

# **PATHOPHYSIOLOGY**

## **IMPORTANT QUESTIONS**

### **UNIT 4**



## **QUESTION - 1**

**1 DEFINE PATHOPHYSIOLOGY OF CANCER IN DETAIL**

# CANCER

- Cancer is a very serious disease characterized by the uncontrolled growth and spread of abnormal cells in the body.
- These abnormal cells can form tumours & spread throughout the body via blood & lymphatic system.
- Cancer can affect any part of body and often named after the organ or type of cell, where it starts, such as Breast Cancer, Lung Cancer
- Other terms like, Neoplasm & Tumour are also used for cancer, however they have slight different meanings.

## Tumour

- A tumour is an abnormal growth of cells that forms a mass or lump.
- It can be classified into two types -
  - ① Benign Tumour
  - ② Malignant Tumour

### Benign Tumour

- It is non-cancerous Tumour
- It generally doesn't spread to other parts of body
- It can be surgically removed

### Malignant Tumour

- It is cancerous Tumour
- It spreads to other part of body through bloodstream or lymphatic system
- It cannot be removed

## Classification Of Cancer

On the basis of tissue involved it can be classified into following types :

- ① Carcinomas
- ② Sarcomas
- ③ Leukemias
- ④ Lymphomas

### Carcinomas

- Cancer that originates in epithelial cells, which line the inner & outer surfaces of body
- example : Breast Cancer, Lung Cancer etc.

### Sarcomas

- Cancer that arises from connective tissues .&
- example : Bone, Muscle, Joints etc.

### Leukemias

- It is also known as Blood Cancer.
- It begins when healthy blood cells change & grow uncontrollably.

### Lymphomas

- Cancer that originates in the lymphatic system.
- example : Hodgkin Lymphoma.

## Causes / Etiology

Cancer often arises from a combination of genetic, environmental & lifestyle factors.

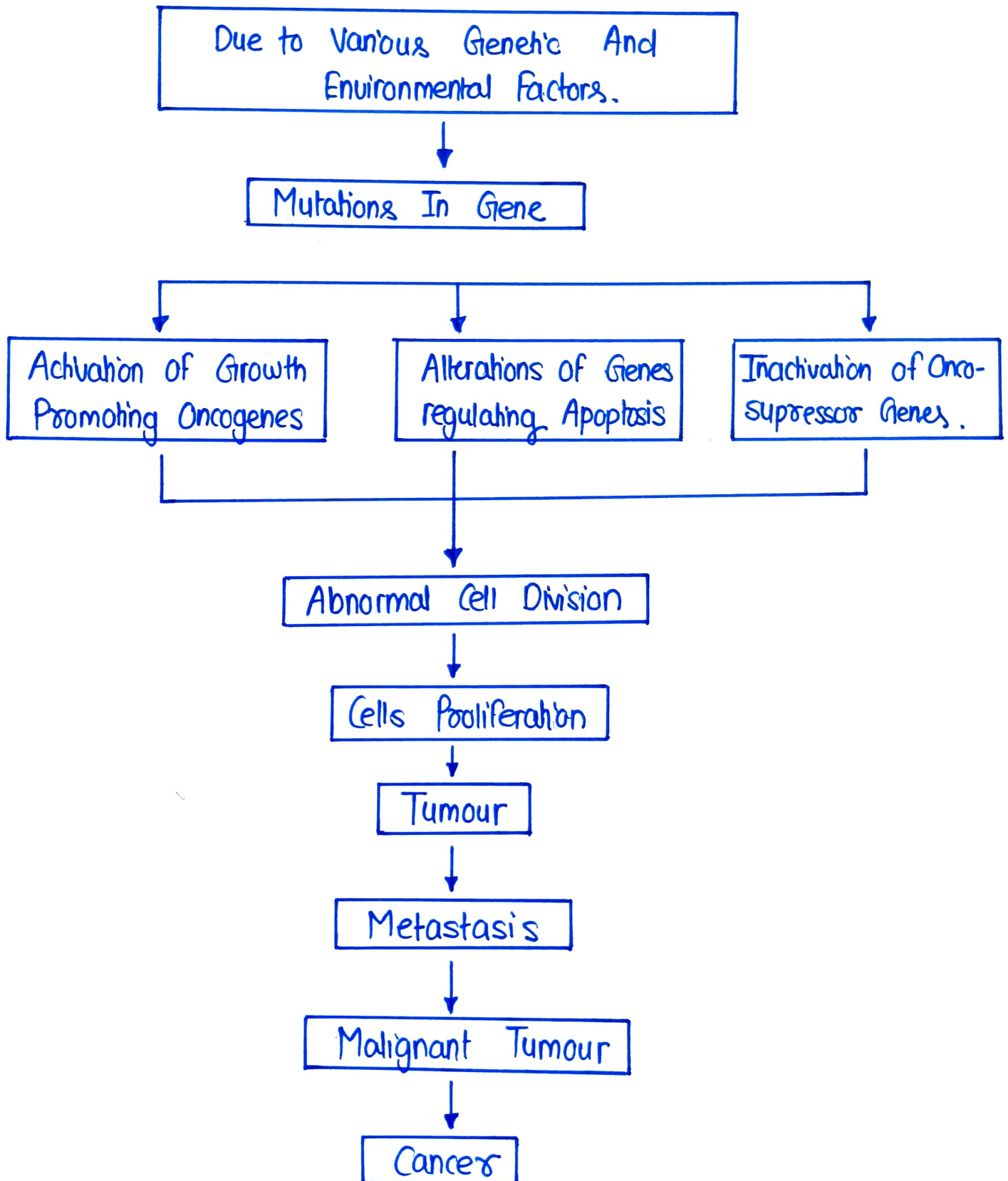
The primary causes include :

