by the kidneys, which can reabsorb or expel bicarbonate depending on the situation.

ABG Lab Values

pH: 7.35 - 7.45 = Normal	PaCO2: (Acid) 35 -	HCO3: (Base) 22 -
<7.35 = Acidic >7.45 =	45 = Normal <35 =	26 = Normal <22 =
Basic	Basic >45 = Acidic	Acidic >26 = Basic

*Compensation is the body's attempt to correct an abnormal pH level. pH is considered fully compensated when it returns between 7.35 and 7.45. If compensatory mechanisms are not able to normalize the pH, it is partially compensated.

Respiratory Acidosis

* Also known as hypoventilation, this causes a CO2 rise of more than 45.

Risk Factors:

* A decrease in breathing capacity, an obstruction of the airway, drowning, insufficient chest expansion, or insufficient mechanical ventilation.

Signs & Symptoms:

* (At first, tachycardia and hypertension; later, bradycardia and hypotension), disorientation, inadequate breathing, and pallor or cyanosis.

Nursing Considerations:

• Start oxygen therapy • Keep the airway open or maintained • Using positioning, mechanical ventilation, or bronchodilators to facilitate gas exchange.

Respiratory Alkalosis

• Hyperventilation, which is another name for it, causes a CO2 drop of less than 35.

Risk Factors:

* Intracerebral injury, too much mechanical ventilation, salicylate poisoning, shock, or the beginnings of a respiratory infection.

Signs & Symptoms:

Tachypnea, tachycardia, dysrhythmias, disorientation, paresthesias, tinnitus, and potential syncope are some of the symptoms.

Nursing Considerations:

* Begin oxygen therapy If the patient is hyperventilating as a result of anxiety or fear, utilize strategies to reduce anxiety. * Use rebreathing strategies to assist the
patient in slowing their breathing.

Metabolic Acidosis

* HCO_3 will be less than 22.

Risk Factors:

* Diabetic ketoacidosis (DKA), dehydration, excessive exertion, hypoxia, pancreatitis, liver failure, and diarrhea.

Signs & Symptoms:

* Bradycardia, hypotension, tachypnea, irregular heartbeats, disorientation, and Kussmaul respirations (rapid and deep breathing).

Nursing Considerations:

* The reason is the main focus of treatment. Give insulin if acidosis is related to DKA. • If gastrointestinal losses are the cause of acidosis, administer antidiarrheals and electrolyte replacement. • If serum HCO_3 is low, provide 1 mE per kilogram of sodium bicarbonate.

Metabolic Alkalosis

* HCO_3 will be greater than 26.

Risk Factors:

• Vomiting, NG tube suction, Cushing's syndrome, and hyperaldosteronism; excessive oral antacid use.

Signs & Symptoms:

• Hyperactive reflexes, tetany, paresthesias, tachycardia, hypotension, and inefficient respiration.

Nursing Considerations:

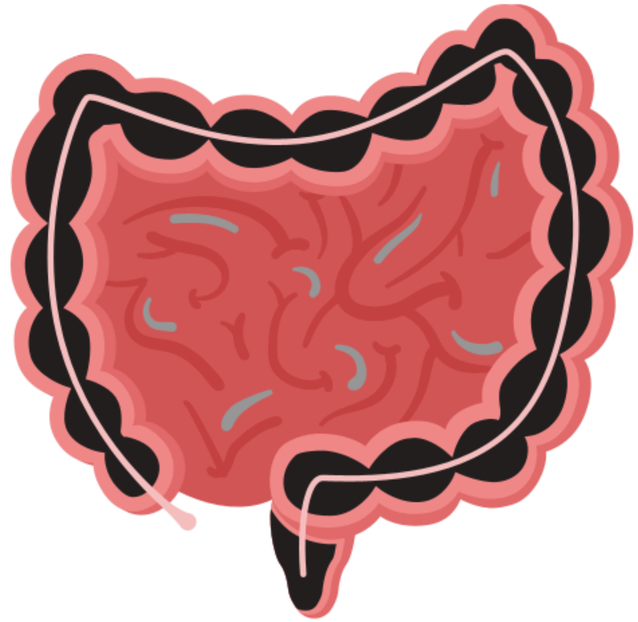
* If alkalosis is caused by gastrointestinal losses, give antiemetics, fluids, and electrolyte replacements.

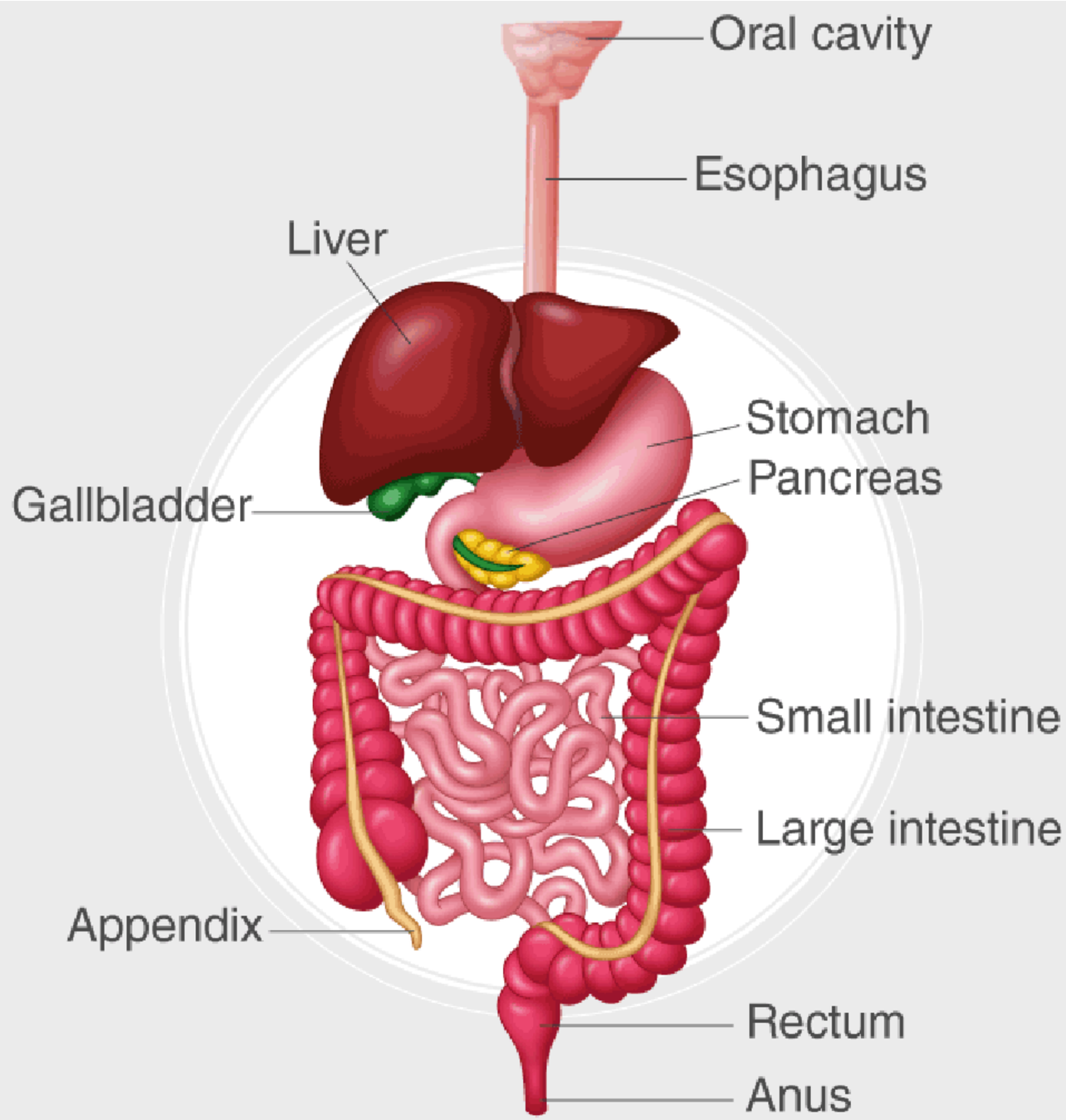
ABG Cheat Sheet

pH	CO_2	HCO_3	Diagnosis
7.35 - 7.45	35 - 45	22 - 26	Normal
Less than 7.35	Greater than 45	22 - 26	Respiratory acidosis
Greater than 7.45	Less than 35	22 - 26	Respiratory alkalosis
Less than 7.35	35 - 45	Less than 22	Metabolic acidosis
Greater than 7.45	35 - 45	Greater than 26	Metabolic alkalosis

Gastrointestinal

- Esophageal Conditions
- Stomach Ulcer Illness
- Non-inflammatory GI conditions
- Bowel inflammation disorders
- Cholelithiasis and cholecystitis
- The pancreas.
- Cirrhosis * Hepatitis A, B, C, D, and E




Oral cavity
Esophagus
Liver
Stomach
Pancreas
Gallbladder
Small intestine
Large intestine
Appendix
Rectum
Anus

Gastrosophageal Reflux Disease

* With GERD, gastric content backflows into the esophagus.

Risk Factors:

Intake of fatty/fried meals, chocolate, coffee, spice, alcohol, and peppermint. * Obesity, advanced age, sleep apnea, hiatal hernia, and gastritis.

Signs & Symptoms:

* Dyspepsia (indigestion), esophageal burning, discomfort that gets worse while lying down, burping, sore throat, and discomfort when swallowing.

Medications:

* Proton pump inhibitors (omeprazole), antacids (aluminum hydroxide), and histamine-2 receptor antagonists (famotidine).

Patient Education:

Teach the patient to avoid large meals or offensive foods, stay upright after meals, eat small, frequent meals, and steer clear of eating just before night.

Hiatal Hernia

• The stomach (or portions of it) protrudes into the thoracic cavity through the hiatus.

