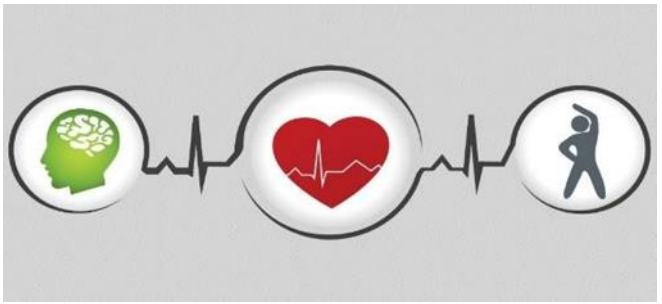
Asist.lec. Mohammed Mahmood Hamed

Medical Nursing – (Theory -- First Year Course 1 - 2024/2025**)** **Lecture 1**

Concept of Health and Illness

Health: Is a state of complete physical, mental, social well-being and not the absence of disease or infirmity. It composed of many aspects:

(1) Physical
(2) Psychological
(3) Mental
(4) Social
(5) Developmental
(6) Cognitive
(7) Intellectual,
(8) Spiritual



Disease: is any harmful deviation from the normal structural or functional state, generally associated with certain signs and symptoms, It has two stages:

a. Acute phase; The symptoms appear abruptly, intense, and subside after a relatively short period, and affect the functioning of the patient in all dimensions.

b. Chronic phase; usually lasts more than three months, is irreversible, and affects functioning in one or more systems. Patients often fluctuate between maximal functioning and serious health relapses that may be

life threatening. Many chronic illnesses are related to four **modifiable health behaviors**: (A) physical inactivity, (B) poor nutrition, (C) tobacco use and secondhand smoke exposure, and (D) excessive alcohol use.

Illness: Person response to disease.

- **(Person who experience alteration in health)**

Signs and Symptom:

I. **"Symptom"** is a manifestation of disease apparent to the patient himself, as pain, headache, nausea.

II. **"Sign"** is a manifestation of disease that others perceive as fever, cough, vomiting. The sign is objective evidence of disease; a symptom is subjective.

The Basic Patient's Needs:

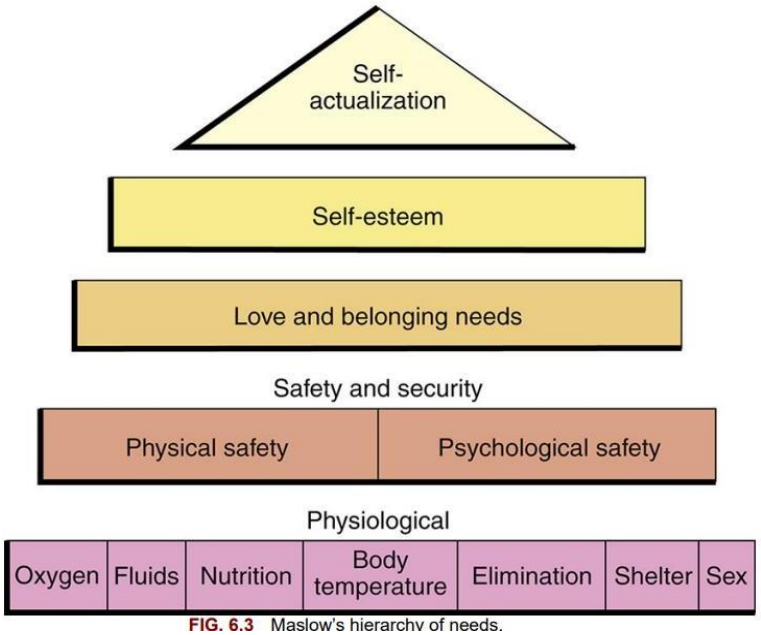


FIG. 6.3 Maslow's hierarchy of needs.

Factors affecting health and illness:

1. Genetics (Heredity),
2. Personal characteristics,
3. Geographic location,
4. Culture,
5. Lifestyle,
6. Environment,
7. Health Beliefs and Practices,
8. Previous Health Experiences,
9. Spirituality,
10. Support Systems,
11. Cognitive Abilities (Awareness or Perception),

Nursing Process;

Is an orderly, intellectual and systematic problem-solving method by which nurses individualize care for each patient.

- The **five** steps of the nursing process are **assessment**, **diagnosis**, **planning**, **implementation** or **intervention**, and **evaluation**.

Goals of nursing process:

1. To identify the patient's health status and actual or potential health care problems or needs (**Assessment / Diagnosis**).

2. To establish plans to meet the identified needs (**Planning**).

3. To deliver specific nursing interventions to meet those needs (**Implementation**).

4. To determine the effect of the accomplished interventions of care, and to what extent (**Evaluation**).

Components of Nursing Process:

1. **Assessment**: is the act of reviewing a human situation and collect data and information related to the individual in order to diagnose actual and potential patient problem through (A) health history, (B) physical examinations, and (C) laboratory results**.**

2. **Diagnosis**: identify signs and symptoms that the patient compliant from.

3. **Planning**: is a process of designing interventions to achieve the goals and outcomes of health care which must be depended on priorities in regard to the seriousness of signs and symptoms.

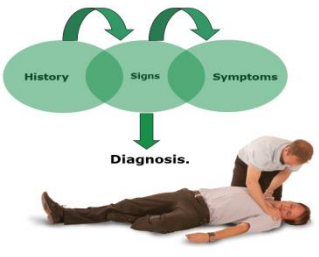
4. I**mplementation or Intervention**; is an initiation and completion of the nursing actions necessary to help the patient achieve health care goals "translate the plan into action".

5. **Evaluation**: is the determination of the extent to which established patient goals have been achieved.

❖ Hospital: is a place where people are treated for, nursed through their illness or injuries.

➢ Information that must be recorded by the nurse when the patient admitted to the hospital:

1. Personal information.
2. Physician recommending admission.
3. Provisional diagnosis.
4. Values of vital signs (temperature, pulse, respiration, oxygen saturation and blood pressure).
5. Measured weight and height.
6. Results of the specimens needed as " urine, blood, sputum, feces,…".
7. Medical and Surgical history.
8. Family history.
9. Medication taken and medication allergies.
10. Habits.
11. Immunizations in case of children.
12. Growth and development history.
13. Chief complaint: "What make the patient to admit the hospital?!".
14. Physical examinations: Inspection, Palpation, Percussion and Auscultation "by using stethoscope"; all these by using body senses.



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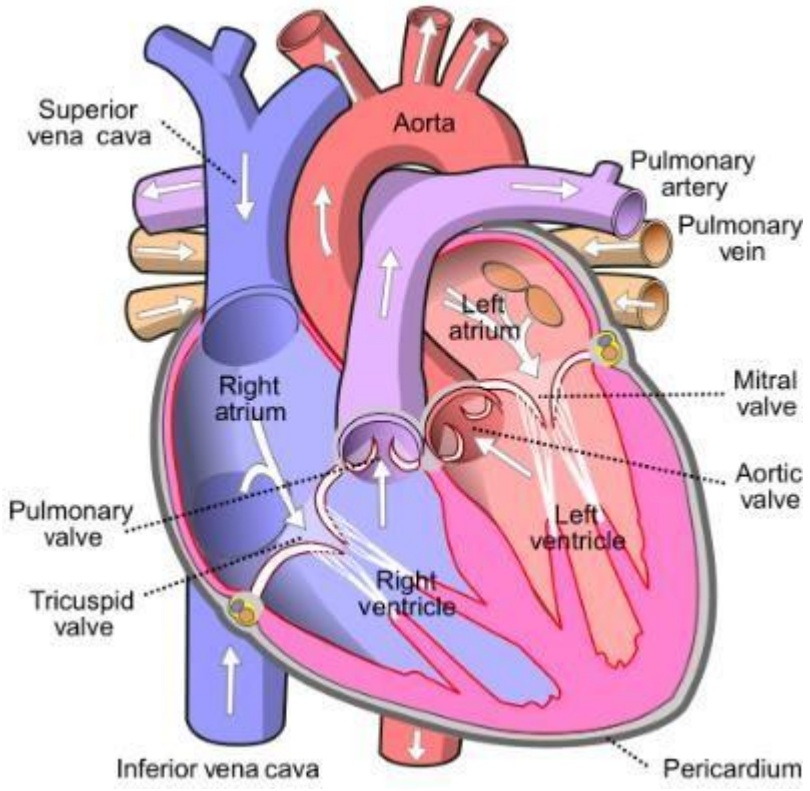
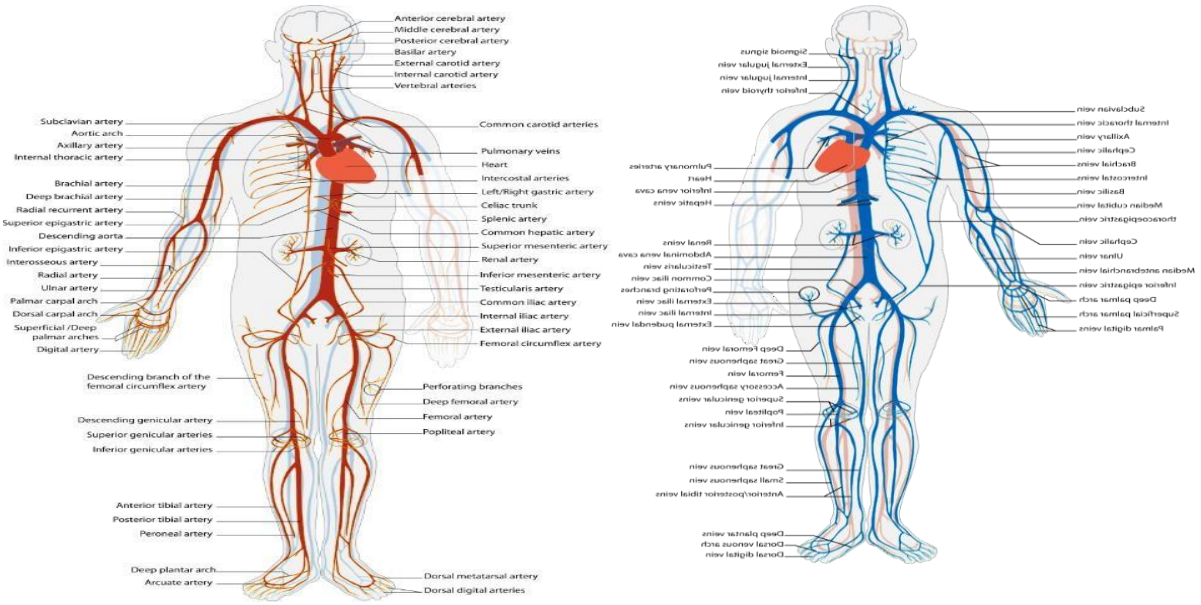
Medical Nursing -(Emergency medicine and first aid techniques) **Lecture 2**

Cardiovascular System, Physical Assessment and Diagnostic Tests / Definition of Atherosclerosis / Arteriosclerosis / Angina; Type of Angina, Clinical *Manifestations, Nursing Interventions.*



Cardiovascular System: The cardiovascular system includes the heart and blood vessels. It is responsible for transporting blood, oxygen, nutrients, and hormones throughout the body. The heart pumps blood through arteries to various tissues and organs and returns deoxygenated blood through veins to the lungs for re-oxygenation.



Nursing Role in Cardiovascular Care:

A. Subjective Assessment:

1. ***Chest pain*;** pain or pressure in chest, neck or arm.

2. ***Shortness of breath (Dyspnea)*;** at rest, or with activity, or when lying.

3. ***Edema*;** Swelling of feet or ankles, feeling tightness at rings, shoes, or clothing at the end of the day, sudden unexplained weight gain, any new abdominal fullness.

4. ***Palpitation*;** feeling heart racing or fluttering or skips a beat.

5. ***Dizziness*;** Light headache, dizzy, fainting.

6. ***Poor peripheral circulation*;** Feeling hands or feet cold or look pale or bluish, Pain in feet or lower legs when exercising.

7. ***Calf muscle*;** Any constant pain in lower legs.

B. Objective Assessment:

1. ***Vital signs*;** abnormal values or degrees, Monitor blood pressure, heart rate, respiratory rate, and oxygen saturation.

2. ***Level of consciousness;***

a) **+ *Inspection:*** (Observe for signs of distress, cyanosis, or swelling, Observe for abnormal skin color= paleness, redness, or cyanosis), (Inspect for signs of fluid retention e.g., edema).