- Genetic Mutations
- Environmental Exposures
- Smoking
- Alcohol
- Age
- Virus, Bacteria, Parasites
- Hormonal Imbalances
- Chronic Inflammation

## Sign & Symptoms

- Fatigue
- Weight Changes
- Skin Changes
- Bowel Changes
- Persistent Cough
- Breathing Trouble.
- Unexplained Joint Pain
- Fever / Night Sweats.

# Pathogenesis Of Cancers



## Complications

- Organ Dysfunction
- Pain
- Infections
- Cognitive & Emotional Effects
- Gut Issues
- Death

## Treatment

- Surgery
- Radiation Therapy
- Chemotherapy
- Hormone Therapy

## **QUESTION - 2**

**2 DEFINE PATHOPHYSIOLOGY OF RHEUMATOID ARTHRITIS  
IN DETAIL**

# RHEUMATOID ARTHRITIS

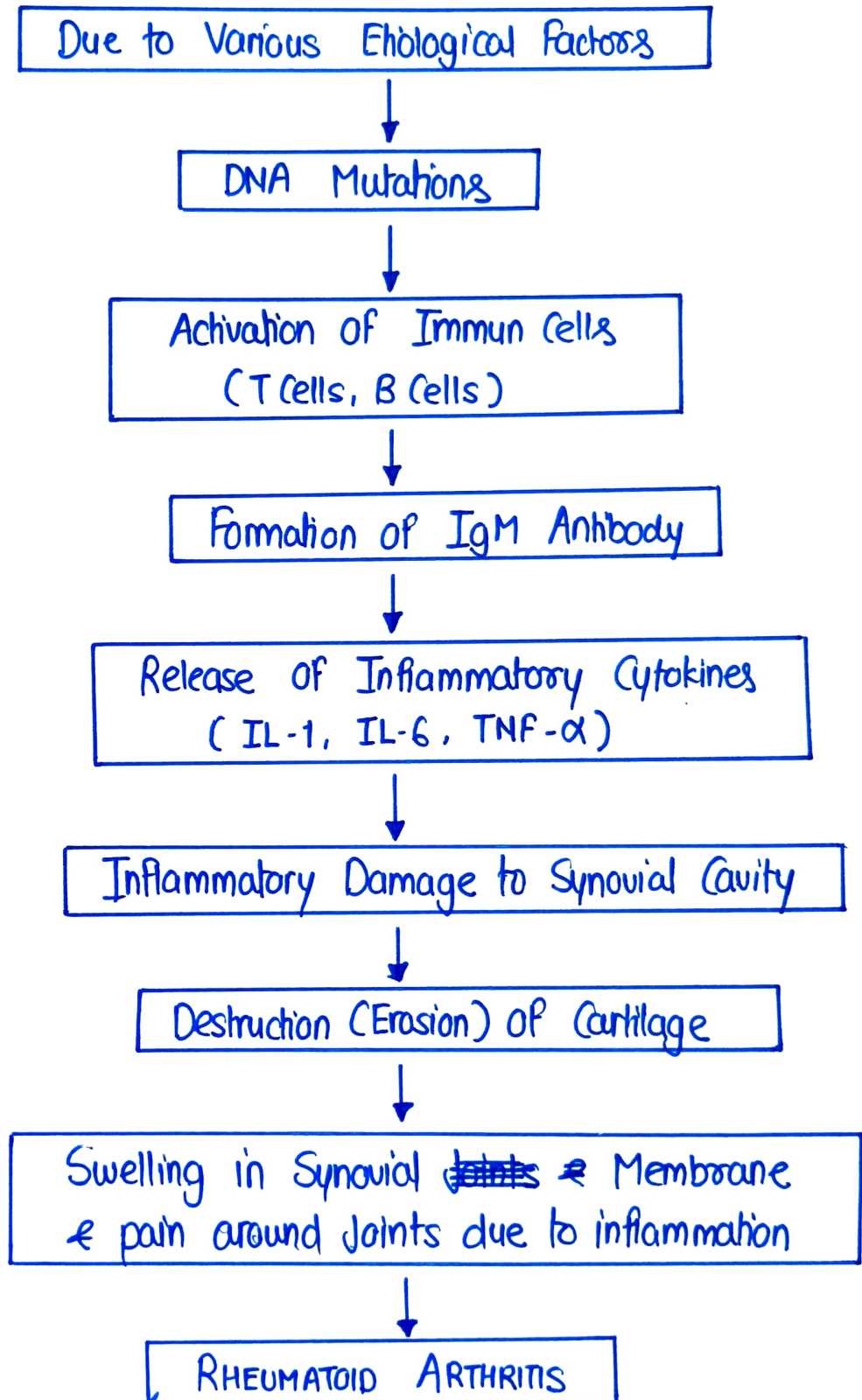
- Rheumatoid Arthritis is a chronic autoimmune disorder characterized by inflammation of joints.
- In Rheumatoid Arthritis, the body's immune system mistakenly attacks the synovium, the lining of joints, leading to pain, swelling, stiffness & inflammation.
- If Rheumatoid Arthritis is not treated early, it will lead to progressive joint deformity.

## Causes

The exact cause of rheumatoid arthritis is not fully understood, but it is believed to result from a combination of genetic, environmental & hormonal factors

- Genetic Predisposition :
  - \* Certain genes related to immune system (e.g. HLA - DRB1) can increase risk of developing RA.
- Environmental factors
- Smoking
- Hormal Imbalances
- Age

# Pathogenesis



## Sign & Symptoms

- Fatigue
- Weakness
- Joint Pain
- Swelling
- Stiffness
- Loss of Joint Functions.

## Complications

- Osteoporosis
- Infections
- Cardiovascular Issues
- Premature Death

## Treatment

- Medications :
  - NSAIDs
  - Corticosteroids
- Surgical Approach
- Physical Exercise
- Balanced Diet.

