



SNS COLLEGE OF ALLIED HEALTH SCIENCES

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**DEPARTMENT : CARDIO PULMONARY PERFUSION CARE
TECHNOLOGY**

COURSE NAME : PHARMACOLOGY

UNIT : COAGULANTS

**TOPICS : DEFINITION, TYPES, PHARMACODYNAMICS,
PHARMACOKINETICS**



COAGULANTS



- Coagulants are substances or medications that promote blood clotting or coagulation.
- They are used to control bleeding or manage conditions associated with abnormal clotting.



TYPES



Vitamin K:

Mechanism: Essential for the synthesis of clotting factors.

Indications: Reversal of warfarin effects, vitamin K deficiency.

Contraindications: Hypersensitivity to vitamin K.

Side Effects: Rare; allergic reactions.



Factor VIIa (Recombinant) - NovoSeven:

Mechanism: Recombinant form of factor VII.

Indications: Hemophilia, bleeding disorders.

Contraindications: Allergy to factor VIIa, disseminated intravascular coagulation (DIC).

Side Effects: Thrombotic events, fever, headache.



Desmopressin (DDAVP):

Mechanism: Stimulates release of von Willebrand factor and factor VIII.

Indications: Hemophilia, von Willebrand disease.

Contraindications: Hyponatremia, renal impairment.

Side Effects: Fluid retention, hyponatremia.



Fibrinogen Concentrate:

Mechanism: Provides fibrinogen for clot formation.

Indications: Congenital fibrinogen deficiencies.

Contraindications: Allergy to fibrinogen.

Side Effects: Allergic reactions, thrombosis.



Prothrombin Complex Concentrate (PCC):

Mechanism: Contains clotting factors II, VII, IX, X.

Indications: Reversal of warfarin, clotting factor deficiencies.

Contraindications: Allergy to components.

Side Effects: Thrombosis, hypersensitivity.



Tranexamic Acid:

Mechanism: Inhibits fibrinolysis.

Indications: Excessive bleeding in surgery, trauma.

Contraindications: Active thrombosis, color vision disturbances.

Side Effects: GI disturbances, hypersensitivity reactions.



PHARMACODYNAMICS



- Coagulants act by promoting the activation of clotting factors in the coagulation cascade, leading to the formation of stable blood clots.
- They may enhance platelet aggregation and strengthen the fibrin mesh in the clotting process.



PHARMACOKINETICS



- The pharmacokinetics of coagulants vary widely depending on the specific agent.
- Factors such as absorption, distribution, metabolism, and elimination influence their duration of action and dosing schedules.



TECHNICIAN ROLE



- **Reversal Agents:** Depending on the coagulant used, knowledge of available reversal agents (e.g., vitamin K for warfarin, idarucizumab for dabigatran) is essential in case of emergencies or the need for rapid reversal.



ASSESSMENT



- What all are the Types of Coagulants ?
- What is Tranexamic acid ?