Signs & Symptoms: (typically worse after eating)

* Burping, dysphagia, chest pain, and heartburn.

Diagnosis:

• Barrium swallow and EGD.

Medications:

* Omeprazole, a proton pump inhibitor, and aluminum hydroxide, an antacid.

Treatment:

* Laparoscopic Nissen fundoplication.

Patient Education:

* Inform the patient about avoiding big meals or bothersome foods, skipping dinner, exercising frequently but not vigorously, and elevating their head of bed.

Esophageal Varices

* Swollen and weak blood vessels found in the lower esophagus.

Risk Factors:

* Portal hypertension caused by viral hepatitis, old age, liver cirrhosis, and high alcohol intake.

Signs & Symptoms if varices bleed:

* Bloody vomit, tarry stools, shock, hypotension, and tachycardia.

Medications;

* Beta blockers (such as propranolol) and vasopressin.

Procedures:

• Esophagogastric balloon tamponade, sclerotherapy, and endoscopic ligation.

Patient Education:

* Inform the patient not to drink alcohol and not to perform valsalvas (bearing down). and stay away from drugs that can irritate the esophagus, such as NSAIDs.

Peptic Ulcer Disease

* Mucosal erosion in the small intestine, stomach, or esophagus.

Risk Factors:

* Pernicious anemia, stress, NSAID use, excessive alcohol use, H. pylori infection, and Zollinger-Ellison syndrome.

Signs & Symptoms:

* Weight loss, heartburn, nausea and vomiting (with blood), and abdominal pain that may radiate to the back.

Medications:

* Mucosal protectants (sucralfate), proton-pump inhibitors (omeprazole), histamine 2-receptor antagonists (famotidine), and antibiotics (metronidazole).

Patient Education:

* Advise patients to abstain from caffeine, fizzy drinks, smoking, and alcohol use.

Intestinal Obstruction

Risk Factors:

• Fecal impaction, tumors, endometriosis, Crohn's disease, hernias, carcinomas, and intestinal adhesions.

Signs & Symptoms:

* Abdominal pain and distention, constipation, fluid and electrolyte imbalances, and projectile vomiting with a feces-like odor.

Medications:

* Bulk-forming laxatives (psyllium), and alosetron.

Diagnosis;

* Endoscopy, CT, and X-ray.

Procedures;

To decompress the gut, a nasogastric tube will be placed.
The cause of the obstruction will be found during an exploratory laparotomy.

Appendicitis

* Inflammation brought on by the appendix's entrance being blocked.

Risk Factors:

* Young adults, males, family history, abdominal trauma, intestinal worms, and tumors.

Signs & Symptoms:

- Pain in the lower right quadrant, fever, appetite loss, nausea, and vomiting.

Medications:

* Appendectomy - removal of the appendix.

Patient Education:

+ An appendix rupture, which is life-threatening and necessitates prompt surgical intervention, may cause instant relief from stomach pain.

Peritonitis

* Peritoneal inflammation, which affects the membrane lining the abdominal cavity.

Risk Factors:

* Appendicitis, peptic ulcer disease, abdominal trauma, and infection.

Signs & Symptoms:

Heartburn, stomach pain that can travel to the back, nausea and vomiting (with blood), and weight loss.

Medications:

- Antibiotics (penicillin).

Patient Education:

* Advise patients to abstain from caffeine, fizzy drinks, smoking, and alcohol use.

Gastroenteritis

* Stomach inflammation brought on by an illness.

Risk Factors:

* Consuming or consuming tainted food or water.

Signs & Sumptoms:

* Vomiting, frequent diarrhea, abdominal pain, stomach cramping, fever, chills, and lethargy.

Medications:

* Antibiotic (ciprofloxacin), and antidiarrheals (loperamide).

Patient Education:

* Inform the patient to increase fluid intake to 2-3 liters/day and increase dietary fiber.
* Encourage the patient to avoid caffeine, carbonated beverages, smoking, and alcohol consumption.

Ulcerative Colitis

* Rectum and sigmoid colon inflammation.

Risk Factors:

* Genetics, ethnicity of Caucasian, Jewish, or African American, youth, smoking, and long-term NSAID usage.

Signs & Symptoms:

* Lower abdomen pain, loss of weight, 10–20 loose stools per day with blood, mucus, or pus, and fever.

Medications:

* 5-aminosalicylic acid (sulfasalazine), corticosteroids (prednisone), immunosuppressants (azathioprine), immunomodulators (infliximab) and antidiarrheals (loperamide).

Procedures:

* Colectomy (colon removal).

Patient Education:

* Patients should abstain from alcohol and caffeine.

Crohn's Disease

* Ulcers and inflammation of the gastrointestinal tract.

Risk Factors:

* Genetics, ethnicity (Caucasian, Jewish, or African American), youth cigarette usage.

Signs & Symptoms:

* Weight loss, up to five loose stools per day, steatorrhea, and abdominal pain and distention.

Medications:

* 5-aminosalicylic acid (sulfasalazine), corticosteroids (prednisone), immunosuppressants (azathioprine), immunomodulators (infliximab) and antidiarrheals (loperamide).

Patient Education:

* Patients should abstain from alcohol and caffeine.
* Patients should eat short, frequently spaced meals (rich in protein) to help minimize exacerbations.

Diverticulitis

Bowel inflammation brought on by food or feces getting stuck in herniations in the intestinal wall.

Risk Factors:

* Advanced age, males, obesity, tobacco use, sedentary lifestyle, and diet high in fat.

Signs & Symptoms:

* Abdominal pain/distention, fever, chills, tachycardia, and nausea & vomiting.

Medications:

* Antimicrobials (metronidazole).

Procedures;

* If medicine is ineffective, a colon resection can be required.

Patient Education:

* The patient should stick to a clear liquid diet during exacerbations and transition to a low-fiber diet as soon as they can eat without experiencing any discomfort.
* Advise the patient to abstain from drinking.

Cholecystitis & Cholelithiasis

• Cholecystitis, an inflammation of the gallbladder, is frequently brought on by cholelithiasis, or gallbladder stones.

Bisk Factors;

* Female sex, oral contraceptive use, genetics, old age, obesity, diabetes, Crohn's disease, and ethnicity of Native American or Mexican American.

Signs & Symptoms:

* Steatorrhea, jaundice, black urine, clay-colored feces, fever, and Murphy's sign (severe pain with subcostal palpation).

Medications;

• Bile acid (chenodiol).

Procedures:

* The removal of the gallbladder altogether through cholecystectomy or extracorporeal lithothripsy, which breaks up the stones.

Patient Education:

* Eat a low-fat diet, work out frequently, and abstain from tobacco usage.

Pancreatitis

* Pancreatic inflammation, which may be acute or chronic.

Risk Factors:

* Abdominal trauma, smoking, kidney failure, genetics, gallstones, hyperlipidemia, hypercalcemia, drug toxicity, and viral infections.

Signs & Symptoms:

• Severe abdominal pain, fever, nausea & vomiting, weight loss, jaundice, ascites, and periumbilical discoloration.

Medications:

* Proton-pump inhibitors (omeprazole), histamine receptor antagonists (imipenem), pancreatic enzymes (pancrelipase - must be taken with every meal and snack!),
and antibiotics.

Patient Education:

• Refrain from consuming alcohol and foods high in fat.

Hepatitis

* Cellular inflammation in the liver.

Hepatitis A: Fecal-oral route. Risk Factors:

- Coming into contact with contaminated food and drinking water.

Medications:

- Immunoglobulin for hepatitis A if vaccination is not recommended.

Hepatitis B: Transmitted through blood. Risk Factors:

- Contact with contaminated blood, intravenous drug usage, and unprotected intercourse.

Medications:

- Antivirals (tenofivir)

Hepatitis Cont.

Hepatitis C: Transmitted through blood.

Risk Factors:

* Unprotected sex, intravenous drug use, and contact with infected blood.

Medications:

* Peginterferon and ribavirin.

Hepatitis D: Confection with Hepatitis B Virus (HBV). Risk

Factors:

Unprotected sex and intravenous drug use.

Hepatitis E: Fecal-oral route. Risk Factors:

* Ingestion of contaminated food or water.

Cirrhosis

* Cirrhosis is the liver's long-term injury or scarring.

Bisk Factors;

* Abnormally high alcohol consumption, autoimmune hepatitis, fatty liver (steatohepatitis), hepatitis B, C, or D.

Signs & Symptoms:

Splenomegaly, cognitive abnormalities, jaundice, ascites, Gl hemorrhage, petechiae and ecchymoses, palmar erythema, and spider angiomas are some of the symptoms.

Medications:

• Diuretics, beta blockers, and lactulose.

Procedures:

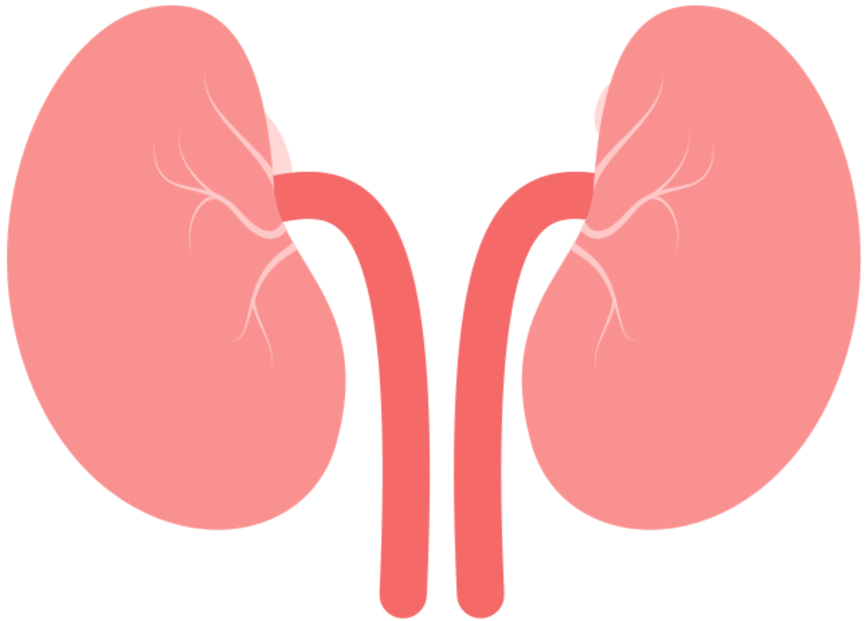
* Liver transplantation and paracentesis for ascites (patient must urinate first to prevent bladder injury).