## **QUESTION - 3**

**3 DEFINE ETIOLOGY AND PATHOGENESIS OF :  
OSTEOPOROSIS  
INFLAMMATORY BOWEL DISEASE  
HEPATITIS**

# OSTEOPOROSIS

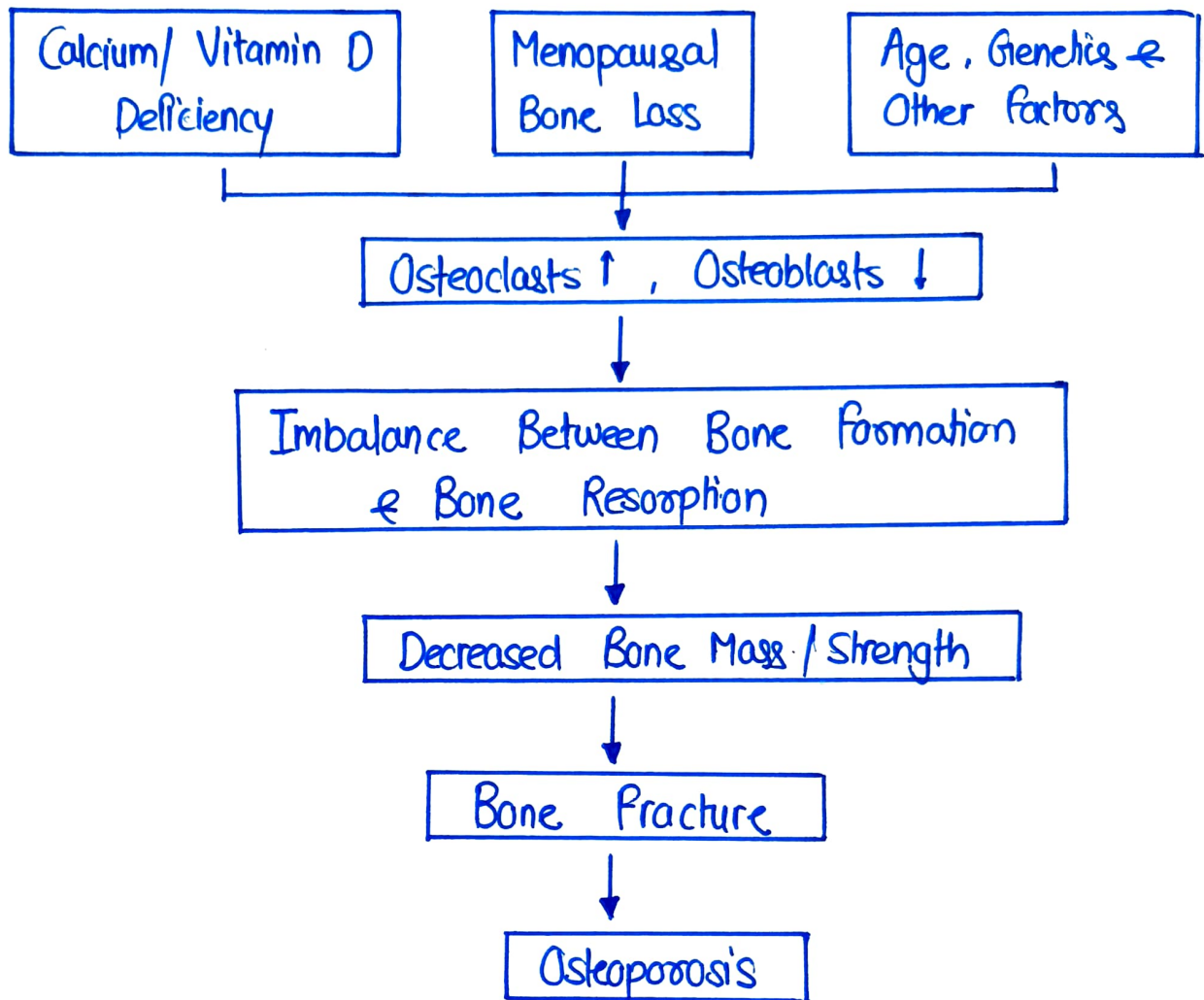
- Osteoporosis is defined as a medical condition characterized by weakened bones that are more susceptible to fracture.
- Osteoporosis causes bones to become so weak & brittle that a fall or even mild stresses such as bending over can cause a fracture.
- Osteoporosis related fracture most commonly occur in the hip, wrist or spine.

## Causes

It can be caused by variety of factors :

- Aging
- Hormonal Changes.
- Nutritional Deficiencies
- Genetics
- Menopause
- Medications
- Lifestyle factors

## Pathogenesis



## Symptoms

- Osteoporosis often develops without noticeable symptoms until a fracture occurs :
- However sign & symptoms may include
- Back Pain
- Height Loss
- Immobility
- Stiffness

## Complications

- Fractures
- Spinal Deformities
- Chronic Pain
- Reduced Mobility

## Treatment

- Bisphosphonates
- Raloxifene.
- Hormonal Replacement Therapy
- Calcitonin
- Lifestyle Modifications

# INFLAMMATORY BOWEL DISEASE

- Inflammatory Bowel Disease is a term used for chronic inflammatory conditions affecting Gastrointestinal Tract mainly intestine .
- It can be further subdivided into two types
  - ① Crohn's Disease
  - ② Ulcerative Colitis

## Crohn's Disease

- Crohn's disease is a type of Inflammatory Bowel Disease characterized by chronic inflammation of digestive tract.
- It can affect any part of GIT , but most commonly impacts the ileum . (last part of small intestine) & the Colon .