= *Skin color;* . Normal color is pink.

- **Cyanosis** – bluish discoloration of the skin, lips, and nail beds.
- **Pallor** - Loss of color, or paleness of the skin or mucous membranes due to reduced blood flow, oxygenation, or reduces number of red blood cells.

= *Jugular Vein Distension (JVD);* . Bulge of Jugular vein in the right side of the neck.

- Upper extremities - inspect the fingers, arms, and hands bilaterally noting color, warmth, movement, sensation, **capillary refill** "compress the nail bed until it blanches and record the time taken to return pink – normal time is 2-3 seconds".
- Lower extremities- inspect the toes, feet, and legs bilaterally**;**
  -Peripheral edema is swelling that can be caused by infection, thrombosis, or venous insufficiency due to an accumulation of fluid in the tissues,
  - **Deep Vein Thrombosis (DVT)** is a blood clot that forms in a vein deep in the body. Assess for size, color, temperature, and presence of pain in the calves. Unilateral warmth, redness, tenderness, swelling in the calf, or sudden onset of intense, sharp muscle pain that increases with dorsiflexion of the foot is an indication of a deep vein thrombosis (DVT).

b) + *Palpation:*

- **To evaluate** peripheral pulses, capillary refill (feel for the pulse at various points e.g., radial, femoral, carotid).
- **Assess** for strength, rhythm, and symmetry of pulses (compare the rate, rhythm, and quality of arterial pulses bilaterally, including the carotid and radial).
- **Palpate** for any **edema** in the extremities (visible swelling caused by a buildup of fluid within the tissues and indicative of poor circulation).
- **Check** for warmth or coldness in the extremities, (When palpating these areas, also pay attention to the temperature and moisture of the skin.)

c) + *Auscultation:*

- **Listen** for abnormal heart sounds e.g., murmurs, gallops, clicks and assess for chest pain or discomfort.
- **Auscultate** for lung sounds to assess for signs of fluid overload in heart failure.
- **Listen** for any bruits (abnormal sounds) over arteries that might suggest narrowing or blockage.

It must be done of valvular sounds in five places "**APE To Man**,":

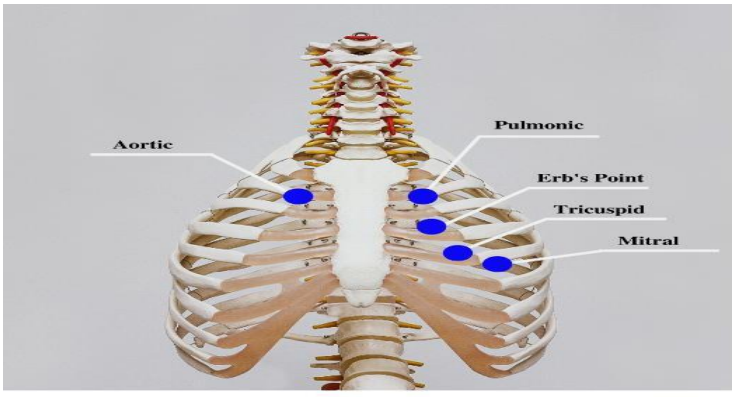


Figure 9.8 Cardiac Auscultation Areas

A - Aortic area is the second intercostal space to the right of the sternum,

P – Pulmonic area is the second intercostal space to the left of the sternum,

Erb's point is directly below the pulmonic area and located at the third intercostal space to the left of the sternum.

T - Tricuspid area is at the fourth intercostal space to the left of the sternum.

M - Mitral (also called apical or left ventricular area) valve is the fifth intercostal space at the midclavicular line.

The first heart sound (S1-lub) identifies the onset of systole, when the atrioventricular (AV) valves (mitral and tricuspid) closed and the ventricles contract and eject the blood out of the heart.

The second heart sound (S2-dub) identifies the end of systole and the onset of diastole when the semilunar valves close, the AV valves opened, and the ventricles fill with blood. S1 corresponds to the palpable pulse. When auscultating, it is important to identify the S1 ("lub") and S2 ("dub") sounds, evaluate the rate and rhythm of the heart, and listen for any extra heart sounds.

d) + ***Blood Pressure Measurement***: Assess for hypertension or hypotension, which can be indicative of underlying cardiovascular problems.

Common medical tests to diagnose heart conditions:

* **Blood Tests:** as Cholesterol and Triglycerides.

* **Electrocardiogram (ECG):** to read the heart electrical impulses.

* **Stress Test (Treadmill or Exercise test):** to find out how well the heart works during physical activity.

* **Echocardiogram (Ultrasound):** to give a picture of the heart.

* **Coronary Angiogram (Cardiac catheterization):** to create detailed images of the heart on a computer.

* **Chest X-ray**: to detects heart enlargement, lung fluid (associated with heart failure), and other structural heart issues.

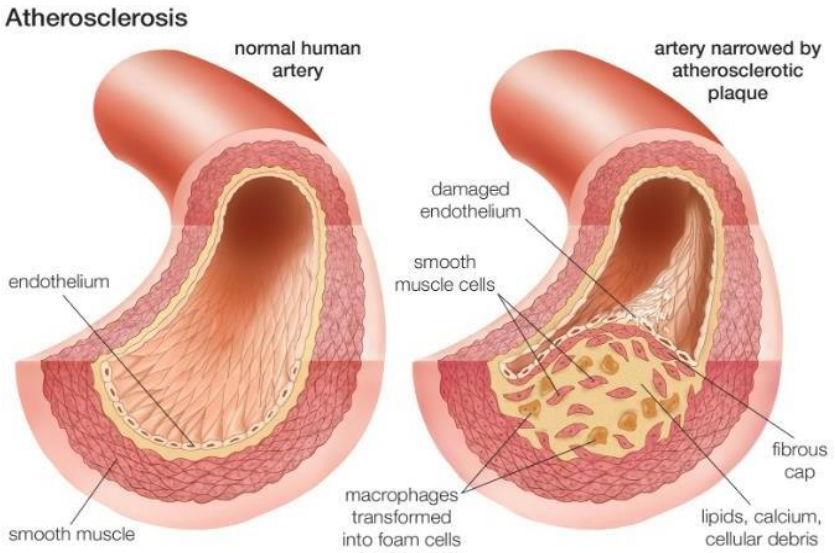
* **Cardiac CT (Computed Tomography) Scan:** to detects coronary artery disease (CAD), aortic problems, and congenital heart defects.

Arteriosclerosis and Atherosclerosis:

They are sometimes used to mean the same thing, but there's a difference between the two terms.

I. **Arteriosclerosis**- occurs when the blood vessels that carry oxygen and nutrients from the heart to the rest of the body (arteries) become thick and stiff — sometimes restricting blood flow to the organs and tissues.

II. **Atherosclerosis** is a specific type of arteriosclerosis. It is the buildup of fats, cholesterol and other substances in and on the artery walls. This buildup is called plaque. The plaque can cause arteries to narrow, blocking

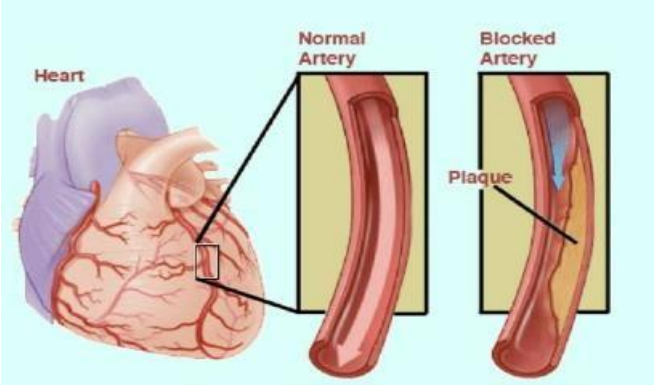


blood flow. The plaque can lead to a blood clot. Although atherosclerosis is often considered a heart problem, it can affect arteries anywhere in the body. Atherosclerosis can be treated. Healthy lifestyle habits can help prevent atherosclerosis.

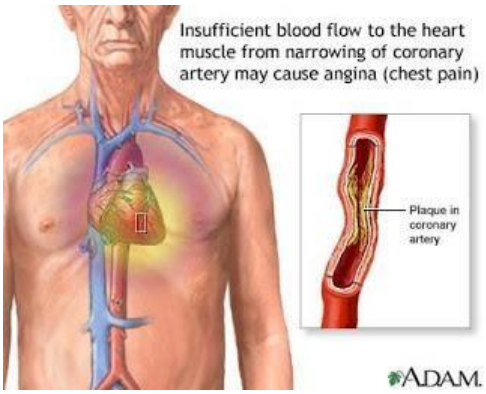
Angina:

Angina is chest pain resulting from myocardial ischemia caused by inadequate myocardial blood and oxygen supply (reduced blood flow to the heart muscle). It is typically a symptom of coronary artery disease (CAD) caused by atherosclerosis.

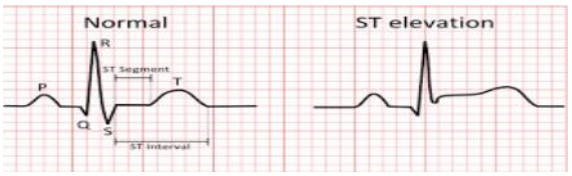
- (caused by an imbalance between oxygen supply and demand due to obstruction of coronary blood flow because of atherosclerosis, coronary artery spasm, and conditions increasing myocardial oxygen consumption).



Types of Angina:



1. ***Stable angina*;** occurs with activities that involve exertion or emotional stress and is relieved with rest or medication (Angised). It usually has a stable pattern of onset, duration, severity, and relieving factors.
2. ***Unstable angina***; occurs with an unpredictable degree of exertion or emotion, and increases in occurrence, duration, and severity over time. Pain may not be relieved with nitroglycerin (Angised).
3. ***Variant angina***; Variant angina results from coronary artery spasm, leading to temporary blockage and chest pain. It may occur at rest. Attacks may be associated with ST segment elevation noted on the electrocardiogram.



4. ***Intractable angina***; is chronic, and is unresponsive to interventions.
5. ***Microvascular angina****:* Chest pain caused by dysfunction in the small coronary arteries, often in women. This type can occur without visible blockages in larger arteries.
6. ***Preinfarction angina***; is associated with acute coronary insufficiency, lasts longer than "15" minutes, and is a symptom of worsening cardiac ischemia.
7. ***Postinfarction angina***; occurs after myocardial Infarction "MI" when residual ischemia may cause episodes of angina.

Clinical Manifestations of Angina (Signs and Symptoms):

1. Pain may radiate to other parts of the body such as the jaw, shoulders, upper back, or arms.
2. Difficulty breathing, shortness of breath (dyspnea).
3. Sweating.
4. Dizziness
5. Tachycardia.
6. Feeling of weakness or numbness in the arms, wrists, and hands.

Treatment:

The goal of treatment is to deliver sufficient oxygen to the heart muscle to meet its need. When suspecting chest pain, always give oxygen as the first line of defense, Nitroglycerin (Angised)—sublingual tablets, Aspirin, Analgesic.

Nursing Intervention for Angina;

Immediate management:

1. Assess pain.
2. Provide bed rest.
3. Administer oxygen at "3" L/min by nasal cannula as prescribed.
4. Administer nitroglycerin as prescribed to dilate the coronary arteries, reduce the oxygen requirements of the myocardium and relieve the chest pain.
5. Obtain a 12-Lead electrocardiogram.
6. Provide continuous cardiac monitoring.

Following acute episode:

1. Assist the patient to identify angina precipitating events.
2. Instruct the patient to stop activity and rest if chest pain occurs and to take nitroglycerin as prescribed.
3. Instruct the patient to seek medical attention if pain persists.
4. Instruct the patient regarding prescribed medications.
5. Provide diet instructions to the patient, stressing that dietary changes are not temporary and must be maintained for life.
6. Assist the patient to identify risk factors that can be modified.
7. Assist the patient promoting changes in lifestyle to reduce the impact of risk factors.
9. Assist the patient in identifying barriers to compliance with the therapeutic plan and identify methods to overcome barriers.
10. Provide community resources to the patient regarding exercise, smoking reduction, and stress reduction.