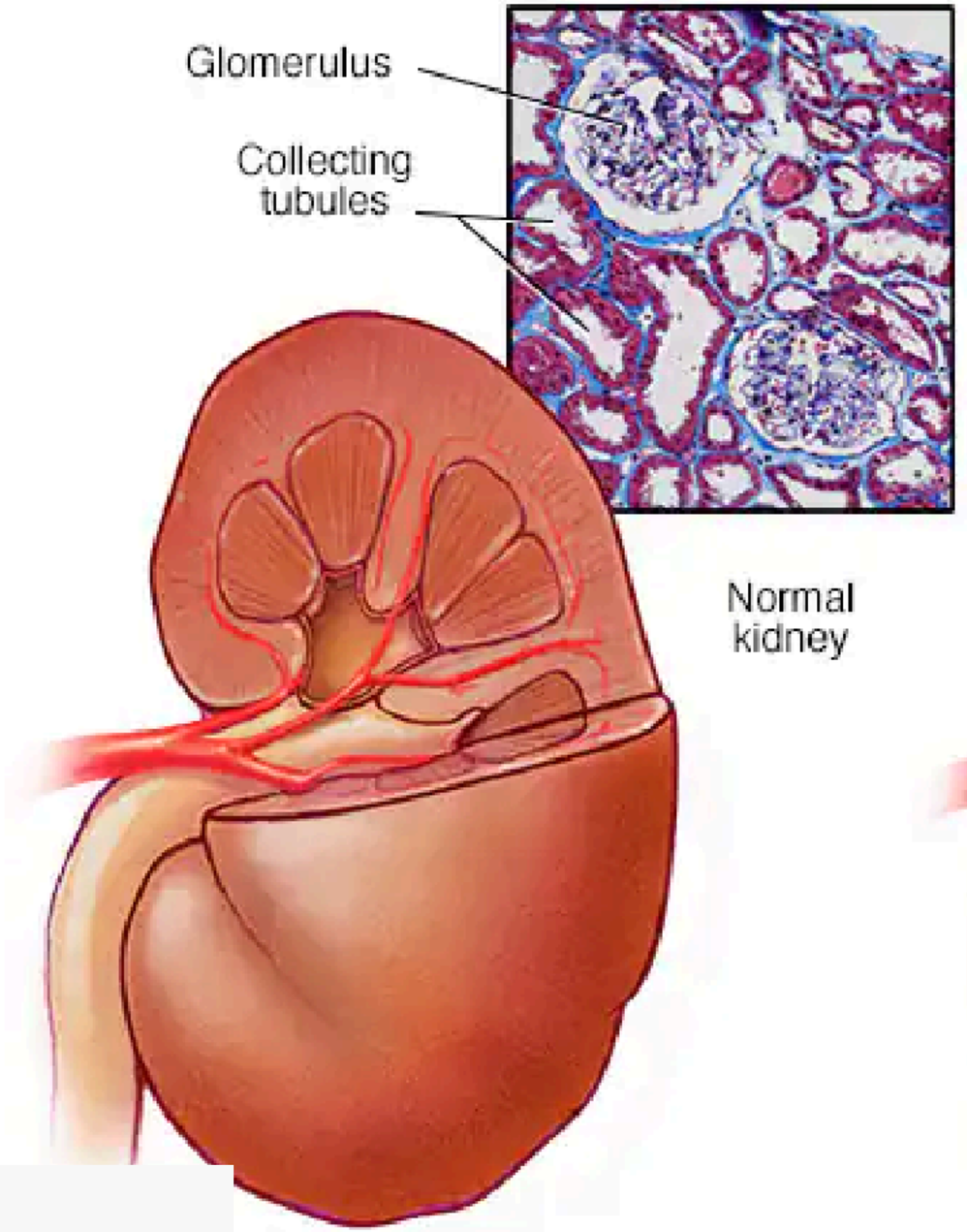
Patient Education:

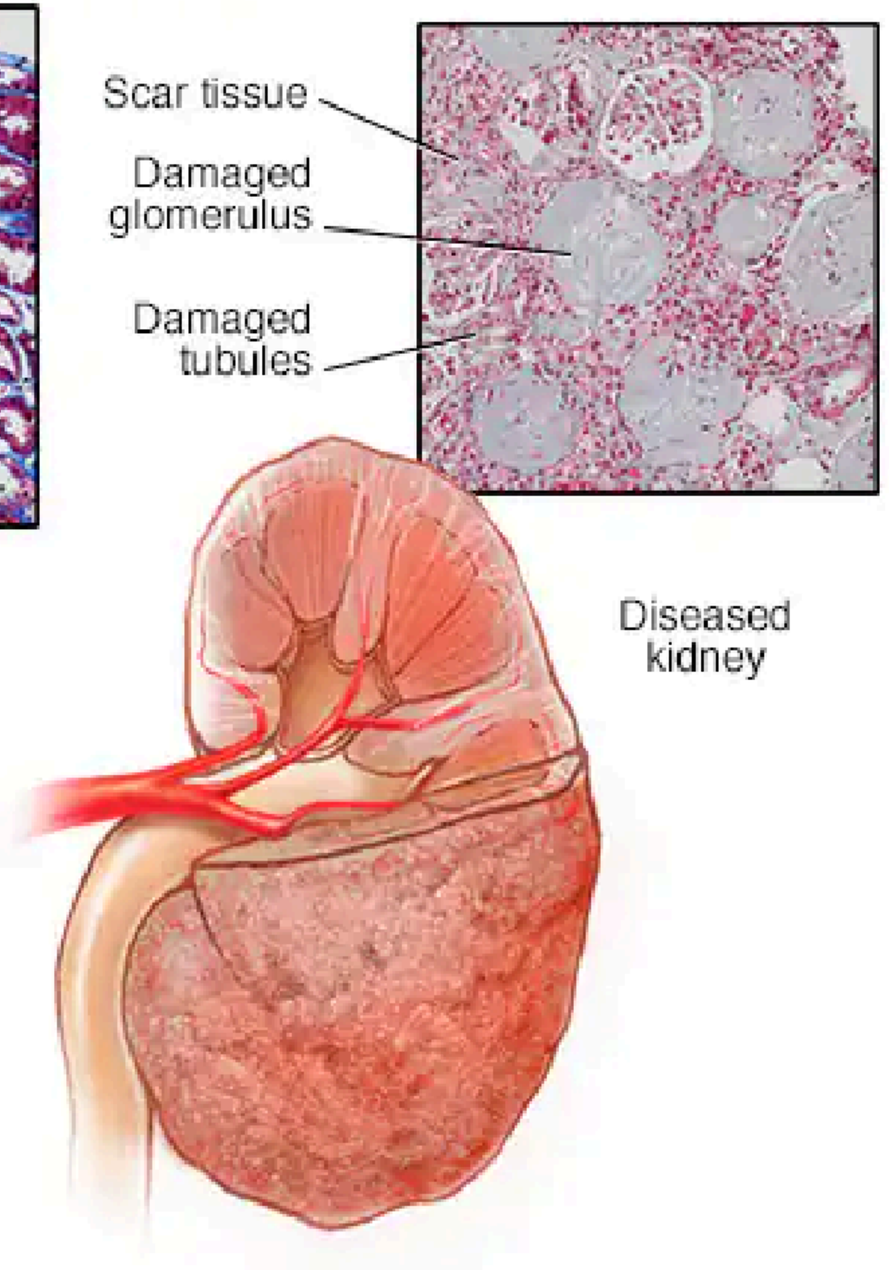
Eat small, frequent meals that are low in sodium and protein, and refrain from drinking alcohol.

Renal Disorders

- Peritoneal and hemodialysis
- Kidney Replacement
- Serious Kidney Damage
- Long-Term Kidney Disease
- Polycystic Kidney Syndrome
- Infection of the urinary tract
- Pyelonephrosis
- Gliolonephritis
- Renal Calculations




Glomerulus
Collecting tubules
Normal kidney


Scar tissue
Damaged glomerulus
Damaged tubules
Diseased kidney

Hemodialysis

• Hemodialysis is a technique that cleans the blood of waste materials in people with kidney diseases.

Reasons for hemodialysis:

* Acute kidney injury or chronic kidney disease, renal insufficiency, chronic- hyperkalemia, and hypervolemia.

Nursing Considerations:

• Avoid placing an IV and taking blood pressure on an arm that has a fistula.

• Three times a week of hemodialysis is required.

Complications:

Disequilibrium Syndrome: This condition develops when fluid is removed quickly. Seizures, confusion, agitation, and nausea are among the signs and symptoms.

Peritoneal Dialysis

• Peritoneal dialysis involves injecting and then draining a hypertonic solution into the peritoneal cavity.

Reasons for peritoneal dialysis:

• Patients who cannot tolerate anticoagulation, have trouble with vascular access, or are unstable; older persons who require dialysis.

Nursing Considerations:

• Calculate how much solution is injected vs how much is drained.

• An infection may be present if the draining solution is murky or bloody.

· Examine the difference in the patient's weight between the two times.

Complications:

• Infection and peritonitis at the entry point.

Kidney Transplant

• If a patient has end-stage kidney disease, they will need a kidney transplant.

