



# **SNS COLLEGE OF ALLIED HEALTH SCIENCES**

SNS Kalvi Nagar, Coimbatore - 35

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**DEPARTMENT : CARDIO PULMONARY PERFUSION CARE  
TECHNOLOGY**

**COURSE NAME : PHARMACOLOGY**

**UNIT : DRUGS AFFECTING BLOOD**

**TOPICS : ANTICOAGULANTS, ANTIPLATELET AGENTS,  
THROMBOLYTICS, HEMAPOIETIC AGENTS, ANTIANEMIC  
AGENTS, DIURETICS, ANTIHYPERTENSIVE AGENTS**



# DRUGS AFFECTING BLOOD



## ANTICOAGULANTS

### **Warfarin:**

**Mechanism:** Inhibits the synthesis of vitamin K-dependent clotting factors (II, VII, IX, X).

**Monitoring:** Requires monitoring of International Normalized Ratio (INR).

**Indications:** Prevents and treats thromboembolic disorders.



## **Heparin:**

**Mechanism:** Enhances the activity of antithrombin, inhibiting thrombin and factor Xa.

**Administration:** Typically given parenterally (intravenous or subcutaneous).

**Indications:** Acute treatment and prevention of venous thromboembolism.



## **Direct Oral Anticoagulants (DOACs):**

Examples: Dabigatran (direct thrombin inhibitor), Rivaroxaban, Apixaban, Edoxaban (direct factor Xa inhibitors).

Mechanism: Inhibit specific clotting factors without the need for routine monitoring.

Indications: Atrial fibrillation, deep vein thrombosis, pulmonary embolism.



# ANTIPLATELET AGENTS



## **Aspirin:**

**Mechanism:** Irreversibly inhibits cyclooxygenase-1, reducing thromboxane A<sub>2</sub> synthesis.

**Indications:** Prevents platelet aggregation, used in cardiovascular disease prevention.



## **Clopidogrel, Prasugrel, Ticagrelor:**

**Mechanism:** Inhibit ADP-mediated platelet activation.

**Indications:** Used in conjunction with aspirin to prevent thrombotic events.



# THROMBOLYTICS (FIBRINOLYTICS)



## **Alteplase, Reteplase, Streptokinase:**

**Mechanism:** Activate plasminogen to plasmin, promoting fibrinolysis.

**Indications:** Used in acute myocardial infarction, ischemic stroke, and pulmonary embolism.



# HEMATOPOIETIC AGENTS



## **Erythropoietin (EPO):**

**Mechanism:** Stimulates erythropoiesis, increasing red blood cell production.

**Indications:** Treatment of anemia, especially in chronic kidney disease.





## **Filgrastim, Pegfilgrastim:**

**Mechanism:** Stimulate granulocyte colony-stimulating factor, increasing neutrophil production.

**Indications:** Used to treat neutropenia, often seen in chemotherapy.



# ANTI-ANEMIC AGENTS



## **Iron Supplements:**

**Mechanism:** Replenishes iron stores, essential for hemoglobin synthesis.

**Indications:** Treatment of iron-deficiency anemia.



## **Vitamin B12 and Folate Supplements:**

**Mechanism:** Essential for DNA synthesis and maturation of red blood cells.

**Indications:** Treatment of megaloblastic anemias.



## DIURETICS



### **Furosemide (Loop Diuretic):**

**Mechanism:** Inhibits sodium and chloride reabsorption in the loop of Henle.

**Effects:** Can lead to electrolyte imbalances, affecting blood composition.



# ANTIHYPERTENSIVE AGENTS



## **ACE Inhibitors and ARBs:**

**Mechanism:** Inhibit the renin-angiotensin-aldosterone system, affecting blood pressure and volume.

**Indications:** Used in hypertension and heart failure.



## TECHNICIAN ROLE



- Continuous monitoring of vital signs during administration.
- Periodic monitoring of iron levels and hematologic parameters.
- Regular monitoring of electrolytes, especially potassium.
- Regular monitoring of blood pressure and renal function.



# ASSESSMENT



- What is Antiplatelet Agents ?
- What is Antianemic Agents ?