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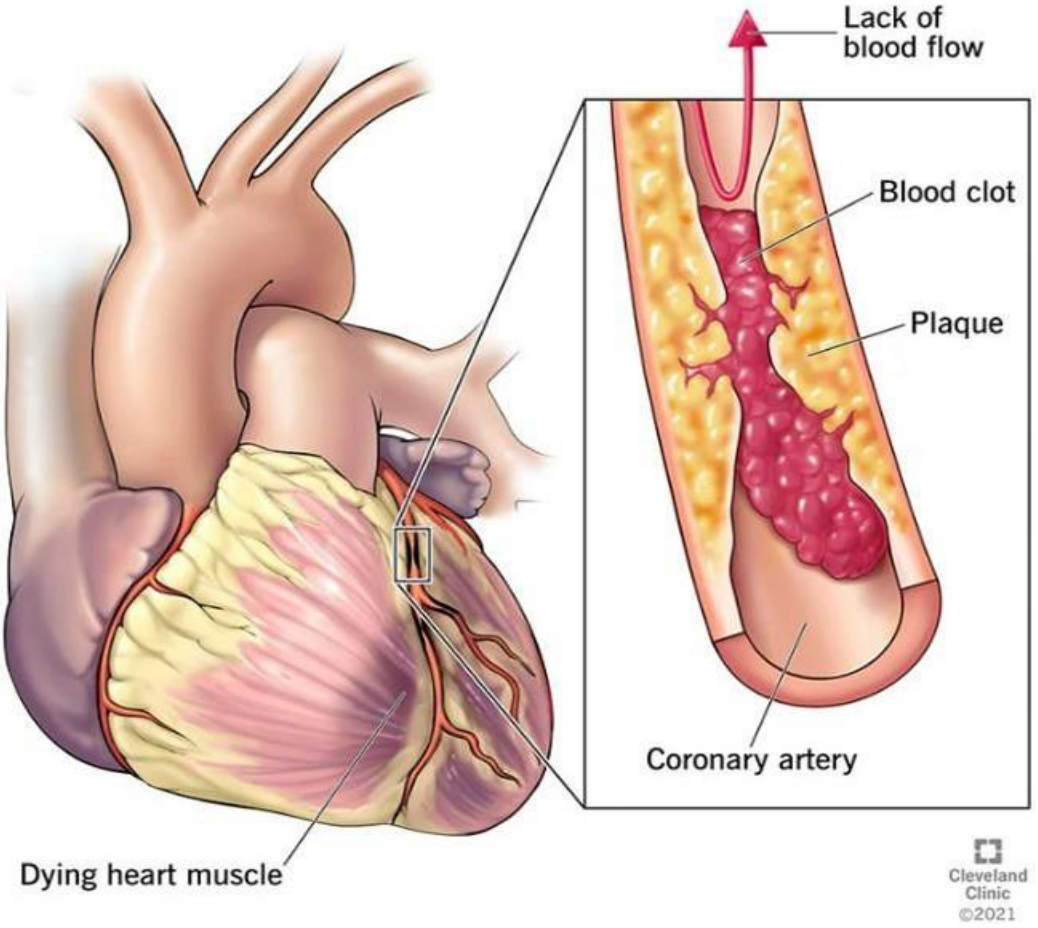
Medical Nursing -(Emergency medicine and first aid techniques) **Lecture 3**

Myocardial Infarction (MI); Causes, Sign and Symptoms, Diagnostic Tests, Treatment, Nursing Intervention



A myocardial infarction (commonly called a heart attack) is an extremely dangerous condition that happens because of a lack of blood flow to the heart muscle (blocked for a prolonged period) causing tissue damage or death.

Causes of Myocardial Infarction

The primary cause of MI is the blockage of one or more coronary arteries, which supply blood to the heart muscle. The blockage is often due to:

1. **Atherosclerosis**: A condition where fatty deposits (plaque) build up on the walls of the heart's arteries, narrowing them and making it harder for blood to flow.
2. **Thrombosis (blood clot)**: A clot can form over the plaque, completely blocking the artery and reducing blood flow to the heart muscle.
3. **Coronary artery spasm**: A temporary narrowing of a coronary artery, which can restrict blood flow.
4. **Embolism**: A clot or debris traveling from another part of the body can lodge in the coronary arteries.
5. **Vasculitis**: Inflammation of the blood vessels can also lead to restricted blood flow.

Without blood flow, the affected heart muscle will begin to die. If blood flow isn't restored quickly, a heart attack can cause permanent heart damage and death. **A heart attack is a life-threatening emergency.**

Risk factors:

1. **Age**: Older individuals are at higher risk.
2. **Gender**: Men (male) are at higher risk at a younger age and increases at age over 45 years, but the risk for women (female) increases ate age over 55 years and after menopause.
3. **Family history** of heart disease.
4. **Lifestyle**, as smoking, lack of physical activity, eating disorders, excessive consuming alcohol and drug addiction.
5. **Certain health conditions**, as diabetes, obesity, hypertension, hyperlipidaemia (high cholesterol), low density lipoprotein (LDL) and air pollution.

Clinical Manifestation (Signs and Symptoms):

1. **Chest Pain** (angina)- this can be mild and feel like discomfort or heaviness, or it can be severe and feel like crushing pain. It may start in the chest and spread (or radiate) to other areas like the left arm (or both arms), shoulders, neck, jaw, back or down toward the waist.
2. **Shortness of breath** or difficulty breathing.
3. **Fatigue**.
4. **Trouble sleeping (insomnia).**
5. **Nausea or stomach discomfort**. Heart attacks can often be mistaken for indigestion or heartburn.
6. **Heart palpitations.**
7. **Anxiety** or feeling of "impending doom"
8. **Sweating**.
9. **Feeling lightheaded**, dizzy or passing out.

Diagnosis:

1. Clinical manifestations (Signs and symptoms).
2. **Blood tests;** as Cardiac troponin T (cTnT) and troponin I (cTnI) that are cardiac regulatory proteins which control the calcium mediated interaction between actin and myosin (*Actin and myosin are two protein molecules in muscles and are mainly involved in muscle contraction in humans and animals. Both actin and myosin function by controlling the voluntary muscular movements within the body*), Even a slight increase in the troponin level will often mean there has been some damage to the heart heart muscle cells. Very high levels of troponin are a sign that a heart attack has occurred. Most patients who have had a heart attack have increased troponin levels within "6" hours, the normal range for troponin I is between ("0 and 0.04" ng/mL).

3. **ECG.**
4. **Echocardiogram (Ultrasound).**
5. **Heart Computed Tomography (CT-Scan)** to create a highly detailed scan of the heart.
6. **Coronary Angiography (Cardiac Catheterization)**: Invasive test using dye and X-rays to see the coronary arteries and identify blockages.
7. **Chest X-ray**: **Stress Test**: Done after the acute phase to assess heart function under physical exertion (in case of stable MI recovery).

Treatment:

The treatment of MI is aimed at restoring blood flow to the heart muscle and minimizing damage. The main approaches include:

1. **<u>Supplementary oxygen</u>.**
2. **<u>Medication</u> as:**

    * Anti-coagulant medications as Aspirin, Plavix and Heparin,
    * Vasodilators as Nitroglycerin "Angised",
    * Anti-arrythmia medications, as Concor,
    * Pain medications as "Morphine",
    * Statins; to lower blood cholesterol levels, as Atorvastatin,

3. **<u>Percutaneous coronary intervention "PCI" or (Cardiac catheterization)</u>;** this catheter device inserted into a major blood vessel (usually in upper thigh) by using a balloon or stent at the site of the blockage to help hold the artery open so another blockage doesn't happen in the same spot.

4. **<u>Coronary artery bypass grafting (CABG)</u>;** Surgical procedure to bypass blocked coronary arteries using veins or arteries from other parts of the body. (People who have severe blockages of their coronary arteries may undergo coronary artery bypass grafting. This surgery is often called open-heart

surgery, bypass surgery or CABG. CABG involves using a blood vessel from elsewhere in the body (usually the chest, arm or leg) to construct another way for blood. This reroutes blood around one or more blocked artery sections and brings blood to the heart muscle).

5. **Lifestyle Modifications (Prevention):**

* Adopting a healthy diet
* Quitting smoking
* Regular exercise
* Maintain normal weight
* Manage existing health conditions, as high cholesterol levels, high blood pressure and diabetes
* Managing stress and take medications as prescribed.

Complications of a heart attack:

1. Arrhythmias (abnormal heart rhythms).
2. Heart failure.
3. Heart valve problems.
4. Sudden cardiac arrest.
5. Depression and anxiety.
6. Mechanical complications of heart attack, such as ventricular septal defect or free wall rupture. These are more likely to happen with delayed treatment of a heart attack.

Nursing Interventions for Myocardial Infarction

1. **Monitor**:
    - Monitor continuous ECG to watch for life threatening arrhythmias.
    - Monitor vital signs, including blood pressure, heart rate, and oxygen saturation.
    - Monitor for chest pain and relieve it promptly.
2. **Pain Management:**
    - Administer analgesics (e.g., morphine) as ordered for pain relief.
    - Provide comfort and reassurance to reduce anxiety.
3. **Oxygen Therapy**:
    - Administer supplemental oxygen if oxygen saturation is low to ensure adequate oxygenation of the myocardium.
4. **Administer Medications**:
    - Provide prescribed medications, including aspirin, anticoagulants, and beta-blockers.
    - Relieving fluid overload symptoms, by using diuretic drugs (Lasix).
    - Assess the patient for any side effects or contraindications to the medications.
5. **Patient Education**:
    - Educate the patient about lifestyle changes (diet as low sodium diet consumption, exercise, smoking cessation, maintain healthy weight, avoid or limit alcohol and get good-quality sleep).
    - Teaching patient about self-monitoring of the signs and symptoms of MI and when to seek help.
    - Educate on the importance of medication adherence.
6. **Promote Rest and Decrease Activity**:
    - Ensure bed rest during the acute phase of MI to reduce the heart's workload.
    - Gradually reintroduce physical activity under the physician's guidance.
    - Keep environment quite.
7. **Psychosocial Support**:
    - Address the emotional and psychological needs of the patient and their family.
    - Provide counseling for stress management and anxiety.
8. **Post-procedure care** (if PCI or CABG is performed):
    - Monitor for complications such as bleeding, infection, or arrhythmias (Take measures to prevent bleeding if patient is on thrombolitic therapy).

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Medical Nursing -(Emergency medicine and first aid techniques) **Lecture 4**

Heart failure; Causes, Signs of left-sided heart failure and types of dyspnea, Signs of right-sided heart failure, Diagnostic tests, Nursing Care, and management.

Heart failure is the inability of the heart to pump sufficient blood to meet the needs of the tissues for oxygen and nutrients. It is most often a progressive, life-long condition that is managed with lifestyle changes and medications to prevent episodes of acute decompensated heart failure.

The term heart failure indicates **myocardial disease** in which there is a problem with contraction of the heart **(systolic dysfunction)** or filling of the heart **(diastolic dysfunction)** that may or may not cause pulmonary or systemic congestion.

Classification:

Heart failure is classified into two types: left-sided heart failure and right-sided heart failure.

1. Left-Sided Heart Failure;

* Left-sided heart failure or **left ventricular failure** have different manifestations against right-sided heart failure that are:
* **Pulmonary congestion** occurs when the left ventricle cannot effectively pump blood out of the ventricle into the aorta and the systemic circulation.
* Pulmonary venous blood volume and pressure increase, forcing fluid from the

pulmonary capillaries into the pulmonary tissues and alveoli, causing **pulmonary interstitial edema and impaired gas exchange**.

2. Right-Sided Heart Failure;

* When the right ventricle fails, congestion in the peripheral tissues and the viscera predominates.
* The right side of the heart cannot eject blood and cannot accommodate all the blood that normally returns to it from the venous circulation.
* Increased venous pressure leads to **JVD** (Jajular Vein Distension).

Causes:

1. **Coronary artery disease** as "**Atherosclerosis"** of the coronary arteries is the primary cause of HF, and coronary artery disease is found in more than 60% of the patients with HF.
2. **Ischemia;** it deprives heart cells of oxygen and leads to **acidosis** from the accumulation of lactic acid.
3. **Cardiomyopathy;** HF due to cardiomyopathy is usually chronic and progressive.
4. **Systemic or pulmonary hypertension;** it increase in afterload results from hypertension, which increases the workload of the heart and leads to hypertrophy of myocardial muscle fibers.
5. **Valvular heart disease;** Blood has increasing difficulty moving forward, increasing pressure within the heart and increasing cardiac workload.

Clinical Manifestation "Signs & Symptoms":

Left-sided HF;

Left-sided heart failure occurs when the left ventricle is unable to pump blood efficiently, leading to fluid accumulation in the lungs. This type of heart failure is commonly referred to as **congestive heart failure**. Key signs include:

1. **Dyspnea or shortness of breath** - may be precipitated by minimal to moderate activity, also occurs during rest.