Signs & Symptoms of end-stage kidney disease:

• Increased BUN and creatinine, exhaustion, breathlessness, cramping of the muscles, seizures, heart failure, enlargement of the jugular veins, pulmonary edema, hypertension, and oliguria/anuria.

Risk Factors for developing complications from a kidney transplant:

• Cancer diagnoses in young children and older individuals, persistent infections, obesity, diabetes, and incurable heart disease.

Medications after kidney transplant:

• Corticosteroids, cyclosporine (avoid grapefruit), and monoclonal antibodies.

Complications:

• Organ rejection - can present as fever, swelling, and pain at the transplant site. • Ischemia - oliguria or anuria, increased BUN & creatinine.

Patient Education:

• Wash your hands thoroughly, and stay away from crowded areas and sick individuals.
• Keep an eye out for infection-related symptoms and signs, including as fever and purulent incisional discharge.

Acute Kidney Injury

Types

Injury that occurs before the kidneys, such as hypovolemia or shock, is referred to as prerenal. Injury that occurs inside the kidneys, such as glomerulonephritis or trauma, is referred to as intrarenal. Postrenal: Damage caused by obstructions in the structures leaving the kidney, like kidney stones.

Signs & Symptoms:

• Fluid overload, hypertension, dysrhythmias, crackles, shortness of breath, oliguria or anuria, and muscle twitching.

Labs:

• Every day, creatinine levels will rise by 1-2 mg/dL.
• In a week, BUN levels can increase to 80–100 mg/dL.
• Acidosis in the metabolism and hyperkalemia.

Nursing Considerations:

• Strict I8.Os, monitor EKG for peaked T waves from hyperkalemia, measure weight daily, and avoid administration of nephrotoxic medications.

Procedures:

• Continuous renal replacement therapy (CRRT) and hemodialysis.

Chronic Kidney Disease

* Progression and irreversibility characterize chronic kidney disease (CKD).

Risk Factors:

* Acute kidney injuries, polycycstic kidney disease, glomerulonephritis, diabetes, autoimmune disorders, hypertension, and recurrent infections.

Signs & Symptoms:

* Fluid overload, hypertension, dysrhythmias, crackles, Kussmaul respirations, anemia, melena, fragile bones, proteinuria, and erectile dysfunction.

Labs:

* Urinalysis reveals hematuria, proteinuria, and reduced specific gravity.
* BUN and creatinine levels are increased.
* Imbalances in electrolytes such hyperphosphatemia, hyperkalemia, and hypermagnesemia.

Nursing Considerations:

* Adhere to strict I8.Os, check your EKG for peaked T waves caused by hyperkalemia, weigh yourself every day, and stay away from nephrotoxic drugs.

Procedures:

• Hemodialysis, peritoneal dialysis, and kidney transplant.

Polycystic Kidney Disease

* Congenital condition that results in fluid-filled cysts growing inside the kidney. The inherited condition polycystic kidney disease is more prevalent in Caucasian persons.

Signs & Symptoms:

* Abdominal and flank pain, hypertension, constipation, cloudy/bloody urine output, nocturia (having to urinate at night), and progressive kidney failure.

Labs:

• BUN and creatinine are elevated.
* Urinalysis shows hematuria, proteinuria, and decreased specific gravity.
• Electrolyte imbalances like hyperkalemia, hyperphosphatemia, and hypermagnesemia.

Procedures:

• The provider can perform a needle aspiration to drain the cysts.

Patient education:

* The patient needs to follow a diet low in salt.
• Regularly check your blood pressure and weight.
* Inform the provider if your urine output varies.

Urinary Tract Infection

• An infection of the ureters, bladder, urethra, or prostate frequently brought on by Escherichia coli.

Risk Factors:

* Female sex (owing to shorter urethra), sexual activity, pregnancy, using synthetic underwear, taking frequent baths, abusing feminine hygiene products, and advancing age.

Signs & Symptoms:

* Lower abdomen or flank pain, hematuria, fever, discharge from the urethra, foul-smelling urine, and dysuria (painful urination).

Labs:

• Urinalysis shows bacteria, WBCs, RBCs, and positive leukocyte esterase.

Medications:

* Antibiotics (Fluoroquinolones, trimethroprim, or sulfonamides), and phenazopyridine (will turn urine orange).

Patient education:

• consume more fluids, urinate before and after sexual activity, empty your bladder every four hours, consume cranberry juice, stay out of bubble baths, and practice good perineal cleanliness.

Pyelonephritis

* A common Escherichia coli infection of the kidney pelvis, calyx, and medulla.

Risk Factors:

* Older age (over 65), prostatitis, benign prostatic hypertrophy (BPH), pregnancy, bladder tumors, persistent kidney stones, and ongoing sickness.

Signs & Symptoms:

* Headaches, tachycardia, tachypnea, nausea, vomiting, fever, chills, dysuria, costovertebral soreness, and hypertension.

Labs:

* Urinalysis shows bacteria, WBCs, RBCs, and positive leukocyte esterase.

Medications:

* Antibiotics (Fluoroquinolones, trimethroprim, or sulfonamides).

Procedures:

Large kidney stone removal with pyelolithotomy; ureter repair via ureteroplasty. * Nephrectomy - Kidney removal as a last resort.

Glomerulonephritis

* renal glomeruli damage that can result in end-stage renal disease.

Risk Factors:

* Recent surgery, systemic lupus erythematosus, Goodpasture syndrome, or recent exposure to bacteria or viruses.

Signs & Symptoms:

* Cola-colored urine, crackles, murmurs, hypertension, oliguria, and dysuria.

Labs:

* RBCs and protein can be seen in urine analyses.
* The GFR (glomerular filtration rate) is reduced.
* Hyperkalemia.

Medications:

• Antibiotics (erythromycin, azithromycin, or penicillin).

Patient Education:

* Even if you feel better, finish the entire course of antibiotics, and keep track of daily weights.

Renal Calculi

Also referred to as kidneyR esntaol Cnalceusli. Calcium makes up the majority of renal calculi.

Risk Factors:

* Males, genetics, urinary stasis or retention, dehydration, and metabolic defects.

Signs & Symptoms:

* Horrific renal pain, oliguria/anuria, tachycardia, tachypnea, fever, nausea, and rust-colored urine.

Diagnosis:

* KUB: X-ray of kidneys, ureters, and bladder can confirm the location of the stones.

Nursing Considerations;

* Strain all urine to check for the stones! Encourage the patient to increase fluid intake.

Medications:

* Antibiotics (gentamicin and cephalexin), opioid analgesics (morphine sulfate), and spasmolytic medications (oxybutynin).

Procedures:

* Extracorporeal shock wave lithotripsy (ESWL): Uses shock-wave energy to break the stones.

Reproductive Disorders

- Problems with Periods
- The menopause
- Menstruation
- Rectocele and cystocele
- Noncancerous Prostatic Hyperplasia
- Dysfunctional erection
- Prostatitis

Menstrual Disorders

Dysmenorrhea:

• A painful menstrual cycle that typically starts in adolescence and gets lighter as you get older.

Menorrhagia:

• Excessive menstrual bleeding that lasts longer than an hour and involves soaking more than one tampon or pad.

Metrorrhagia:

• Bleeding between menstrual periods.

Amenorrhea:

• The absence of menstruation. Can occurs in athletes with low body fat percentages.

Premenstrual syndrome (PMS):

• May include mood swings, depression, irritability, cognitive changes, headache, and binge eating. A hormonal imbalance between estrogen and progesterone is probably the root cause of PMS.

Perimenopause

* The interval before menopause when ovarian function gradually decreases is known as the perimenopause. The perimenopause may extend for three to five years.

Signs & Symptoms:

• Irregular menstruation, vaginal dryness, hot flashes, night sweats, headaches, fatigue, emotional lability, and reduced fertility.

Complications:

* As estrogen levels start to drop, the patient is more susceptible to osteoporosis and coronary heart disease.

Patient Education:

* Remind the patient that pregnancy is still a possibility during perimenopause and to continue using birth control if desired.

Menopause

* Menopause is the end of menstruation, and it is finalized after a year without a menstrual period.

Signs & Symptoms:

* Changes in breast tissue, irregular menstruation, dry vagina, labia shrinkage, hot flashes, nocturnal sweats, headache, weariness, and emotional lability.

Labs:

* Decreased HDL and increased LDL. * Follicle stimulating hormone (FSH) increases.

Medications:

individuals who still have uteruses should take estrogen and progestin; individuals who no longer have uteruses should take estrogen.

Complications:

* Thrombophlebitis, myocardial infarction (MI), and stroke. If the patient utilizes tobacco products, the risk increases. • Endometrial and ovarian cancer.

Cytocele

When the bladder pokes through the vaginal wall, a cystocele develops.

Bisk Factors:

* Difficulty during vaginal childbirth, multiparty, obesity, advanced age, and family history.

Signs & Symptoms:

* Pelvic and back pain, feeling of fullness, stress incontinence, and frequent or urgent urination.

Procedures:

* Anterior colporrhaphy: Shortening and tightening of the pelvic muscles.
* Vaginal pessary: Detachable object used to prevent organ protrusion into the vagina.
* Kegel exercises bolster the muscles of the pelvic floor.

Patient Education:

* Refrain from straining, coughing, sneezing, and long-distance walking.
* For the first six weeks following surgery, refrain from lifting anything over 5 lbs. or engaging in sexual activity.
* When sneezing or coughing, contract your pelvic muscles.

Rectocele

* A rectocele develops when the vaginal wall of the uterus is breached by the rectal wall.

Risk Factors:

• Difficult vaginal childbirth, family history, pelvic structure defects, advanced age, obesity, and constipation.

Signs & Symptoms:

* Hemorrhoids, uncontrolled gas, fecal incontinence, rectal pressure/pain, sensation of a mass in the vagina, and constipation.

