

WELCOME

TO



FDSPharmacy

Learn and Educate

This is an Education Platform

We provide Free PDF Notes and Videos Classes for Pharmacy Students

Web Site <http://www.fdspharmacy.in/>

You tube <https://www.youtube.com/c/FDSpharmacy>

What app <https://chat.whatsapp.com/IzSgXtFEvhS4LN5xhUgq5z>

Telegram <https://t.me/Fdspharmacy>

Face book <https://www.facebook.com/61550107538313/>

E-mail fdspharmacyinfo@gmail.com

Diploma in Pharmacy 2nd Year
Pharmacology

Chapter 6 : Drugs Acting on Blood and Blood Forming Organs

Topics	Page No
Drugs Acting on Blood and Blood Forming Organs	3
Definition, classification, pharmacological actions, dose, indications, and contraindications of	3
▪ Hematinic agents	3
▪ Anti-coagulants	4
▪ Anti-platelet agents	6
▪ Thrombolytic drugs	7

FDSPharmacy
Learn and Educate

Drugs Acting on blood and Blood forming Organs

- Blood is a fluid connective tissue that transports oxygen, nutrients and growth factors to individual cells of the body.
- The main components of blood are cell (like RBCs, WBCs, platelets), proteins (like coagulation factors, amino acids, growth factors, factors of the complement system), monosaccharide (ribose, glucose), minerals (Na⁺, K⁺, Cl⁻, HCO₃⁻), and water.
- **Haematologic System** : The system responsible for formation of blood is called Haematologic System.
- **Haematopoiesis** : The process of blood forming is called Haematopoiesis .

Blood Forming Organs

- **Bone Marrow** : Bone marrow contains cells that produce blood cells and platelets and it is responsible for making billions of new blood cells each day.
- **Spleen** : The spleen stores and filters blood and makes white blood cells that protect you from infection.
- **Liver** : The liver produces proteins that are important in blood clotting. It is also one of the organs that break down old or damaged blood cells.

Hematinic agents

- The drugs are used to treat Anaemia are called Haematinics.
- Or
- The substances are used to treat deficiency of Iron are called haematinics.

Anaemia

- Anaemia is the decrease in number of red blood cells or hemoglobin content caused by blood loss, deficient erythropoiesis, excessive hemolysis, or combination of these changes.
- Iron deficiency anaemia is probably the most common nutritional deficiency in the world

Types of Drugs are used as Haematinics :

- **Iron** : Ferrous Sulfate, Ferrous Fumarate, Ferrous Ammonium Citrate,
- **Folic acid** : leucovorin, Citrovorum
- **Others** : Pyridoxine, Riboflavin.

Pharmacological Action

- It play an important role in formation of haemoglobin .
- It involves in formation of some Hormone like Thyroid Hormone .
- Iron is necessary for the production of hemoglobin.
- Iron-deficiency can lead to decreased production of hemoglobin and a microcytic, hypochromic anemia.

Indication

- It is used to treat anaemia.
- It is used to treat iron deficiency.

Contraindications:

- ▲ Stomach upset
- ▲ Nausea
- ▲ Vomiting

Dose

- ✓ Ferrous Sulphate 0.3g Tds
- ✓ Ferrous Fumarate 0.2g Tds
- ✓ Ferrous Gluconate 0.6g tds .
- ✓ Ferric Ammonium Citrate 1.0 g tds .
- ✓ Folic Acid : 0.1 -.08 mcg or 1 mg daily

Anti-Coagulants

- Agents decreasing the coagulation ability of blood are known as anticoagulants. They do not dissolve clot that have already formed but are used to inhibit the formation of new clots.
- Examples of these agents are heparin and warfarin. Heparin is given intravenously to patients at risk of formation of thrombus and warfarin is administered orally.
- The drugs prevent coagulation of blood are called anticoagulants .
- **Coagulation** (or clotting) is the process through which blood changes from a liquid and becomes thicker, like a gel.

Classification

1. **Injectable Anticaogulants** : Heparin , Ancrod , Lepirudin.
2. **Oral Anticaogulants** :
 - **Coumarin** : Bishydroxy Coumarin ., Warfarin Sodium , Acenocoumarin.
 - **Indandione Derivatives** : Phenindion.

Pharmacological Action

1) Heparin :

- It prevent blood clotting in vivo (inside the body) as well as in Vitro.
- It Activates antithrombin III , which inactivates factors IX , and X . in this way coagulation is prevented.