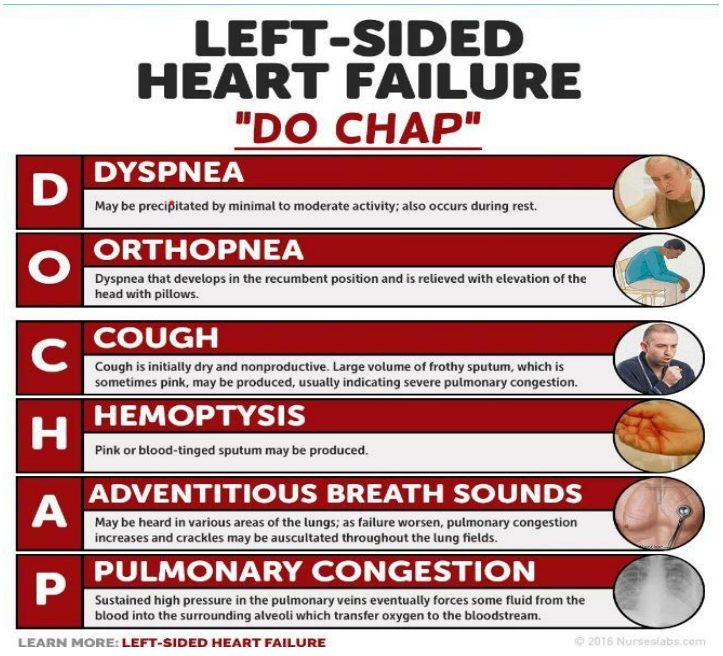
2. **Orthopnea** – dyspnea when the patient in recumbent position.

3. **Cough** - the cough associated with left ventricular failure is initially dry and nonproductive.

4. **Hemoptysis**– pink colored sputum.

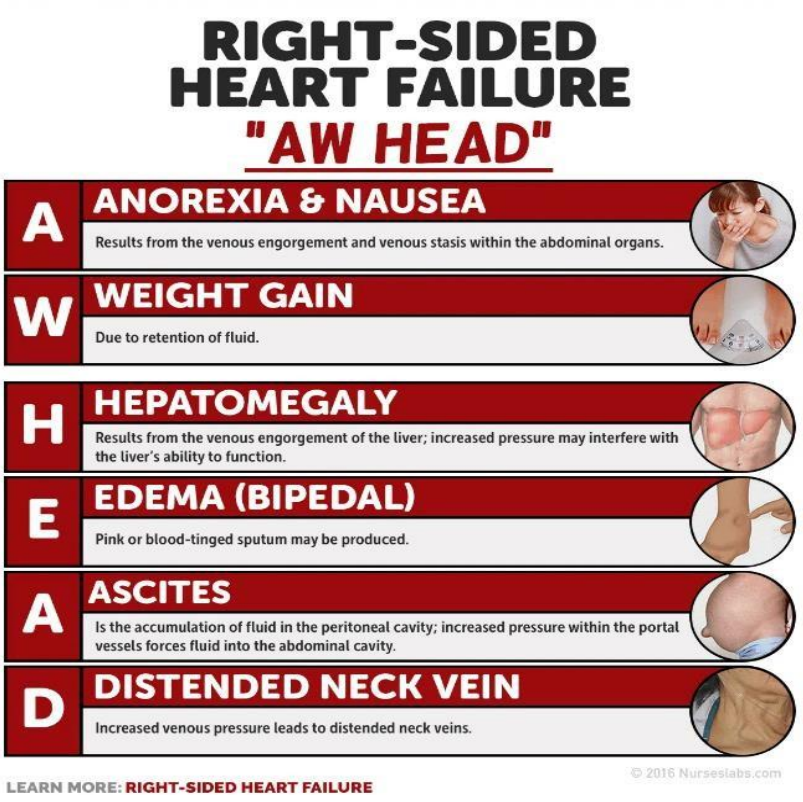
5. **Pulmonary crackles** - crackles are detected earlier and as it worsens, crackles can be auscultated across all lung fields.

6. **Low oxygen saturation levels**, Oxygen saturation may decrease because of increased pulmonary pressures.



Right-sided HF;

1. **Hepatomegally** results from **venous engorgement** of the liver.
2. **Anorexia and nausea** due to accumulation of fluid in the peritoneal cavity.
3. **Loss of appetite** results from venous engorgement and venous stasis within the abdominal organs.
4. **Weight gain**.
5. **Peripheral edema**,
6. **Ascitis** – accumulation of fluid in the peritoneal cavity.



Complications:

1. Hypokalemia,
2. Hyperkalemia,
3. Hyponatremia, due to prolonged diuretic therapy that result in disorientation, fatigue, weakness, and muscle cramps.
4. Dehydration and hypotension.

Diagnostic Tests;

Several tests can help diagnose heart failure and determine its severity:

1. Physical Examination: Inspection for edema, auscultation of heart and lungs, and palpation for swelling.
2. Blood Tests: To check for kidney function, liver function(Enzyme), and electrolytes, which can be affected by heart failure.
3. ECG,
4. Chest X-Ray,
5. Echocardiography, Doppler ; (Echocardiogram(Ultrasound))
6. Heart scan; Measures cardiac volume, ejection fraction, and wall motion,
7. Exercise Tolerance Test,
8. Cardiac Catheterization,
9. Bleeding and clotting time,
10. Pulse Oximetry,
11. Bilirubin and Creatinine and Serum Albumin,
12. Complete Blood Count,
13. ESR "Erythro-Sedimentation Rate",

Medical Management;

- **Digitalis**, to increase myocardial contraction.
- **Capoten** (Captopril), **Diovan** (Valsartan), **Tenormin** (Atenolol) - to treat hypertension.
- **Inderal** (Propranolol) – to manage arrhythmia.
- **Apresoline** (Hydralazine), **Angised** (Nitroglycerin), to increase cardiac output and reduce circulatory volume.
- **Diuretics**, to reduce blood volume, pulmonary and peripheral edema as **Lasix** (Furosemide), **Thiazide** (Hydrochlorothiazide).
- **Calcium Channel Blockers**, as **Diltiazim** (Cardiazim), **Amlodipine** (Norvasc).
- **Morphine sulfate**, to decrease vascular resistance.
- **Anxiety agents and Sedatives**, to promote rest and reducing oxygen demand and myocardial workload.
- **Anticoagulants**, to prevent thrombus and embolus formation.
- **Bronchodilators**, to increase oxygen delivery by dilating small respiratory airways.

Nursing Management;

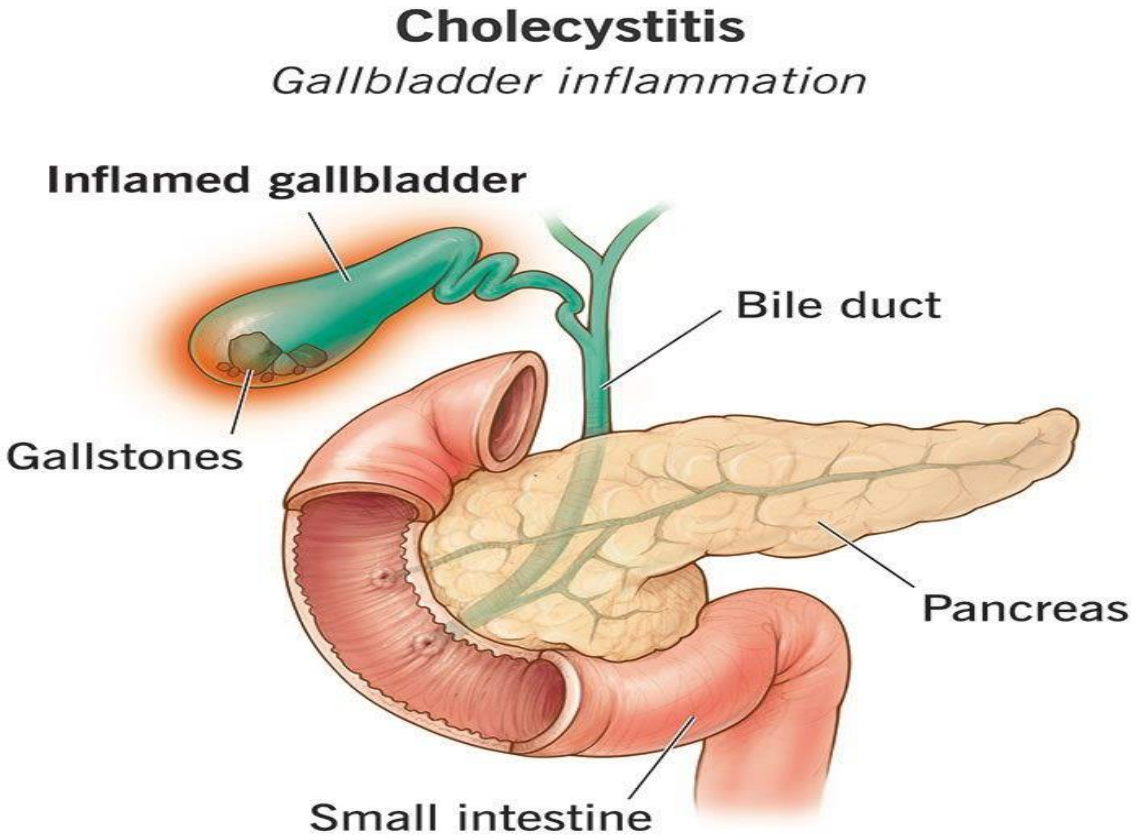
1. Check vital signs.
2. Inspect skin color for paleness, cyanosis, coolness.
3. Monitor (I&O) fluids.
4. Assess mental status- lethargy, confusion, disorientation, anxiety.
5. Evaluate level of consciousness.
6. Examine lower extremity for edema.
7. Assess the abdomen for tenderness, hepatomegaly, and signs of ascites.
8. Monitor results of laboratory and diagnostic tests.
9. Monitor oxygen saturation and ABGs, and O_2 administration if need.
10. Bed rest and quite environment.
11. Put the patient in fowler's position.
12. Administer medications as indicated.
13. Put the patient on monitor.
14. Daily weight.
15. Provide small, frequent, easily digestible meals, low-sodium diet and restricting fluid intake.

Asist.lec. Mohammed Mahmood Hamed

Medical Nursing -(Emergency medicine and first aid techniques) **Lecture 5**

Cholecystitis: pathophysiology/causes/ risk factors /signs and symptoms/ treatment/ nursing intervention

Cholecystitis: is the inflammation of the gallbladder, usually due to a blockage of the bile duct, often caused by gallstones.



Pathophysiology:

Cholecystitis typically occurs when a gallstone obstructs the cystic duct, leading to the accumulation of bile in the gallbladder. This obstruction leads to increased pressure, reduced blood flow, and bacterial overgrowth, resulting in inflammation, possible necrosis, and perforation of the gallbladder.

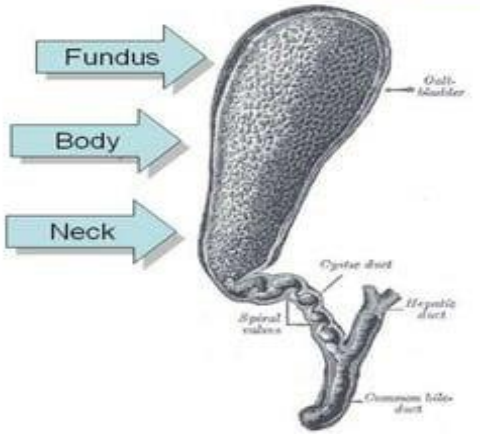
- This results in irritation and inflammation of the gallbladder wall, which can eventually lead to infection (acute cholecystitis).
- Chronic cholecystitis may develop if repeated bouts of acute inflammation lead to the thickening of the gallbladder wall and scarring, impairing its function.