Procedures:

* Posterior colporrhaphy: Shortening and tightening of the pelvic muscles.

* Vaginal pessary: Detachable object used to prevent organ protrusion into the vagina

Kegel exercises bolster the muscles of the pelvic floor.

Patient Education:

* Refrain from straining, coughing, sneezing, and long-distance walking.

• For the first six weeks following surgery, refrain from lifting anything over 5 lbs. or engaging in sexual activity.

* When sneezing or coughing, contract your pelvic muscles.

Benign Prostatic Hyperplasia

• Urinary dysfunction brought on by prostate gland enlargement.

Bisk Factors:

• Poor diet, diabetes, heart disease, old age, obesity, smoking, and alcohol usage.

Signs & Symptoms:

• Urinary frequency, hesitancy, urgency, nocturia, hematuria, and urinary stasis.

Medications;

• 5-alpha reductase inhibitor (finasteride), and alpha-blocking agents (tamsulosin).

Procedures:

• Transurethral resection of the prostate (TURP): Most common procedure for BPH.

Patient Education:

• For six weeks following surgery, refrain from straining, strenuous exercise, and sexual activity.
• S nated beverages, and do not consume a lot of liquids at once.
• state enlargement and aids in the release of prostatic fluids.
• e.

Erectile Dysfunction

Risk Factors:

* Prostatectomy, back and pelvic traumas, hypertension, endocrine diseases, smoking, drinking, and taking specific drugs.

Signs & Symptoms:

* Unable to achieve or maintain an erection.

Medications:

Sildenafil, tadalafil, and vardenafil are PDE-5 inhibitors. Nitrates and alcohol should be avoided. Penile suppository called alprostodil.

Procedures;

* Vacuum constriction device, and penile implants.

Patient Education:

* Pregnant partners should not use alprostodil; PDE-5 inhibitors should not be taken with hypotensives or nitrates.

Prostatitis

• Prostate inflammation brought on by infections or injuries.

Signs & Symptoms:

• Urinary hesitancy, frequency, dysuria, urethral discharge, tender prostate, fever, chills, and difficulty initiating and stopping flow of urine.

Medications:

* Antimicrobials, alpha-blocking agents (tamsulosin), and stool softeners.

Diagnosis:

• Prostate specific antigen: An elevated value can indicate prostate cancer, prostatitis, and benign prostatic hyperplasia.

Patient Education:

* Inform the patient about the use of sitz baths and NSAIDs for pain relief.

* Prevent using over-the-counter antihistamines and decongestants (may cause urine retention).

* Steer clear of alcohol and coffee.

Musculoskeletal Disorders

- Arthroscopy
- Amputees
- Osteopenia
- Breakages
- Stability
- Hand-Elbow Syndrome
- Sprains and stretches
- Rheumatoid arthritis vs. osteoarthritis
- Back discomfort

Arthroplasty

• Surgical methods to restore damaged joints are referred to as arthroplasty.

Beasons for getting an arthroplasty;

* Degenerative diseases (rheumatoid arthritis and osteoarthritis), and osteonecrosis (necrosis of the bone).

Contraindications for arthroplast:

* Active infections, uncontrolled diabetes or high blood pressure, erratic respiratory or cardiac conditions, and arterial insufficiency in the affected extremity.

Hip arthroplasty:

The patient should adhere to the following hip safety precautions:

* Using a toilet seat riser
* Using a pillow for abduction.
* Avoid bending your hips past 90 degrees.
* Avoid twisting your toes inward or crossing your legs.
* Keep low chairs away.

Amputations

* Removal of a body part. Most commonly the upper or lower extremities.

Risk Factors:

* Cancer, frostbite, burns, car accidents, electrocution, using machinery for work, ischemia or gangrene, peripheral vascular disease, and infection.

Signs & Symptoms:

* Pain, change in pulse, altered temperature and color of the extremity, and lack of sensation.

Procedures:

* Closed amputation: The most typical method involves suturing a skin flap over the limb's end.
* Open amputation (only performed for active infections): No skin flap is sutured over the limb.

Complications:

agony in the severed extremity is known as "phantom limb pain." can be treated with gabapentin, propranolol, and baclofen, all of which are beta blockers used to
treat epilepsy.

Osteoporosis

* Low bone density resulting in fragile bone tissue.

Bisk Factors:

* Female sex, family history, low calcium and vitamin D consumption, coffee and tobacco usage, sedentary lifestyle, comorbid conditions, advanced age, and long-term
corticosteroid use.

Signs & Symptoms:

* Pain, decreased height, limited range of motion, fractures, and spinal deformity.

Medications:

* Bisphosphonates (alendronate), calcium supplements, calcium carbonate, vitamin D supplements, and thyroid hormone (calcitonin).

Patient Education:

* Limit excessive alcohol, soda, and caffeine intake. + Up your dairy and protein intake. • Engage in aerobic activities like swimming.

Fractures

Closed (simple) fracture: This fracture does not break through the skin. Open (compound) fracture: This fracture does break through the skin. Complete fracture: The bone has fractured fully and there are two pieces. Incomplete fracture: The bone is partially fractured and remains in one piece. Simple fracture: One fracture line. Comminuted fracture: Multiple fracture lines that split the bone into many pieces. Displaced fracture: Bone fragments are no longer aligned. Non-diplaced fracture: Bone fragments are still aligned. Spiral fracture: Fracture from a twisting motion. Greenstick fracture: Fracture occurs on just one side of the bone (more common in children).

Fractures Cont.

Risk Factors:

* Slips and falls, car crashes, osteoporosis, bone cancer, sports injuries, lactose intolerance, and old age.

Signs & Symptoms:

* Pain, deformity/asymmetry, muscle spasms, edema, and crepitus (sound made by bone fragments rubbing together).

Procedures:

* Open reduction with internal fixation, traction external fixation, splints, casts, and closed reduction.

Nursing Considerations:

+ Examine the extremity for compartment syndrome (edema puts pressure on it, which might cause ischemia). Use the 5 P's to screen for compartment syndrome: • Poikilothermia (cold extremities), pallor of the extremity, paralysis, and paresthesia.

Types of Traction

Manual traction:
* A doctor will use their hands to manually lift the injured extremity into a temporary posture.

Skin traction (Buck's traction):

* Boots, straps, or tape are used to secure weights to the skin. This kind of traction is used to keep patients immobile before surgery.

Skeletal traction:

* Screws that are placed directly into the bone are coupled to weights. The nurse must take cautious care of the pin site.

Nursing Considerations:

* Verify that the weights are hanging freely.
* Never change weights without the provider's permission.
* Conduct neurovascular examinations every hour for the first 24 hours, then every four hours after that.

Carpal Tunnel Syndrome

median nerve compression-related wrist discomfort.

Risk Factors;

* Repetitive sports injuries, diabetes, computer-related hand stress, and rheumatoid arthritis.

Signs & Symptoms:

* Pain and numbness in one or both hands.

Diagnosis;

" Phalen's maneuver and Tinel's sign.

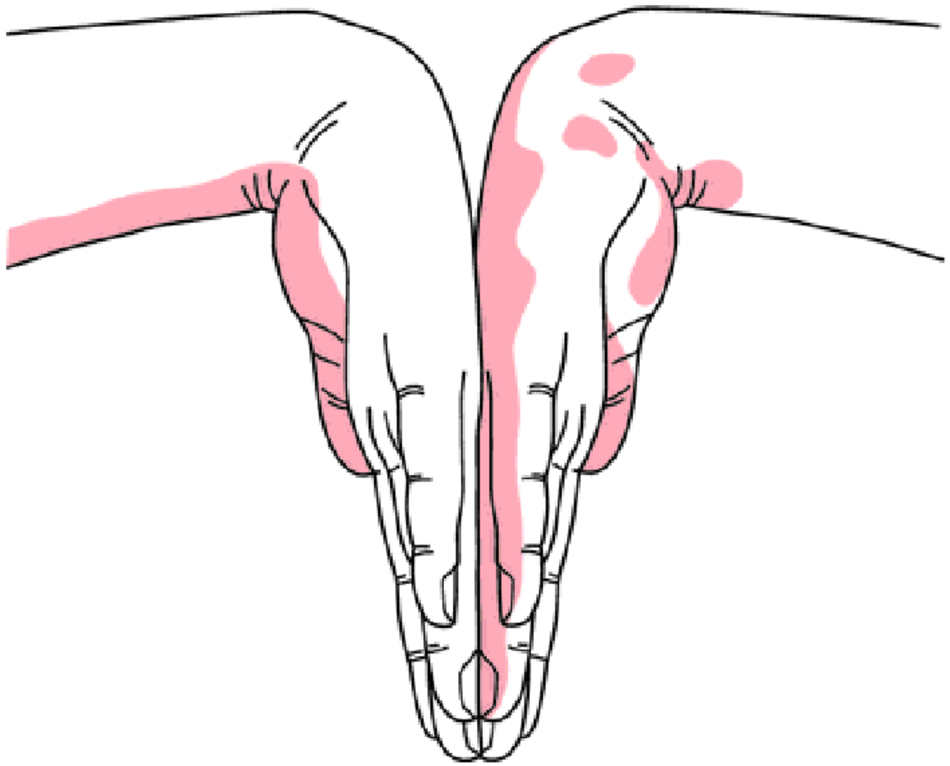
Treatment:

Splint or hand brace. Corticosteroids and NSAIDs. Endoscopic carpal tunnel release is an alternative to surgery.

Patient education:

For six weeks, try to minimize hand motions and strenuous lifting. Stop making constant hand gestures.

Phalen's Maneuver



Sprains & Strains

Sprain: Excessive ligament stretching.

Treatment:

* Rest, ice, compression, and elevation are acronyms for RICE.
* If a sprain is severe, immobilization may be required. Strain: Excessive

stretching of tendons or muscles.