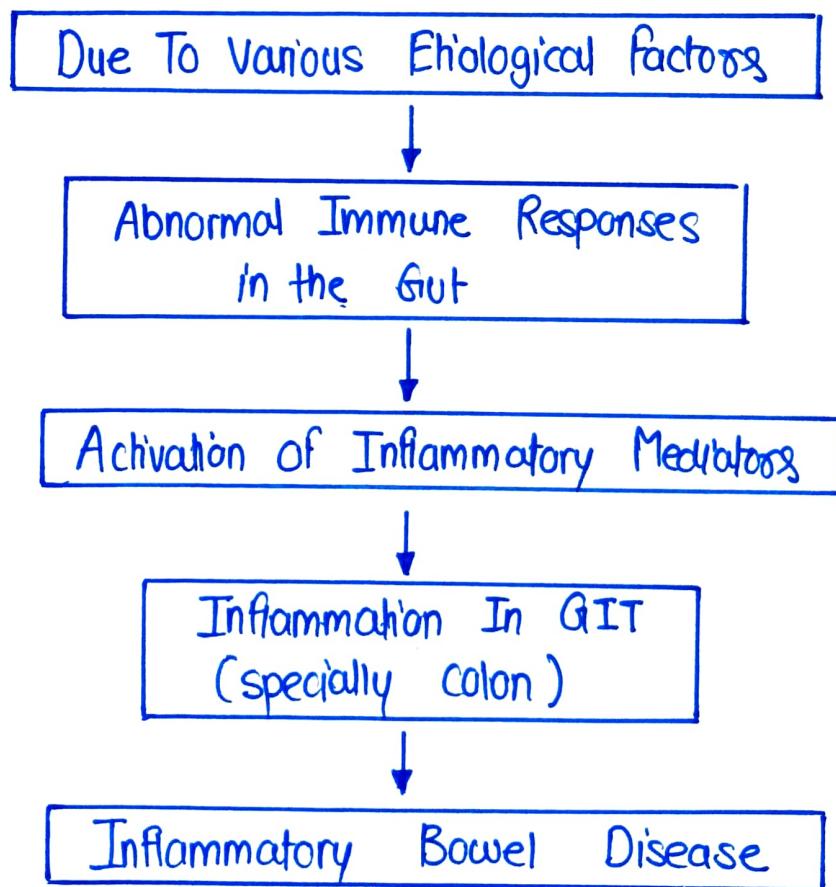
## Ulcerative Colitis

- Ulcerative Colitis is a type of inflammatory bowel disease that causes chronic inflammation and sores (ulcers) in the lining of large intestine (colon) & rectum .

## Causes

- The exact cause of inflammatory bowel disease is not fully understood.
- However several factors can play a major role as follows
- Immune Dysfunction
- Genetics
- Microbiome Imbalance
- Autoimmune Reactions.
- Exposure to Allergens.

## Pathogenesis



## Symptoms

- Abdominal Pain
- Cramping
- Weight Loss
- Fatigue
- Loss of Appetite
- Anemia.
- Rectal Bleeding

## Complications

- Intestinal obstruction
- Perforation.
- Colon Cancer
- Kidney Stones

## Treatment

- Corticosteroids.
- Antibiotics
- Balanced Diet.
- Surgery
- Lifestyle Modifications.

# HEPATITIS

- Hepatitis is broad term that means inflammation of liver.
- It is most commonly caused by viruses but can also be caused by drugs, chemicals, autoimmune disease & metabolic abnormalities.

## Types Of Hepatitis

On the basis of virus, it can be classified into 5 types:

- ① Hepatitis A
- ② Hepatitis B
- ③ Hepatitis C
- ④ Hepatitis D
- ⑤ Hepatitis E

## Hepatitis A

- It is caused due exposure of HAV in food or water.
- It can occur due to close contact with a person who has hepatitis A.

## Hepatitis B

- It is caused due to HBV.
- It can be transmitted through Blood, Sexual Contact or from mother to baby.

### Hepatitis C

- It is caused due to HCV.
- It is generally transmitted through blood to blood contact, such as through shared needles or contaminated medical equipment

### Hepatitis D

- It is caused due to HDV.
- It is transmitted through Blood, Body Fluids etc.
- Can worsen the liver damage caused by Hepatitis B Virus.