Anatomy and physiology of gall bladder

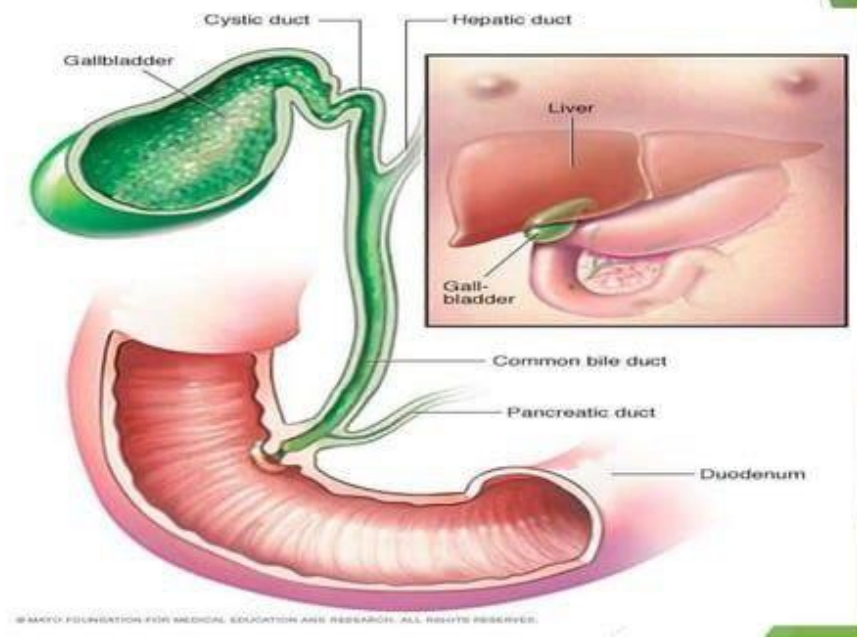
The gallbladder is a hollow organ that sits beneath the liver and stores bile made in the liver. In adults, the gallbladder measures approximately eight centimetres (3.1 in) in length and four centimetres (1.6 in) in diameter when fully distended.

The gallbladder is divided into three sections:

- Fundus.
- Body.
- Neck.



➢ BILE FLOW:



Causes:

1. Gallstones: The most common cause, where stones obstruct the cystic duct.
2. Biliary sludge: Thickened bile that can lead to inflammation.
3. Infections: Bacterial infections such as Escherichia coli, Klebsiella, and Streptococcus can contribute to inflammation.
4. Tumors: Rarely, tumors may block bile flow.
5. Other factors: Postoperative complications, fasting, or certain medical conditions.

Risk Factors:

1. **Obesity**: Higher levels of cholesterol increase the risk of gallstones.
2. **Female gender** (especially during childbearing years)
3. **Age** (risk increases with age)
4. **Rapid weight loss** or fasting; : Can cause gallstones to form due to the breakdown of fats.
5. **High-fat diet**
6. **Family history** of gallstones: Genetic factors may predispose individuals.
7. **Certain medical** conditions (diabetes, liver disease)

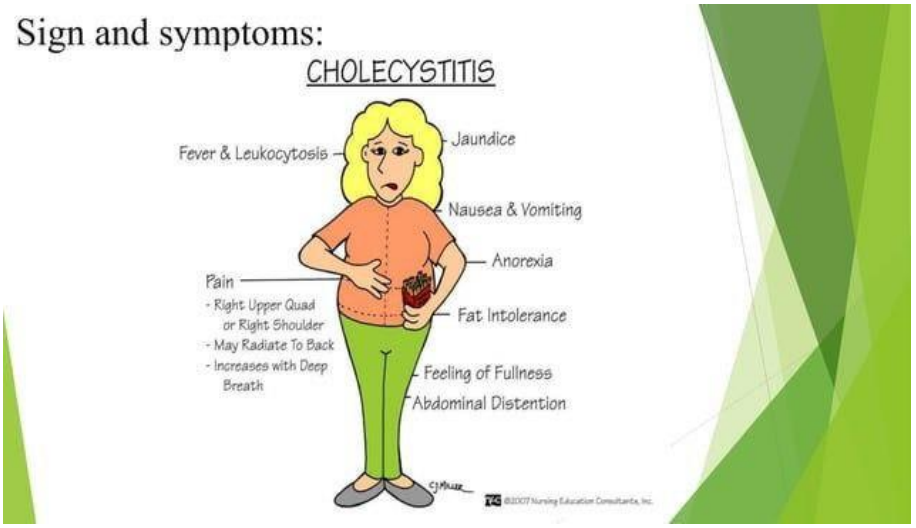
Signs and Symptoms:

❖ Acute cholecystitis symptoms include:

1. **Abdominal pain:** Typically in the right upper quadrant; may radiate to the right shoulder or back.
2. **Nausea and vomiting**
3. **Fever and chills**
4. **Jaundice:** Yellowing of the skin and eyes (if bile duct is obstructed)
5. **Positive Murphy's sign:** pain on deep inspiration when the examiner palpates the right upper quadrant for gallbladder.

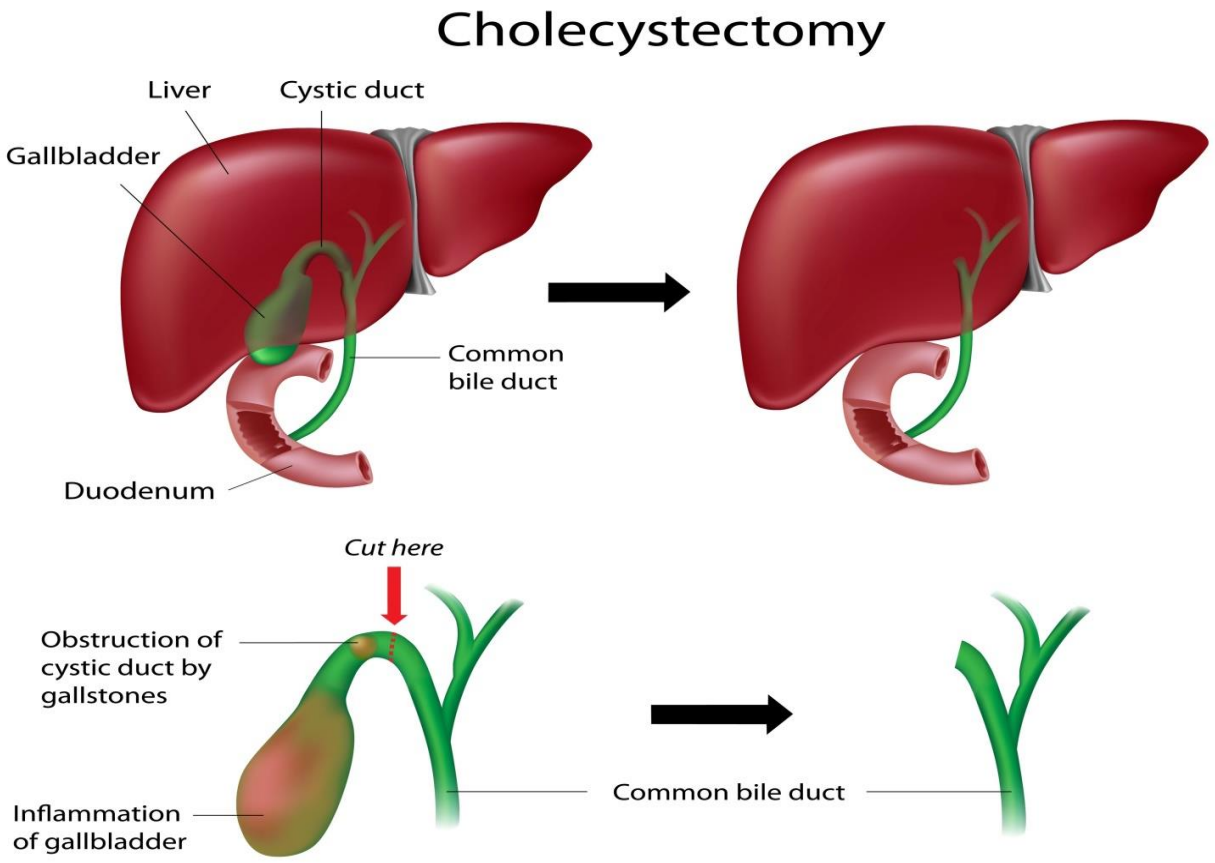
❖ Chronic cholecystitis symptoms:

6. **Intermittent right upper quadrant pain after eating fatty foods.**
7. **Loss of appetite**
8. **Bloating and indigestion.**



Treatment:

1. **Medical Management:**
    - NPO (Nothing by mouth): To rest the gallbladder.
    - Pain management (**analgesics**)
    - IV fluids and electrolyte management
    - **Antibiotics** if infection is suspected.
2. **Surgical Management:**
    - **Cholecystectomy:** Surgical removal of the gallbladder, often performed laparoscopically (**Laparoscopic cholecystectomy** is the most common approach).
    - **Endoscopic procedures:** In cases of common bile duct stones. In cases where there is a blockage of the bile duct, endoscopic retrograde cholangiopancreatography (ERCP) may be used to remove stones or address obstructions.
    - **Supportive care:** Managing symptoms and preventing complications, such as infection or perforation.



Nursing Interventions:

1. **Assessment:**
    - Monitor vital signs, especially temperature (for signs of infection).
    - Assess pain levels and location (for potential gallbladder involvement).
    - Monitor for signs of jaundice (yellowing of the skin/eyes) or other complications.
2. **Pain management:**
    - Administer prescribed analgesics (NSAIDs or opioids) to manage pain.
    - Assess effectiveness and Provide comfort measures such as positioning and heat therapy.
3. **Fluid and electrolyte balance (Nutritional support):**
    - NPO status may be necessary and Administer IV fluids to maintain hydration.
    - Monitor input and output to assess fluid balance.
4. **Patient education:**
    - Discuss dietary modifications post-surgery and signs of complications.
    - Educate the patient about the need for dietary changes, such as avoiding high-fat foods post-surgery.
    - Explain the importance of follow-up care and lifestyle changes to prevent further gallbladder issues.
5. **Postoperative care (Post-surgical care):**
    - For patients who undergo cholecystectomy, monitor for complications like infection, bleeding, or bile leakage.
    - Encourage early ambulation and breathing exercises to prevent complications like pneumonia or deep vein thrombosis.

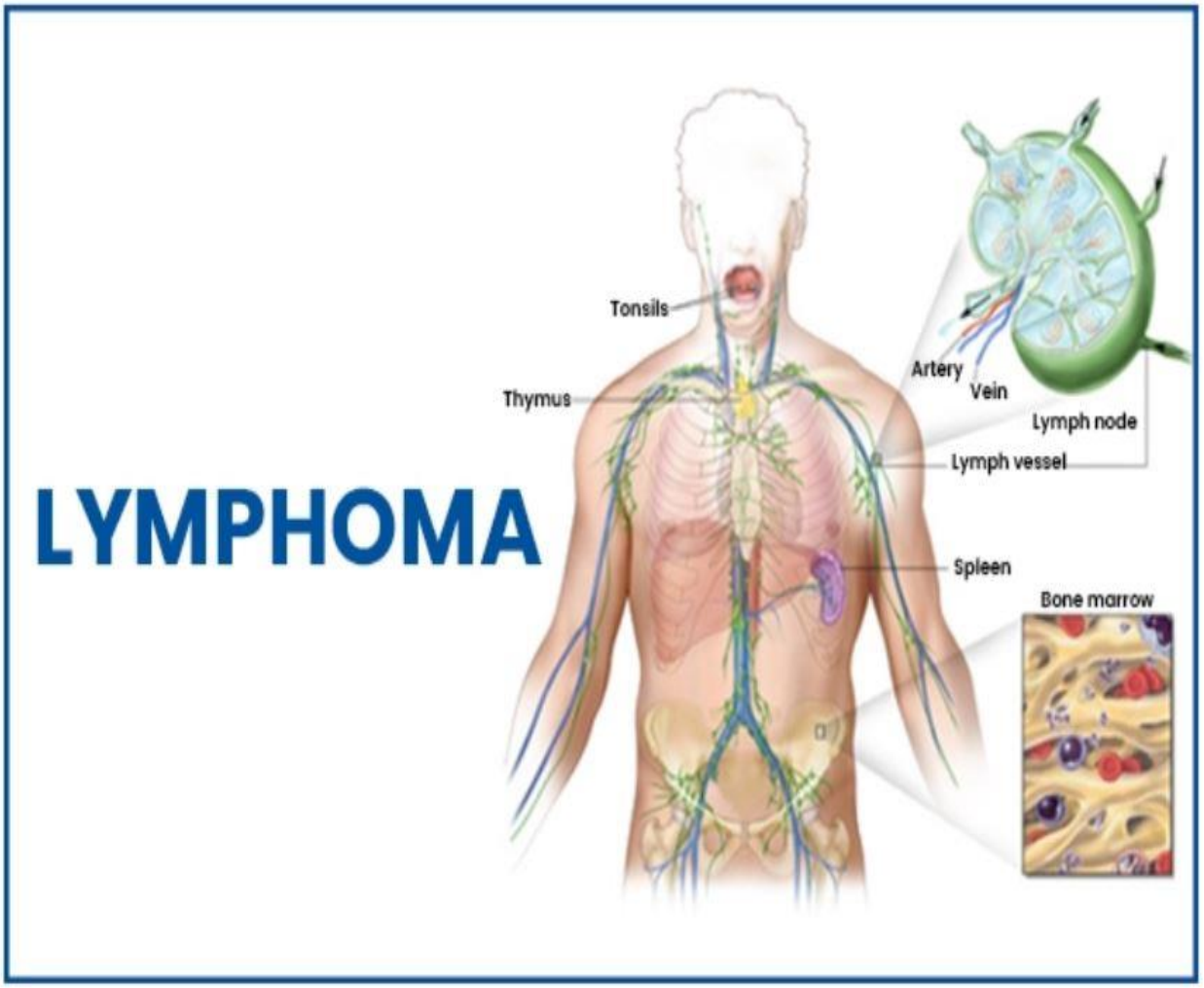
Preventive measures:

1. **Promote weight loss** in obese patients (gradual and healthy weight loss to prevent gallstone formation).
2. **Educate** on avoiding rapid weight loss and managing underlying conditions like diabetes.
3. **By addressing the causes**, symptoms, and treatment of cholecystitis, nurses play a critical role in both managing the acute phase and aiding in long-term prevention and recovery.