Treatment:

* Alternating the application of heat and cold.
* Drugs that reduce inflammation.
* If the muscle or tendon has ruptured, surgery may be required to heal it.

Osteoarthritis vs Rheumatoid Arthritis

	Osteoarthritis	Rheumatoid Arthritis
Definition:	* Degenerative cartilage destruction with bone spur growth.	* Inflammation of synovial membrane, causing cartilage destruction and bone erosion.
Signs & Symptoms:	*Pain with activity that improves with rest. * Localized response. • Heberden's and Bouchard's • Swan neck and Boutonniere nodes. * Asymmetrical.	* Swelling, redness, and pain with prolinged immobility. * All joints are affected. deformities. * Symmetrical.

Low-back Pain

Risk Factors:

• A history of compression fractures, osteoarthritis, osteoporosis, scoliosis, cigarette use, obesity, bad posture, or back or spine disorders.

Signs & Symptoms:

stiffness in the posture, paresthesia in the lower limbs, and lower back pain that never goes away.

Medications:

* NSAIDs, mild opioids (tramadol), ziconotide (for chronic back pain), and topical creams or gels.

Procedures:

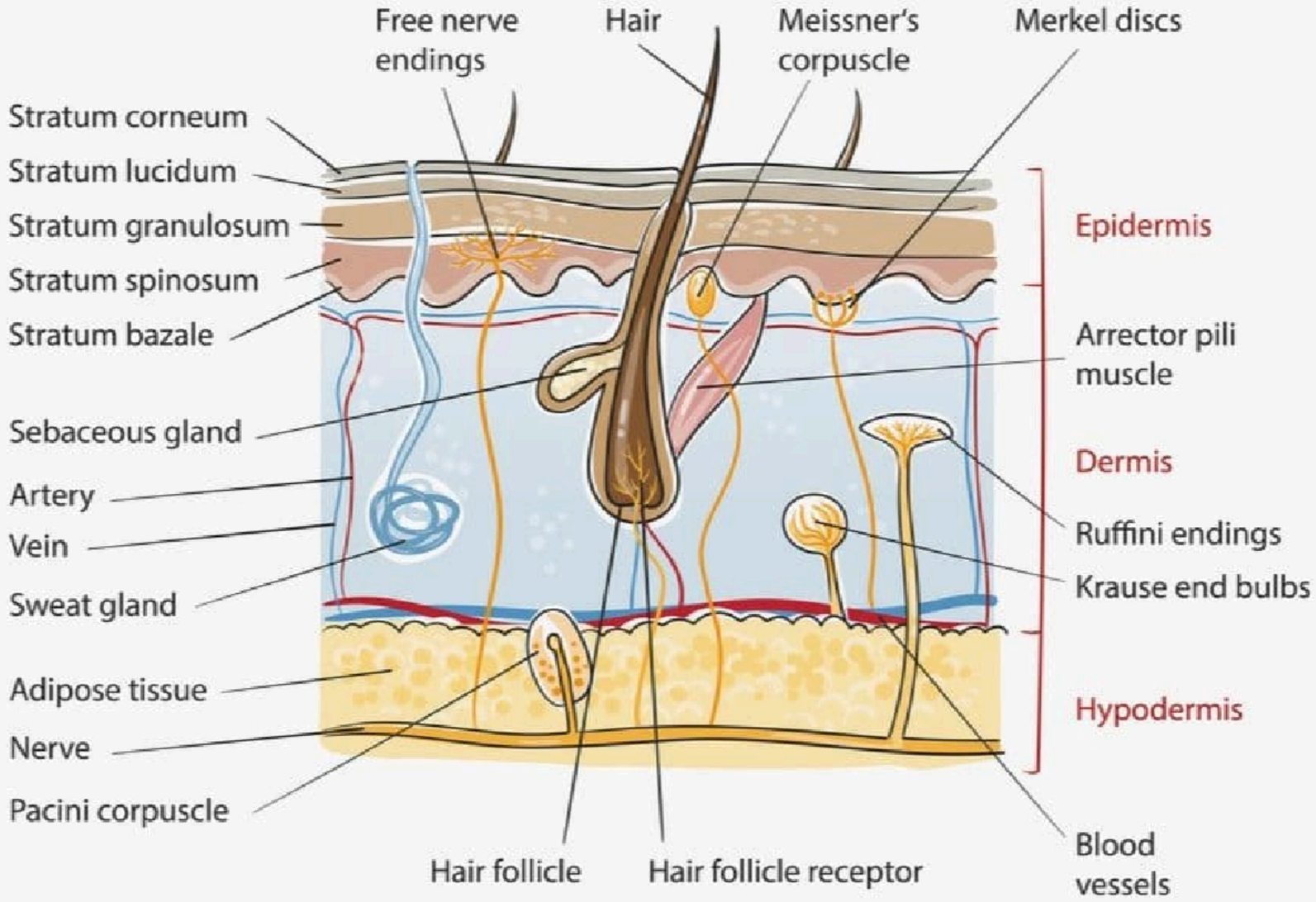
* Transcutaneous electrical nerve stimulation (TENS), surgery, and an implanted spinal infusion pump.

Patient education after back surgery:

* When repositioning, move the body as a whole using the "log roll" technique; wear your back brace for 4-6 weeks; and sit in a straight-back chair with your feet flat on the floor.

Integumentary Disorders

- Psoriasis
- Skin rashes
- Burn Damage
- Fire Depth
- Stages of Burn Treatment


Free nerve endings
Hair
Meissner's corpuscle
Merkel discs
Stratum corneum
Stratum lucidum
Stratum granulosum
Stratum spinosum
Stratum bazale
Sebaceous gland
Artery
Vein
Sweat gland
Adipose tissue
Nerve
Pacini corpuscle
Hair follicle
Hair follicle receptor
Epidermis
Arrector pili muscle
Dermis
Ruffini endings
Krause end bulbs
Hypodermis
Blood vessels

Psoriasis

* characterized by scaly patches brought on by excessive keratin synthesis.

Bisk Factors:

* Skin trauma, infections, stress, genetics, hormones, and medications.

Signs & Symptoms:

• Red, thick skin that may have white scales, pruritis, and crumbling nails.

Medications;

• Corticosteroid topical creams, tar formulations, vitamin D and vitamin A analogs (calcitriol and tazarotene), as well as cyclosporine and cytotoxic drugs (methotrexate).

Procedures: (No cure, only treatments)

* Photochemotherapy, laser light therapy, and ultraviolet light (PUVA) therapy.

Patient Education:

• Do not scratch lesions or scales. • Take oatmeal baths to sooth skin and soften scales.

Dermatitis

• Skin irritation brought on by exposure to allergens.

Bisk Factors;

* Exposure to allergens (cosmetics, latex, detergents, plants), stress, and genetics.

Signs & Symptoms:

severe pruritis, thickened skin with scaling, and rash.

Medications;

• Steroids (hydrocortisone), antihistamines (diphenhydramine), and topical immunosuppres sants (tacrolimus).

Patient Education:

* Avoid scratching the problematic area.
* Use deodorants, soaps, and cosmetics without fragrances.
* After contact with an allergen, properly wash your skin.
* To relieve pruritis, take an oatmeal bath.
* To reduce swelling, apply a cold, moist towel.

Burn Injury Classification

* Burn severity is classified by the type of burn, severity, and percentage of total body surface area (TBSA) affected.

Burn Classification: Minor burns

* Full-thickness burns that are less than 2% TBS or * Partial-thickness burns that are less than 10% TBSA

Moderate burns

* Burns with a full thickness of 2-10% TBS or
* Burns with a partial thickness of 15–25% TBSA

Major burns

*Full-thickness burns greater than 10% TBSA or
* 3 2596 TBSA of partial-thickness burns
* 60 or older
* Burns to the eyes, ears, face, hands, feet, or perineum from electrical sources, as well as inhalation injuries.

Burn Depth

Superficial Thickness (Sunburn)

• Epidermis is the area. • Outward appearance: pink or crimson, with no blisters. • Painful, painful, and heat-sensitive symptoms.

Superficial partial Thickness (Scalds, quick contact with hot object)

• Surface: The epidermis and some dermis.
• Outward appearance: Pink or crimson, with blisters.
• Pain and slight pigment changes are the symptoms.

Deep partial Thickness (Flame and scalds, prolonged exposure to hot objects)

• Area: Most of the dermis and the epidermis.
• A delicate, red/white eschar is the appearance.
• Pain and scarring are the symptoms.

Burn Depth Cont.

Full Thickness (Scalds, grease, chemical, or electrical burns)

• Region: The entire dermis and epidermis. can reach the subcutaneous layer. •
Outward appearance: edema, hard eschar, red, black, brown, and white. •
Symptoms: minimal discomfort, grafting, and clear scars.

Deep full Thickness (Prolonged electrical burns and flames)

- Surface: Includes bone, tendons, and muscle.
- Outward appearance: Charred and black/white.
- There is no discomfort.

Phases of Burn Care

Emergent (resuscitative phase)

• Starts at the moment of injury and lasts for 24 to 48 hours. • Preserve body temperature, start replacing lost fluids, and safeguard the airway.