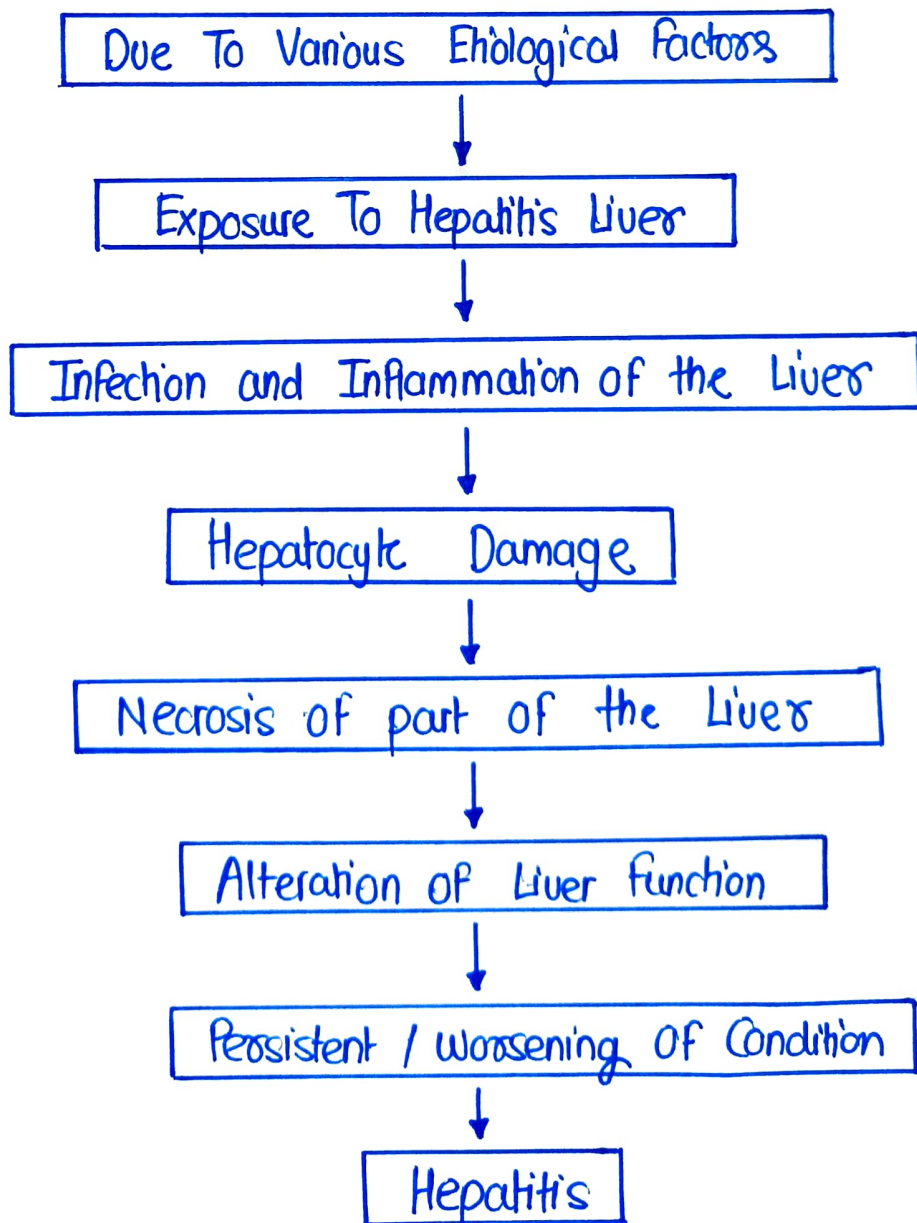
### Hepatitis E

- It is caused due to HEV.
- It is transmitted through fecal-oral route.
- It is generally acute & self limiting.

## Causes

- Viral Infections
- Alcohol Consumptions
- Medications
- Autoimmune Disorders
- Toxins & Chemicals.
- Metabolic Disorders
- Non - Alcoholic Fatty Liver Disease.

## Pathogenesis



## Symptoms

- Fatigue
- Jaundice
- Abdominal Pain
- Loss of Appetite
- Nausea / Vomiting
- Dark Urine
- Pale Stool
- Fever

## Treatment

- Antiviral Medications
- Lifestyle Modifications.
- Dietary Changes.
- Treatment of Underlying causes.

# THANK YOU

FOR CHOOSING IMPERFECT PHARMACY AS YOUR STUDY PARTNER



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