Asist.lec. Mohammed Mahmood Hamed

Medical Nursing -(Emergency medicine and first aid techniques) **Lecture** 6

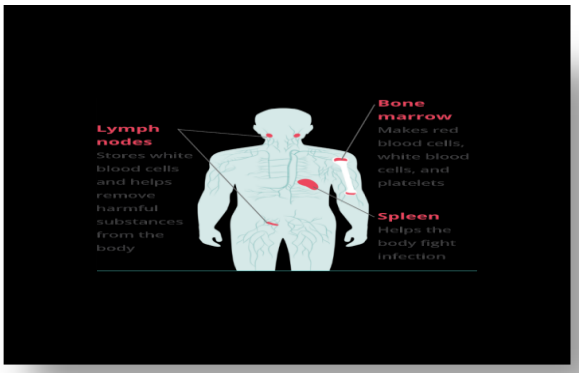
Lymphoma lymphatic system: physical assessment and diagnostic tests, Hodgkin's Disease /classification/causes/sign and symptoms/ Hodgkin's disease vs. non-Hodgkin's / stage /treatment



Lymphoma

Lymphoma is a type of cancer that affects the lymphatic system, which is part of the immune system. It includes lymph nodes, spleen, tonsils, and bone marrow, all of which are responsible for fighting infections and filtering harmful substances.

- Lymphoma can be divided into two main types:
    1) **Hodgkin's lymphoma (HL)**
    2) **Non-Hodgkin's lymphoma (NHL).**



Physical Assessment:

- **Lymphadenopathy:** Swollen or enlarged lymph nodes, often in the neck, armpits, or groin.
- **B Symptoms:** Fever, night sweats, and weight loss.
- **Splenomegaly:** Enlarged spleen.
- **Fatigue and itching** (pruritus) are common in lymphoma.
- **Skin lesions:** Can appear in advanced stages.

Hodgkin's Disease (Hodgkin Lymphoma):

Hodgkin's lymphoma (HL) is a type of lymphoma marked by the presence of Reed-Sternberg cells.

Classification

Hodgkin lymphoma is classified based on the type of cells involved and includes:

1. **Classical Hodgkin Lymphoma (cHL)**: The most common form, further divided into
    - **Nodular Sclerosis**: Most common subtype, often seen in adolescents and young adults.
    - **Mixed Cellularity**: Common in older adults, has a mix of cell types.
    - **Lymphocyte Rich**: Fewer Reed-Sternberg cells, usually a good prognosis.
    - **Lymphocyte Depleted**: Rare and often aggressive.
2. **Nodular Lymphocyte-Predominant Hodgkin Lymphoma (NLPHL)**: A rarer form, where lymph nodes tend to have more normal lymphocytes (better prognosis).

Causes

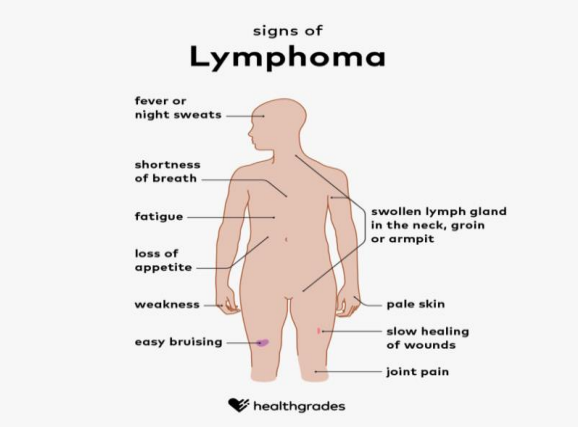
The exact cause of HL is unknown, but infection with some risk factors include:

1. Epstein-Barr virus (EBV) infection.
2. Family history of lymphoma (HL) increases the risk.
3. Age: typically affects individuals in their 20s and 60s, (It is more common in people between the ages of 20 and 40, and in older adults (above 55)).
4. Weakened immune system.

Signs and Symptoms

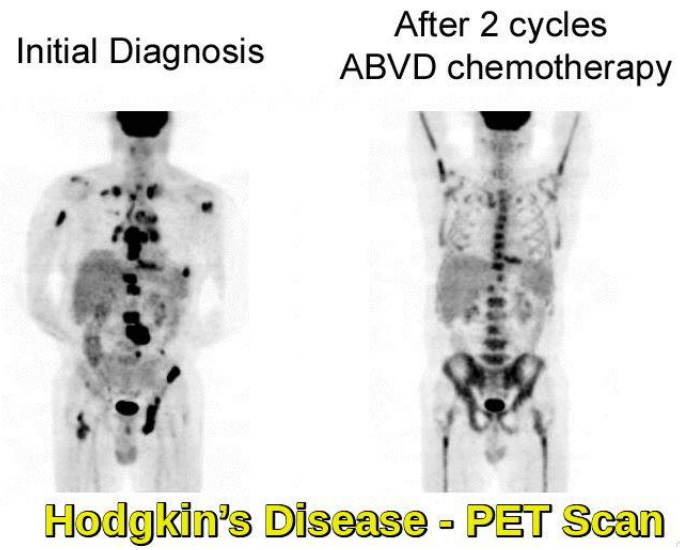
Common signs and symptoms include:

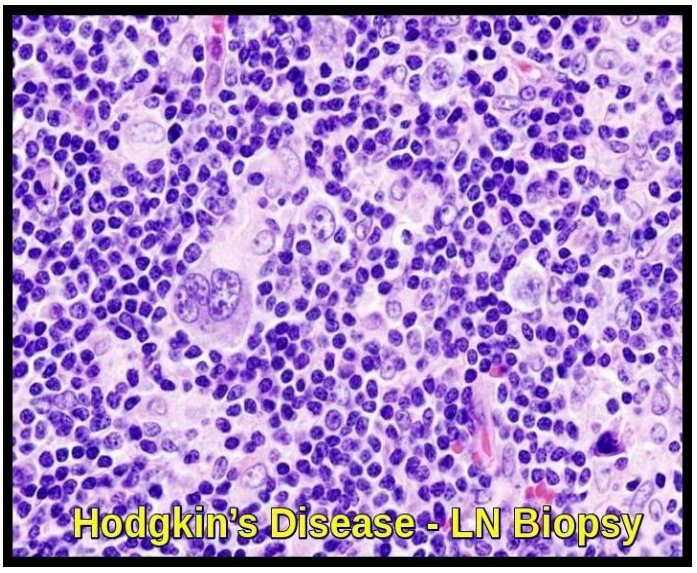
1. Painless swelling of lymph nodes (usually in the neck, armpit, groin).
2. Unexplained weight loss.
3. Fever.
4. Night sweats.
5. Itchy skin.
6. Fatigue.
7. Cough or shortness of breath if lymph nodes in the chest are affected.



Diagnostic Tests

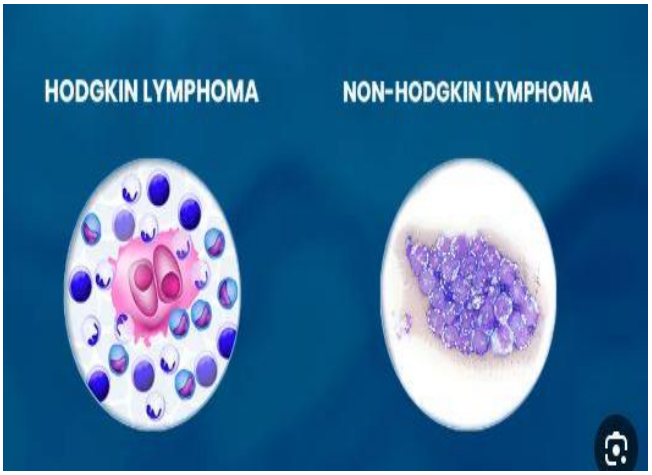
1. **Physical Assessment**: Palpation of lymph nodes and assessment of symptoms.
2. **Imaging Tests**:
    - **CT Scans**: To identify swollen lymph nodes and assess the extent of disease.
    - **PET Scans**: To evaluate metabolic activity and staging.
3. **Biopsy**:
    - **Excisional or Incisional Biopsy**: Removal of lymph node tissue for examination, (a sample of the lymph node or affected tissue is examined under a microscope for cancer cells.).
    - **Bone Marrow Biopsy**: To check for spread of the disease (if there's suspicion that the lymphoma has spread to the bone marrow).
4. **Blood Tests**: Complete blood count and tests for liver and kidney function (to check for abnormal cell counts and organ function).





Hodgkin's Disease vs. Non-Hodgkin's Lymphoma

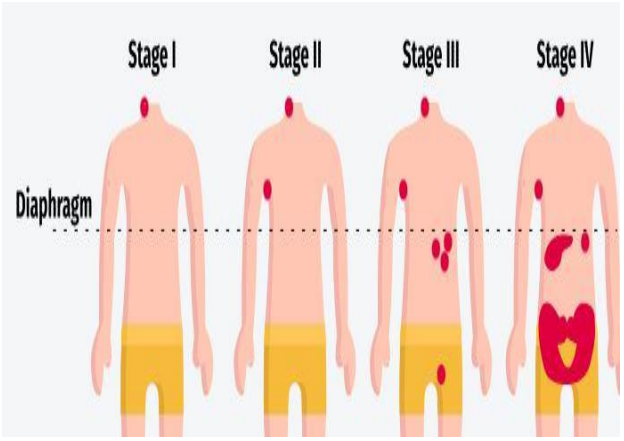
Hodgkin's lymphoma	Non-Hodgkin's lymphoma
1. **Reed-Sternberg cells:** Presence. 2. **Epidemiology**: Tends to start in one area and spread in an orderly fashion (less common but has a better prognosis). 3. **Age of Onset**: More common in young adults (15-40) and older adults (>55). 4. More likely to be treated successfully with a cure rate of about 85%.	1. **Reed-Sternberg cells:** absent. 2. **Epidemiology**: Can spread in a more scattered pattern and affect multiple lymph nodes or organs at once. 3. **Age of Onset**: More common in adults, especially those over 60. 4. The survival rate depends on the subtype, stage, and individual factors.

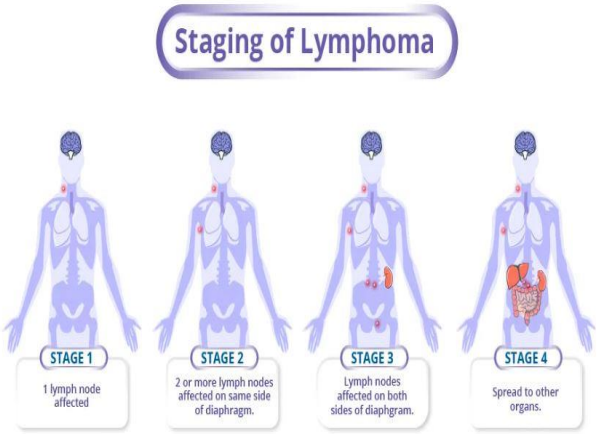


Staging of Hodgkin’s Lymphoma

The staging system for Hodgkin's lymphoma is typically based on the Ann Arbor system staging classification, which includes the following stages:

- **Stage I**: Involvement of a single lymph node region or single extralymphatic site is affected.
- **Stage II**: Two or more lymph node regions are affected on the same side of the diaphragm.
- **Stage III**: Involvement of lymph node regions on both sides of the diaphragm are affected.
- **Stage IV**: Widespread involvement of one or more organs outside the lymphatic system (e.g., liver, bone marrow, or lungs).