Acute Phase

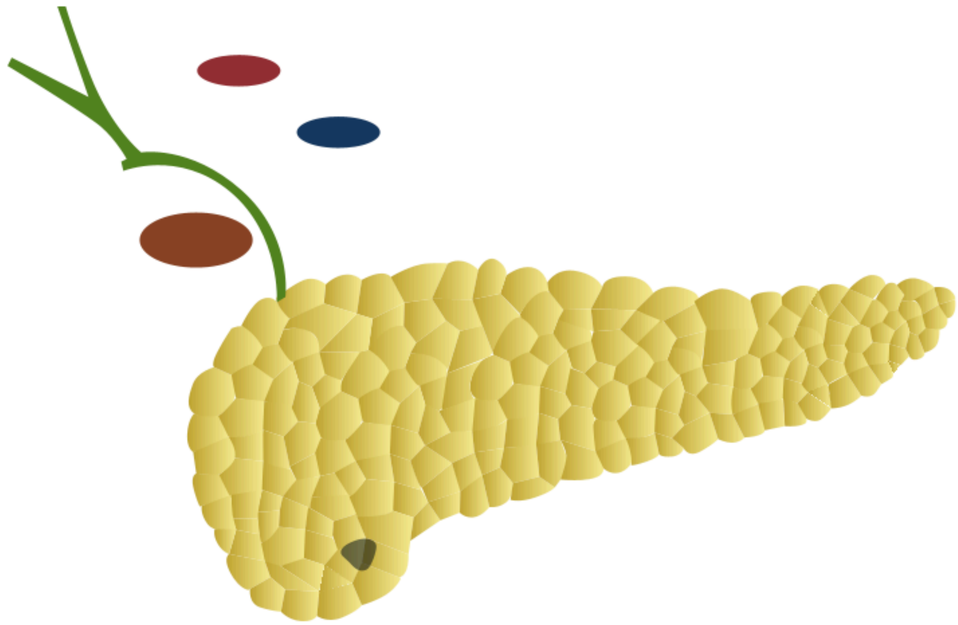
• Starts 36 to 48 hours after the injury and ends when the wound has healed.
• Maintain the gastrointestinal, cardiovascular, and respiratory systems.

Rehabilitative Phase

• The burn wound has mostly recovered.
• The patient reaches a high degree of functioning (comparable to before the injury), at which point this phase is complete.
• Years may pass during the rehabilitation process.

Endocrine Disorders

- Pituitary conditions
- Insipid diabetes
- SIADH
- Hyper- and hypothyroidism
- Cushing's Syndrome
- Addison's condition
- Hyper- and Hypoglycemia
- Diabetes-related ketoacidosis
- Hyperglycemic Hyperosmolar State



Acromegaly

* Overproduction of human growth hormone, which causes the skin, bones, and organs to expand excessively.

Risk Factors:

* Pituitary tumors.

Signs & Symptoms:

* Headaches, visual changes, joint discomfort, enlarged head, barrel-shaped chest, low libido, hyperglycemia, vocal changes, and elevated intracranial pressure.

Medications:

• Dopamine agonists (bromocriptine), and somatostatin analogs (octreotide) both inhibit release of growth hormone.

Procedures:

* Radiation therapy and hypophysectomy (removal of the pituitary gland).

Patient Education:

* Hormone replacement will be taken for life!

Diabetes Insipidus

* Deficiency of antidiuretic hormone (ADH).

Risk Factors:

* Medical conditions such as lithium, a tumor, a head injury, an infection, and prior surgery close to the pituitary gland.

Signs & Symptoms:

• Polyuria (excessive urination), polydipsia (excessive thirst), tachycardia, hypotension, thready pulses, and ataxia.

Labs:

• Specific gravity: < 1.005 * Urine osmolality: < 200 mOsm/L • Blood osmolality: > 300 mOsm/L

Diagnosis:

* Water deprivation test.

Medications:

* Antidiuretic hormone replacement (desmopressin & vasopressin).

SIADH

Antidiuretic hormone (ADH) is released in excess in the syndrome of inappropriate antidiuretic hormone.

Risk Factors:

• Tumor, head injury, infection, stroke, tuberculosis, and increased intrathoracic pressure.

Signs & Symptoms:

• Unconsciousness, tachycardia, bounding pulses, crackles, jugular venous distention, weight gain without edema, dark-colored oliguria, and Cheyne-Stokes respirations.

Labs:

• Increased sodium and osmolarity in the urine; decreased sodium and osmolarity in the blood (270 mEq/L).

Medications:

• Tetracycline derivative (demeclocycline), vasopressin antagonists (tolvaptan), and loop diuretics (furosemide).

Nursing Considerations:

• Limit your daily fluid intake to 500–1000 mL.

• A 1 kg increase in weight equals 1 L of fluid, and this should be disclosed to the provider.

Hyperthyroidism

* Excess secretion of thyroid hormones.

Bisk Factors:

* Graves disease, thyroiditis, toxic adenoma, and excessive dosages of thyroid hormone.

Signs & Symptoms: Hyper!

• Exophthalmos (bulging eyes), hyperactivity, heat intolerance, weight loss, sleeplessness, diaphoresis, hyperreflexia, photophobia, tachycardia, and dysrhythmias.

Labs:

* TSH is decreased. * T3 & T4 are increased.

Medications:

* Anti-thyroid medications (methimazole and propyithiouracil), and iodine solutions.

Procedures:

For the first week of radioactive iodine therapy, patients must avoid contact with children and pregnant women.

* Thyroidectomy: Lifelong thyroid medication replacement is required.

Hypothyroidism

• Inadequate secretion of thyroid hormones.

Risk Factors:

• Iodine deficiency, females, drugs (lithium and amiodarone), head or neck radiation therapy.

Signs & Symptoms:

• Exhaustion, aversion to the cold, weight gain, bradycardia, hypotension, and myxedema (hand, foot, and tongue swelling).

Labs:

• T3 & T4 are decreased.
• TSH is increased.

Medications:

Levothyroxine, used to replace the thyroid:
• It needs to be consumed on an empty stomach, often one hour prior to breakfast.
• Levothyroxine will be prescribed to the patient forever.
• Inform the patient to keep an eye out for hyperthyroidism symptoms and indicators.

Cushing's Disease

• The adrenal cortex oversecretes cortisol.

Risk Factors:

• Adrenocortical cancer in females, chronic glucocorticoid usage, autoimmune conditions, asthma, chronic fibrosis, and organ transplant.

Signs & Symptoms:

• Thinning hair, hirsutism, striae, hyperglycemia, moon face, bruises, thin skin, truncal obesity, and buffalo hump.

Medications:

• Adrenal corticosteroid inhibitor (ketoconazole), and mitotane.

Procedures;

• Chemotherapy, hypophysectomy (removal of the pituitary gland), and adrenalectory (removal of the adrenal gland).

Patient Education:

• Medication treatment may last a lifetime.

• Eat a lot of calcium- and vitamin D-rich foods.

• Every day, weigh yourself at the same time and using the same scale.

• The provider must be informed if a patient gains 2 pounds or more in a day.

Addison's Disease

• Lessening of cortisol and aldosterone due to decreased production of glucocorticoids and mineralocorticoids.

Risk Factors:

• Adrenal hemorrhage, malignancy, steroid withdrawal, sepsis, trauma, and autoimmunity dysfunction.

Signs & Symptoms:

• Dehydration, nausea, vomiting, hyperpigmentation (Bronze look), hypotension, lethargy, and a need for salt.

Labs:

• Hyponatremia, hypoglycemia, hyperkalemia, and hypercalcemia.

Medications:

• Glucocorticoids (prednisone) and mineralocorticoids (fludrocortisone).

Patient Education:

• Up your medicine dosage during stressful times.
• Don't stop taking your drugs suddenly.
• Avoid alcohol and caffeine.
• Medication treatment may last a lifetime.

Hypoglycemia & Hyperglycemia

Hypoglycemia: Blood glucose less than 70 mg/dL.

Signs & Symptoms

• Confusion, diaphoresis, palpitations, headache, blurred vision, and shakiness.

Treatment

* 15 - 20g of carbohydrates (fruit juice, regular soda, or glucose tablets). * Subcutaneous or IM glucagon (if the patient is unconscious).

Hyperglycemia: Blood glucose greater than or equal to 100 mg/dL. Signs & Symptoms

* Polydipsia, polyphagia, polyuria, and fruity breath.

Treatment

• Administer insulin as ordered.

Diabetes Mellitus Type 1

• Autoimmune malfunction, which results in the death of cells that produce insulin. Type 1 DM cannot be stopped.

Risk Factors:

• Genetics, insulin resistance, family history, and autoimmune disease.

Signs & Symptoms:

* Excessive urination (polyuria), thirst (polydipsia), hunger (polyphagia), respirations (kussmaul), sluggish wound healing, and repeated infections.

Diagnosis: Diagnosis includes at least one of the following:

• A1C (haemoglobin) > 6.5%

• Blood glucose level at 2 hours > 200 mg/dL (with glucose tolerance test).

Fasting blood sugar level 3: 126 mg/dL.

• Diabetes symptoms and signs when blood glucose levels are above 200 mg/dL.

Medications:

• Non-insulin injectable drugs (exenatide and pramlintide), oral hypoglycemics (metformin), and insulin.

Diabetes Mellitus Type 2

• A chronic condition that results in insulin resistance. Changes in lifestyle can lower or eliminate the chance of developing type 2 diabetes.

Risk Factors:

* Overweight, high cholesterol, sedentary lifestyle, hypertension, high blood sugar, pancreatitis, and Cushing's syndrome.

Signs & Symptoms:

* Excessive urination (polyuria), thirst (polydipsia), hunger (polyphagia), respirations (kussmaul), sluggish wound healing, and repeated infections.

Diagnosis: Diagnosis includes at least one of the following:

* A1C haemoglobin > 6.5 %
* With a glucose tolerance test, 2-hour glucose > 200 mg/dL.
* Fasting blood sugar level > 126 mg/dL.
* Diabetes symptoms and signs when blood glucose levels are above 200 mg/dL.

Medications;

* Insulin, oral hypoglycemic drugs (metformin), and injectable non-insulin drugs (exenatide, pramlintide).

Diabetes Cont.

Types of Insulin:

Rapid-acting (lispro)

* Take 10-30 minutes before meals.

Short-acting (regular)

Take 30-60 minutes before meals.

Intermediate-acting (NPH)

Take between meals and at night.