2) Coumarin :

- Coagulation factors II , VII , IX and X are present in inactive form , until they are carboxylated.
- These drugs act on Vitamin K and prevent the synthesis of chemical that carboxylate these factors.

Indications

- Low blood platelets.
- Bleeding
- In unstable angina.
- To prevent coagulation in Heart failure.
- To prevent clotting during open heart surgery.

Contraindications

- ▲ Recent trauma ,
- ▲ Recent surgery ,
- ▲ Recent abortion ,
- ▲ Recent stroke ,
- ▲ Severe Hypertension ,
- ▲ Severe Diabetes ,
- ▲ Severe liver damage ,
- ▲ Peptic ulcer ,
- ▲ Bleeding disorder .

Doses

- ✓ Heparin 5000-10000 unit /ml i.v
- ✓ Warfarin 5-10 mg /d

Anti-Platelet Agents

- The drugs prevent platelet aggregation are called Anti- Platelet drugs .
- Also Known as Anti – Thrombotic Drugs
- **Platelet aggregation**, the process by which platelets adhere to each other at sites of vascular injury, has long been recognized as critical for hemostatic plug formation and thrombosis.

Classification

- **Thromboxan (TxA₂) synthesis Inhibitors** : Low dose of Aspirin , Dazoxiben.
- **Phosphodiesterase Inhibitors** : Dipyridamol.
- **ADP - Induced Platelet Aggregation Inhibitors** : Ticlopidine , Clopidogrel.
- **Glycoprotein IIb / IIIa receptor Blockers** : Tirofiban , Eptifibatide.

Pharmacological Action

- **Thromboxan (TxA₂) synthesis Inhibitors** : Low dose of Aspirin . acts on Cox 1 and reduces the production of TXA₂ . (this TxA₂ causes platelet aggregation)
- **Phosphodiesterase Inhibitors** : Dipyridamol . It increases the concentration of cyclic adenosine monophosphate (cAMP) levels and it prevents platelet aggregation.
- **ADP - Induced Platelet Aggregation Inhibitors** : Ticlopidine , Clopidogrel . It blocks the P₂ Y₁₂ receptor of platelet , which activates the platelets and cause aggregation.
- **Glycoprotein IIb / IIIa receptor Blockers** : Tirofiban , Eptifibatide . They block Glycoprotein IIb / IIIa receptor of platelet which activates platelet aggregation.

Indications

- As a Anti-Platelet
- Unstable angina
- Acute MI
- In Post MI Patients
- Cerebrovascular Diseases
- Prosthetic heart valves (artificial valve)

Contraindications

- ▲ Severe diabetes
- ▲ Liver damage
- ▲ Peptic ulcer

Dose

- ✓ Aspirin 75-150mg /d oral
- ✓ Dipyridamol 150-300 mg /d
- ✓ Ticlopidine 250- 500 mg /d
- ✓ Tirofiban 0.4mcg/kg/min i.v.

Thrombolytic Drugs (Fibrinolytics)

- Also Known as Fibrinolytics.
- These are those drugs which are used to breaks the clot/thrombus, inside the blood vessels (mainly in coronary artery)
- The give their action by activating fibinolytic system.

Classification

1. Non-fibrin specific

- Streptokinase
- Anistreplase
- Urokinase

2. Fibrin specific

- Tissue plasminogen Activators (t-PA)
- Alteplase
- Reteplase
- Tenecteplase

Pharmacological Actions

- Thrombolytic work by dissolving a major clot quickly.
- This helps restart blood flow to the heart and helps prevent damage to the heart muscle.
- Thrombolytic can stop a heart attack that would otherwise be larger or potentially deadly.

Indication:

- Stroke
- Myocardial Infarction
- Used for dissolving the clotting

Contraindications:

- ▲ Pregnancy
- ▲ Bleeding disorder
- ▲ Diabetics
- ▲ Cardiovascular disorder

Doses

- ✓ Urokinase 4400 IU/kg
- ✓ Alteplase For MI 15 mg i.v. For pulmonary embolism 100mg i.v
- ✓ Streptokinase 250,000 IU /2ml

Hello

Friends

**If you Get Any Help From This Notes /
Videos**

Next You Turn To Help Us

Please Contribute Some Amount

To Our

FDSPharmacy Team

Phone pe 6398439940

Paytm 6398439940

Google Pay 6398439940



Amir Khan

Thank You

Keep Supporting