Treatment

Treatment for Hodgkin’s lymphoma depends on the stage, but generally includes a combination of therapies:

1. **Chemotherapy**: Most common treatment, a combination of drugs (such as ABVD: Doxorubicin, Bleomycin, Vinblastine, Dacarbazine).
2. **Radiotherapy**: Often used in early-stage disease or after chemotherapy. (used for localized tumors or for treating areas where lymphoma is more contained.
3. **Stem Cell Transplant**: May be considered for relapsed or refractory cases.
4. **Targeted Therapy and Immunotherapy**: Newer options for specific cases (targeted therapies), such as (brentuximab vedotin) or checkpoint inhibitors (e.g., nivolumab) may be used for advanced cases or relapsed disease.

Nursing interventions:

1. Assessment

- **Monitor Vital Signs**: Regularly check for fever, hypotension, and signs of infection.
- **Evaluate Symptoms**: Assess for pain, swelling of lymph nodes, fatigue, and signs of anemia or bleeding.
- **Monitor Lab Values**: Keep track of complete blood counts, liver and kidney function tests, and electrolyte levels.

2. Symptom Management

- **Pain Management**: Administer analgesics as prescribed and assess effectiveness.
- **Manage Side Effects**: Address nausea, vomiting, and fatigue associated with chemotherapy and radiation.
- **Skin Care**: Provide education on skin care to prevent irritation from radiation therapy.

3. Education and Support

- **Teach About the Disease**: Explain lymphoma, its treatment options, and expected side effects.
- **Nutritional Support**: Encourage a balanced diet and adequate hydration; consider consulting a dietitian.
- **Emotional Support**: Offer counseling or support groups to help cope with emotional distress.

4. Infection Prevention

- **Practice Good Hygiene**: Educate the patient on hand hygiene and avoiding large crowds to reduce infection risk.
- **Monitor for Signs of Infection**: Promptly report any fever, chills, or unusual symptoms.

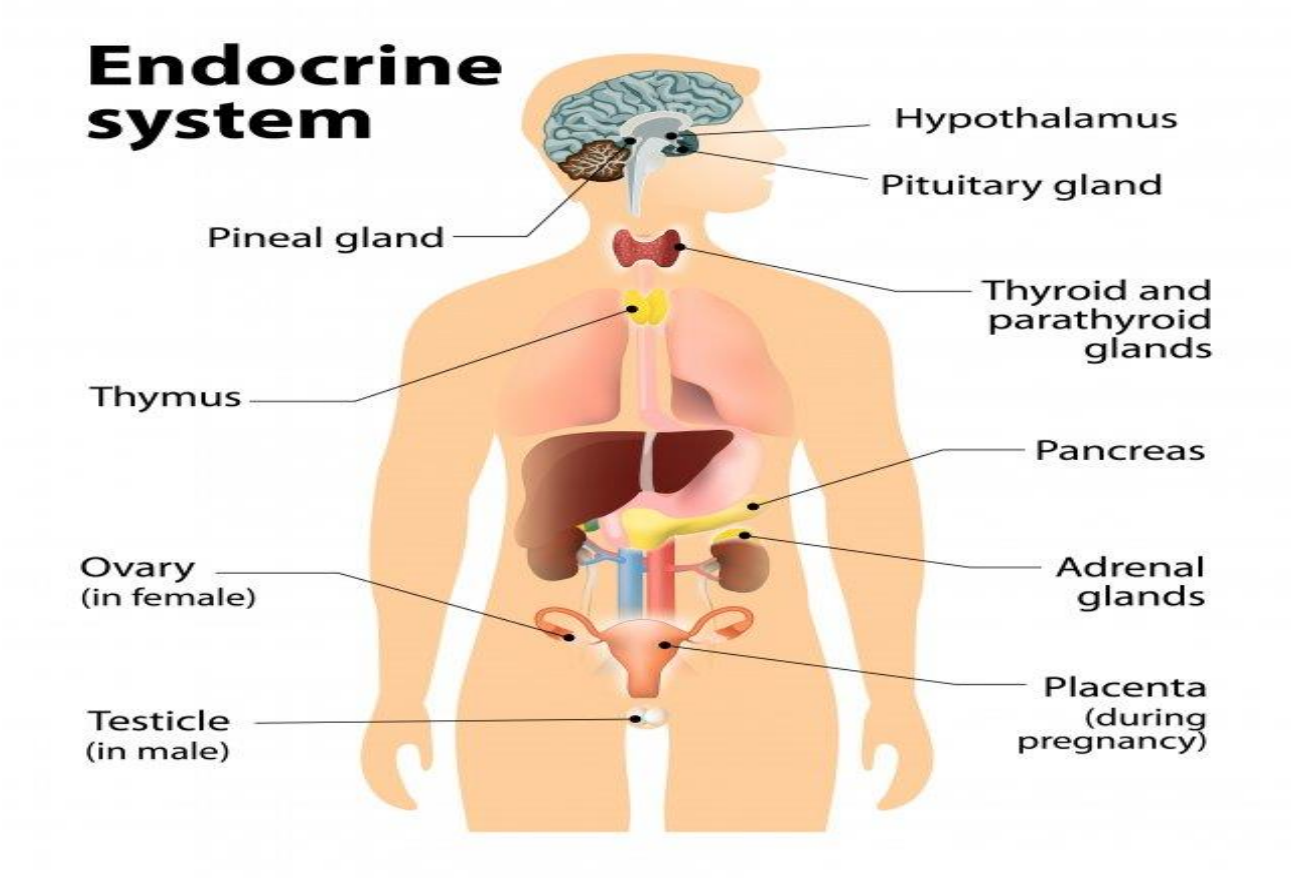
5. **Education on Self-Care**

- **Teach Self-Assessment**: Encourage patients to monitor for changes in symptoms and report them promptly.
- **Encourage Rest and Activity**: Balance rest periods with activity to promote energy conservation.

Asist.lec. Mohammed Mahmood Hamed

Medical Nursing -(Emergency medicine and first aid techniques) **Lecture** 7

Endocrine system:
Physical assessment , and diagnostic tests,
Diabetes Mellitus: /definition/ type uses / sign and symptoms / treatment/ nursing education



Endocrine System:

The endocrine system is a complex network of glands that produce and secrete hormones, which regulate many vital functions in the body. These hormones control processes such as metabolism, growth, mood, sexual function, and tissue function.

Major glands of the endocrine system include:

- **Pituitary Gland** (Master Gland)
- **Thyroid Gland**
- **Parathyroid Glands**
- **Adrenal Glands**
- **Pancreas**
- **Ovaries and Testes**
- **Thymus**

Each gland releases hormones that affect various functions in the body, maintaining homeostasis.

Physical Assessment in Endocrine Disorders:

A comprehensive physical examination for endocrine disorders involves evaluating clinical signs that may suggest hormone imbalances. The steps generally include:

1. **Patient History:**
    - Symptoms like unexplained weight changes, fatigue, mood disturbances, or changes in skin, hair, or nails.
    - Personal or family history of endocrine disorders (e.g., diabetes, thyroid disease).
2. **Vital Signs:**
    - Monitoring blood pressure, heart rate, temperature, and respiratory rate for signs of hormone dysregulation.
3. **Inspection and Palpation:**
    - Inspect the skin for signs of dryness, excessive sweating, or changes in pigmentation.
    - Check the neck for thyroid enlargement (goiter) or masses.
    - Palpate for enlarged glands (thyroid, parathyroid, or adrenal glands).
4. **Neurological Examination:**
    - Evaluate reflexes, motor skills, and mental status to assess the impact of hormonal imbalances on the nervous system.
5. **Body Weight and Growth Measurement:**
    - Look for abnormal weight gain or loss that might point to thyroid or adrenal dysfunction.
6. **Other Indicators:**
    - Evaluate facial features (e.g., acromegaly might cause enlarged facial features), muscle strength, and signs of dehydration or fluid retention.

Diagnostic Tests for Endocrine Disorders:

To diagnose endocrine disorders, a combination of laboratory tests and imaging studies are often used:

1. **Blood Tests:**
    - **Thyroid Function Tests** (TSH, T3, T4) for thyroid issues.

- **Insulin and Glucose Tests** to monitor for diabetes or insulin resistance.
- **Parathyroid Hormone (PTH)** to evaluate calcium and bone health.
- **Hormonal Assays** (e.g., estrogen, progesterone, testosterone, growth hormone).

2. **Urine Tests:**
   - **24-hour urine collection** for cortisol, catecholamines, or hormone metabolites.
3. **Imaging Studies:**
   - **Ultrasound or CT scan** for detecting tumors, nodules, or enlargement of endocrine glands.
   - **MRI** of the brain to check for pituitary abnormalities.
4. **Glucose Tolerance Test (GTT):**
   - Measures the body's ability to metabolize glucose and is essential for diagnosing diabetes mellitus.

Diabetes Mellitus:

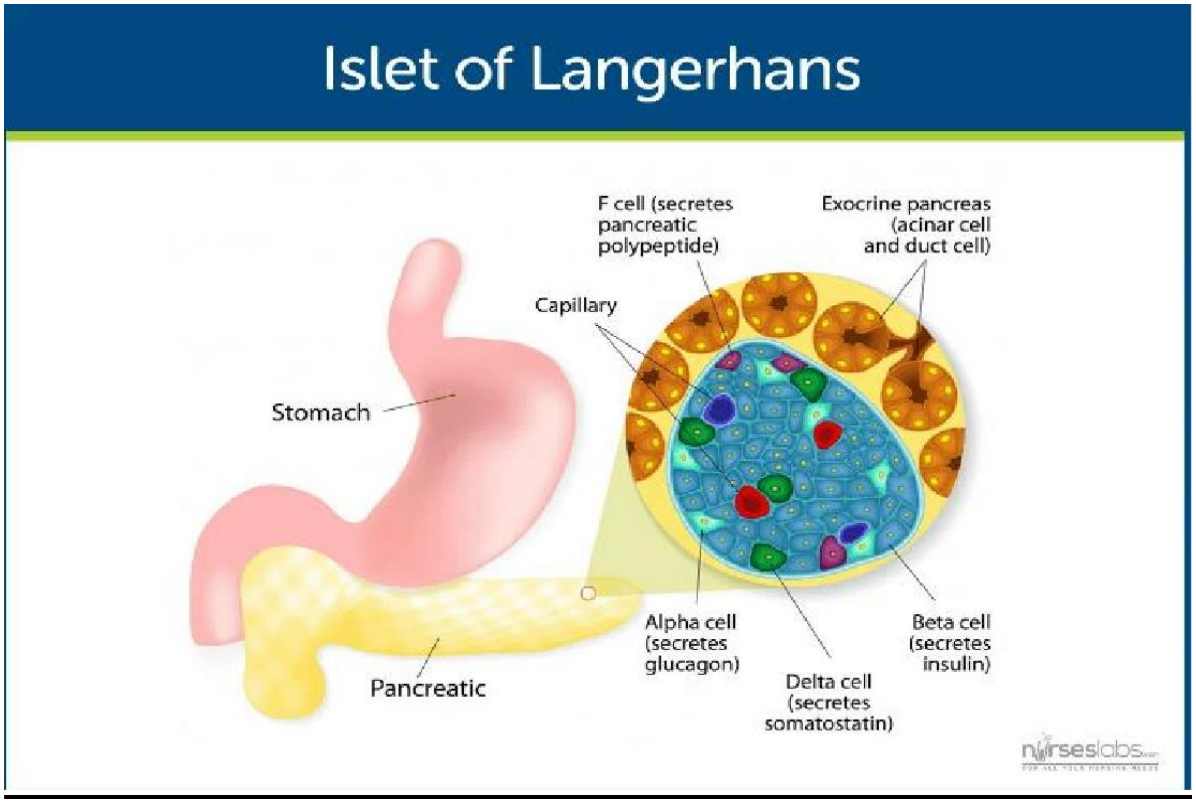
Diabetes Mellitus is a group of metabolic disorders characterized by high blood glucose levels, either due to insulin resistance or inadequate insulin production.