Long-acting (glargine)

Administered once daily at the same time

Patient Education:

• To avoid lipohypertrophy, the patient should alternate the sites of their insulin injections.

• Examine and wash your feet every day, but don't soak them!

• Keep lotion away from your toes.

When trimming toenails, file the edges.

• Put on a wristband with your medical information.

Diabetic Ketoacidosis

* Uncontrolled hyperglycemia, which is fatal.

Risk Factors:

* Infections, stress, missed insulin doses, and increased hormone production.

Signs & Symptoms:

* Metabolic acidosis, alterations in cognition, fruity breath, polyuria, polydipsia, polyphagia, hazy vision, hypotension, and kussmaul respirations.

Labs:

• BUN > 30 mg/dL
* Creatinine > 1.5 mg/dL
* Ketones present in blood and urine

Medications:

* Rapid infusion of sodium chloride (0.99),
* an IV bolus of 0.1–0.15 units/kg, and
* an ongoing infusion of 0.1 units/kg/hr of insulin.

Patient Education:

Wear a medical alert bracelet, check your urine for ketones when your blood sugar is higher than 240 mg/dL, and check your glucose every 4 hours if you're ill.

Hyperglycemic Hyperosmolar State

* Uncontrolled hyperglycemia, which is fatal.

Risk Factors:

* Old age, insufficient hydration, impaired renal function, insulin deficiency, use of glucocorticoids or diuretics, myocardial infarction, and sepsis.

Signs & Symptoms:

* Polyuria, polydipsia, polyphagia, impaired vision, hypotension, convulsions, and reversible paralysis. Blood glucose >600 mg/dL.

Labs:

- BUN > 30 mg/dL
- Creatinine > 1.5 mg/dL
- Blood osmolarity > 320 mOsm/L + pH > 7.4 and Bicarb > 20 mEq/L

Medications:

- Rapid sodium chloride infusion at 0.9%.
- Inject 0.1 to 0.15 units/kg of insulin intravenously, followed by a 0.1 units/kg/hr continuous insulin infusion.

Patient Education:

- When ill, wear a medical alert bracelet, check your blood sugar every four hours, and call your doctor if it rises to 250 mg/dL.

Immune System and Connective Tissue Disorders

- Types of Immunity
- Immunizations
- HIV/AIDS
- Lupus Erythematosus
- Gout

- Skin Cancer
- Colorectal Cancer
- Pancreatic Cancer
- Liver Cancer
- Breast Cancer

Types of Immunity

Active Immunity

*Active-natural: When a pathogen enters the body naturally, the body responds by producing antibodies. *

Active-artificial: When a vaccine is administered, the body responds by producing antibodies.

Passive Immunity

+ Passive-natural: Through breast milk and the placenta, antibodies are transferred from the mother to the newborn.

• Passive-artificial: Immunoglobulins are given to a patient in need of immediate protection from a disease (such as after being bitten by a poisonous animal).

Immunizations

Tetanus, diphtheria booster:

• Booster is administered every ten years. • Pregnant patients between 27 and 36 weeks gestation should not receive.

Measles, mumps, and rubella Vaccine (MIMR):

• If the patient has a neomycin or gelatin allergy, do not administer.
• Not recommended while pregnant.

Varicella Vaccine:

Patients with HIV or other immune weaknesses shouldn't take this medication.

Hepatitis A Vaccine:

• Give high-risk individuals 2 doses.

Hepatitis B Vaccine:

• Patients at high risk who have not completed the whole series should get 3 doses.
• Give the second dose after a one-month break, and give the third dose two months after the second.

Immunizations Cont.

Influenza:

• Contraindicated in individuals with egg allergies and in patients who have previously experienced a severe reaction to the vaccine. • Recommended annually for all adults.

Meningococcal:

• Young adults (up to 21) who intend to live in residence halls or military barracks should receive a dose.

Human papilloma Virus (HPV) Vaccine:

Adolescents between the ages of 11 and 12 are treated with only 2 doses, spaced 6 to 12 months apart.

Zoster Vaccine:

• Given twice to all persons aged 50 and older.

HIV/AIDS

* Vaginal fluids, sperm, and blood all carry retro viruses.

Risk Factors:

* Perinatal exposure, several partners for sex, IV drug use, and old age.

Signs & Symptoms:

* Night sweats, rash, headache, weariness, anorexia, sore throat, and other symptoms.

Labs;

* Platelets 150,000/mm3 * CBC will be abnormal (leukopenia, thrombocytopenia, anaemia)

Diagnosis:

* An ELISA validated by an additional HIV antibody test that yielded a positive result.

Patient Education:

* Practise good hygiene, stay away from busy locations, steer clear of raw or undercooked meats, leave pet litter boxes alone and take a shower with antimicrobial soap.

HIV Infection Stages

Stage 2:

* CD4+ T-lymphocyte count: 200–499 cells/mm3. * Total lymphocyte percentage: 14–28%.

Stage 1:

* Percentage of total lymphocytes: greater than or equal to 29%
* CD4+ T-lymphocyte count: greater than or equal to 500 cells/mm3

Stage 3: AIDS

Less than 200 cells/mm3 of CD4+ T-lymphocytes.
Less than 14% of all lymphocytes are present.

Systemic Lupus Erythematosus

* Affects numerous organ systems' connective tissues.

Risk Factors;

• Genetics, Native American or Hispanic ancestry, and females.

Signs & Symptoms:

* Raynaud's phenomenon, alopecia, pleuritic discomfort, anorexia, lymphadenopathy, and butterfly rash on the cheekbones.

Labs:

* Pancytopenia (lower RBCs, WBCs, and platelets) will be visible on a CBC.

Diagnosis:

• Immunologic testing and skin biopsies.

Medications:

* Non-steroidal anti-inflammatory drugs, corticosteroids (prednisone), and immunosuppressants (methotrexate & azathioprine).

Gout

• Crystals of uric acid are accumulated in joints and/or bodily tissues.

Risk Factors:

• Postmenopause, heredity, alcohol usage, trauma, starvation diet, chronic kidney disease, and obesity.

Signs & Symptoms:

* Tophi (urate crystals under the skin), great toe swelling, redness, warmth, and excruciating agony.

Medications:

* NSAIDs (ibuprofen), corticosteroids (prednisone), and anti-gout medications (colchicine for acute gout and allopurinol for chronic gout).

Patient Education:

* Continue to consume a low-purine diet (avoid organ meats and shellfish), abstain from alcohol, steer clear of starvation diets, and drink more fluids.

Fibromvalgia

* Syndrome of ongoing pain.

Risk Factors:

* Females with a history of trauma, rheumatological disorders, and persistent exhaustion.

Signs & Symptoms:

* Dysrhythmias, exhaustion, soreness, stiffness, and discomfort; depression; paresthesias; disturbed sleep; changes in vision; and urine issues (dysuria and frequency).

Medications:

• NSAIDs, tricyclic antidepressants, and serotonin-norepinephrine reuptake inhibitors (duloxetine).

Patient Education:

* Refrain from drinking alcohol and caffeine.
* Engage in low-impact exercise (walking and swimming).

Skin Cancer

Types of Skin Cancer

Squamous Cell:

*Scaly, rough lesions with crusting, haemorrhage, and central ulceration.

Basal Cell:

* A small, erythematous nodule with well defined edges and ulcerations.

Malignant Melanoma:

* Multicoloured, irregularly shaped, and bordered. arise from a mole that already exists.

Risk Factors:

* Immunosuppressive medication, UV light exposure, fair skin, family history, high altitude lifestyle, and old age.

Colorectal Cancer

- Rectal and colon cancer.

Risk Factors:

• High-fat, low-fiber diets, inflammatory bowel illness, tobacco use, sedentary lifestyles, African Americans, heavy alcohol usage, and family history.

Signs & Symptoms:

• Blood in the stool, weight loss, discomfort in the stomach or back, rectal pain, unusual bowel sounds, and flatus.

Diagnosis:

Guaiac faecal occult blood test (FOBT): Diagnosis requires two positive stools.

Procedures:

* Chemotherapy, monoclonal antibodies, and colectomy (colon resection).

Pancreatic Cancer

Risk Factors:

• Men 45 years of age and older, African Americans, cirrhosis, chronic pancreatitis, smoking, consuming a lot of red meat, diabetes, and family history.

Signs & Symptoms:

Hepatomegaly, splenomegaly, jaundice, ascites, black frothy urine, and a palpable abdominal mass are all symptoms.

Diagnosis:

* Biopsy, MRI or CT, and endoscopic retrograde cholangiopancreatography (ERCP).

Procedures:

* Chemotherapy, stent implantation, bypass surgery, or (as a last option) partial or total pancreatectomy.

Liver Cancer

Risk Factors:

* Males, cirrhosis, advanced age, cigarette and alcohol usage, as well as African American or Hispanic ancestry.

Signs & Symptoms:

* RUQ bruises, bleeding, ascites, encephalopathy, weight loss, and edoema.

Labs;

* Elevated ALT and AST levels.

Procedures:

* Surgical resection or transplantation, chemotherapy, hepatic artery embolisation, and ablation techniques.

Nursing Considerations:

Limit fluid intake for ascites patients, keep an eye out for bleeding issues, and give the patient modest, frequent meals.

Breast Cancer

Risk Factors:

BRCA-1 and BRCA-2 genes, prior cancer histories, females, relatives with breast cancer, oral contraceptive usage, alcohol and cigarette use, obesity, and hormone replacement therapy are risk factors.

Signs & Symptoms:

Breast dimpling, nipple discharge, tenderness in the breast, retraction of the nipple, swollen lymph nodes, and breast tumours.

Diagnosis:

Breast self-examination (BSE), clinical breast examination (CBE), biopsy, and BRCA-1 and 2 genetic testing.

Patient Education:

Do BSE every month. Patients should receive a CBE every three years if they are 20 to 29 years old, and once a year if they are 40 or older.