Definition:

- **Diabetes Mellitus (DM)** refers to a condition in which the body is unable to properly regulate blood sugar (glucose) levels.
  Or (Diabetes is a condition that happens when the blood sugar (glucose- which mainly comes from carbohydrates in the food and drinks) is too high. It develops

when pancreas doesn't make enough insulin or any at all, or when the body isn't responding to the effects of insulin properly. Diabetes affects people of all ages. Most forms of diabetes are chronic (lifelong), and all forms are manageable with medications and/or lifestyle changes. Over time, having consistently high blood glucose can cause health problems, such as heart disease, nerve damage, kidney damage, neuropathy, and eye issues.)

- There are two main types:

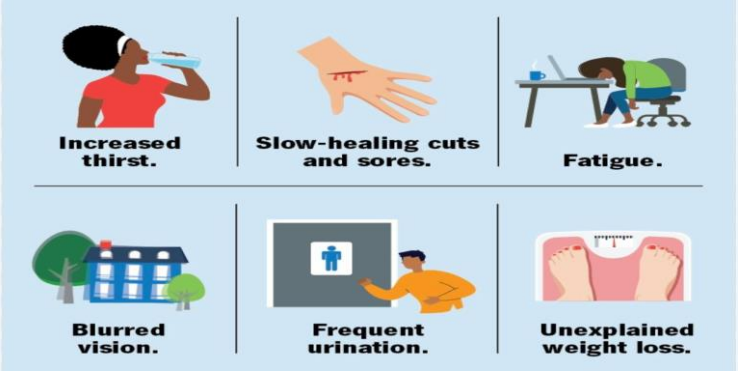


Types of Diabetes Mellitus:

1. **Type 1 Diabetes:**
   - An autoimmune disorder where the immune system attacks insulin-producing cells in the pancreas, leading to little or no insulin production.
   - Typically diagnosed in children or young adults.
2. **Type 2 Diabetes:**
   - A metabolic disorder where the body becomes resistant to insulin, or the pancreas cannot produce enough insulin.
   - More common in adults, often associated with obesity, poor diet, and sedentary lifestyle.
3. **Gestational Diabetes:**
   - Occurs during pregnancy and increases the risk of developing type 2 diabetes later in life. It typically resolves after delivery but needs careful management during pregnancy.

Signs and Symptoms of Diabetes Mellitus:

- **Excessive Thirst (Polydipsia)**
- **Frequent Urination (Polyuria)**
- **Unexplained Weight Loss**
- **Fatigue**
- **Blurred Vision**
- **Slow Healing of Wounds**
- **Increased Hunger (Polyphagia)**
- **Frequent Infections**



Diagnosis;

1. Fasting Blood Sugar (FBS), the patient must be fasting for at least (8) hours. It must be less than (100 mg/dL). Most of the time, the blood glucose level will be 125 mg/dL (6.9 mmol/L) or lower.

2. Random Blood Sugar (RBS). If the value is "200" or higher with classic symptoms of hyperglycemia, it means Diabetes.

Result*	A1C Test	Fasting Blood Sugar Test	Glucose Tolerance Test	Random Blood Sugar Test
Diabetes	6.5% or above	126 mg/dL or above	200 mg/dL or above	200 mg/dL or above
Prediabetes	5.7 – 6.4%	100 – 125 mg/dL	140 – 199 mg/dL	N/A
Normal	Below 5.7%	99 mg/dL or below	140 mg/dL or below	N/A

Accumulated Blood Sugar Test- The "**A1C**" test measures the amount of hemoglobin with attached glucose and reflects your average blood glucose levels over the past "3" months. The "**A1C**" test result is reported as a percentage. The higher the percentage, the higher your blood glucose levels have been. A normal "**A1C**" level is below "5.7" percent.

Treatment of Diabetes Mellitus:

The treatment approach depends on the type and severity of diabetes.

1. **Type 1 Diabetes:**
    - **Insulin Therapy**: Essential for managing type 1 diabetes, as patients cannot produce insulin.
    - **Frequent Monitoring** of blood glucose levels.
    - **Balanced Diet**: Emphasis on carbohydrate counting.
    - **Physical Activity**: Regular exercise to enhance insulin sensitivity.
2. **Type 2 Diabetes:**
    - **Lifestyle Modifications**: Healthy diet and weight management.
    - **Oral Medications**: Drugs like metformin, sulfonylureas, or DPP-4 inhibitors may be prescribed.
    - **Insulin**: May be required in advanced stages.
    - **Regular Monitoring**: Frequent blood glucose checks.
3. **Gestational Diabetes:**
    - **Dietary Adjustments**: Emphasis on a healthy pregnancy diet.
    - **Exercise**: Regular physical activity to help control blood sugar.
    - **Insulin Therapy**: Sometimes necessary if blood glucose levels cannot be controlled through diet and exercise alone.
4. **Monitoring and Education:**
    - Blood glucose monitoring is crucial for all types of diabetes.
    - **Continuous Glucose Monitoring (CGM)** for some patients.

Nursing Education for Diabetes Mellitus:

1. **Blood Glucose Monitoring:**
    - Teach patients how to monitor their blood glucose levels at home.
    - Emphasize the importance of regular checks, especially before and after meals, and before bed.
2. **Medication Administration:**
    - For insulin-dependent patients, provide education on how to administer insulin, rotate injection sites, and manage hypoglycemia or hyperglycemia.
3. **Dietary Education:**
    - Diet regimen (less carbohydrate and less fat), and depending on Mediterranean diet,
    - Encourage a balanced, low-sugar, high-fiber diet with plenty of vegetables, lean proteins, and healthy fats.
4. **Exercise:**
    - Encourage regular physical activity (e.g., walking, swimming) to help control blood sugar levels and reduce insulin resistance.
5. **Psychosocial Support:**
    - Offer emotional support and help patients understand that diabetes management can be challenging but is achievable.
    - Provide resources for counseling or support groups.
6. **Other management:**

    Maintain healthy weight, Maintain normal blood pressure, Maintain normal value of cholesterol, Less stress, Limit alcohol intake, Get adequate sleep (typically "7-8" hours daily) and Wear suitable shoes, with daily monitoring of feet.

Asist.lec. Mohammed Mahmood Hamed

Medical Nursing -(Emergency medicine and first aid techniques) **Lecture 8**

Gastrointestinal System/ Physical Assessment and Diagnostic Tests / Appendicitis; Causes, Pathophysiology, Sign and Symptom, Treatment, Appendectomy Management

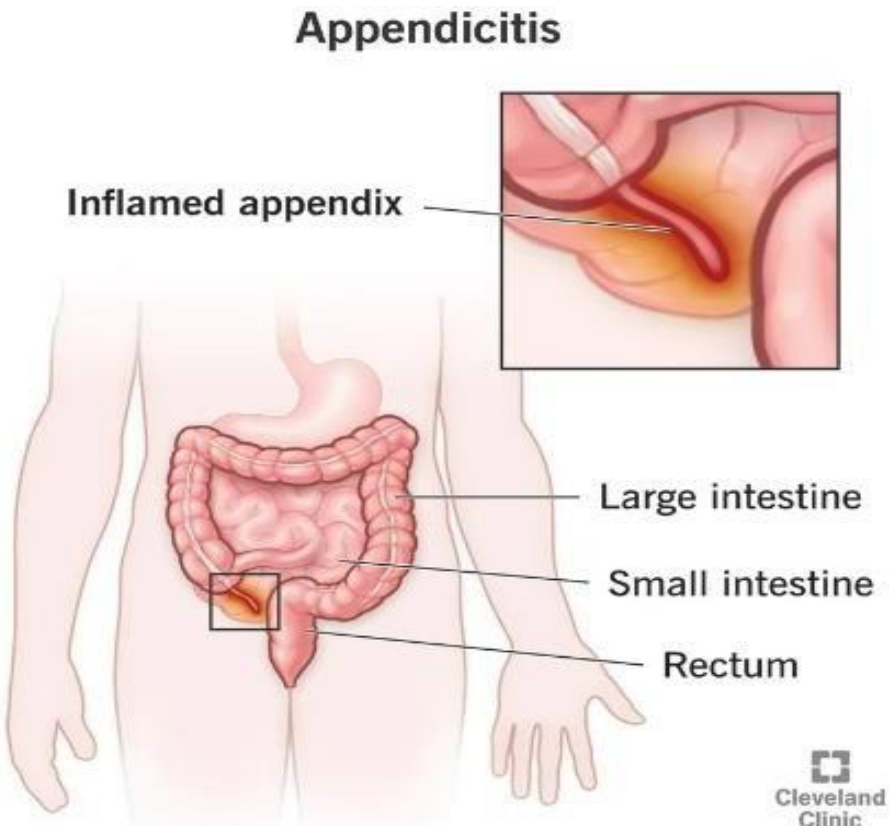
Gastrointestinal System:

Physical Assessment

1. **Inspection**:
2. **Auscultation**:
3. **Percussion**:
4. **Palpation**:

Diagnostic Tests

1. **Laboratory Tests**:
    - **Complete Blood Count (CBC)**: Elevated white blood cell count (WBC) in infections like appendicitis.
    - **Electrolytes**: Evaluate dehydration or metabolic imbalances.
    - **Liver Function Tests**: Rule out hepatic causes of abdominal pain.
2. **Imaging**:
    - **Ultrasound**: For appendicitis, cholecystitis, or ascites.
    - **X-ray (Abdominal)**: Detect free air (perforation) or obstruction.
    - **CT Scan**: High specificity for appendicitis and obstruction.
    - **MRI**: Sometimes used in pregnant patients or for further detailing.
3. **Specialized Tests**:
    - **Endoscopy**: Evaluate gastrointestinal mucosa for ulcers or bleeding.



Appendicitis:

Appendicitis is an inflammation of the appendix (a small, finger-like, hollow organ located at the tip of the cecum portion of the large intestines), usually felt in the right lower quadrant of the abdomen (Right Iliac Fossa). It is one of the most common causes of acute abdominal surgery and typically occurs between ages (5 – 45) years, but can occur at any age.

Causes:

- Obstruction of the appendiceal lumen (fecalith, lymphoid hyperplasia, or tumor).
- Infection leading to inflammation and ischemia.

Pathophysiology:

1. Lumen obstruction → Increased intraluminal pressure.
2. Venous congestion and bacterial overgrowth.
3. Ischemia → Inflammation → Perforation (if untreated).

Clinical Manifestation (Signs & Symptoms):

1. Fever (40% of patients),
2. Pain in the right iliac fossa of the abdomen (right lower quadrant), Periumbilical pain migrating to the right lower quadrant (McBurney's point).
3. Rigid and tenderness of the abdomen,
4. Decreased appetite,
5. Nausea/vomiting,
6. Diarrhea or constipation,
7. Urinary frequency or urgency.

Medical Management;

1. **Medical**: Antibiotic, IV fluids, antibiotics (e.g., ceftriaxone, metronidazole), sedative, antiemetic "as; Plasil, Motilium", and anti- diarrheal medications,
2. **Surgical**: Appendectomy (laparoscopic or open - surgery to remove the infected appendix.).

Nursing Management (Post-operatively);

1. Check vital signs.
2. Bed rest the day of operation.
3. Accomplish laboratory investigation as WBCs, CBC, Hb,…
4. Don't apply heat on the abdomen, because it can lead to rupture of appendix,
5. Oral fluid and solid diet intake should be encouraged.
6. In case of appendectomy;

+ Prevent and assessing infection (redness, tenderness, pulsation, increasing

pain, or swelling at the incision site), by maintaining clean environment, providing wound care, monitoring patient temperature and heart rate for signs of potential infection.

+ Encourage patients to walk as able to maintain circulation.

+ Monitor for adequate bowel movements.

+ Encourage adequate water intake and use of a stool softener.

+ Administer prescribed medications; analgesics, antibiotics, sedatives.

Intestinal Obstruction

Causes:

1. **Mechanical**:
    - Adhesions, hernias, tumors, volvulus, intussusception.
2. **Functional**:
    - Paralytic ileus (postoperative, medications).

Pathophysiology:

1. Obstruction → Accumulation of gas and fluid proximal to the blockage.
2. Increased intraluminal pressure → Impaired blood flow and ischemia.
3. Bacterial translocation → Peritonitis if untreated.

Signs and Symptoms:

- Abdominal distension.
- Vomiting
- Constipation or obstipation.
- High-pitched or absent bowel sounds.

Treatment:

1. **Conservative**:
    - NPO (nothing by mouth), IV fluids, nasogastric decompression.
    - Correction of electrolyte imbalances.
2. **Surgical**: