HEMATOLOGIC PHARMACOLOGY

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Pharmacology II

Spring Semester

4th week

26/02/2025

Outline

- Drug classes related to blood

Objectives

By the end of this lecture, students should be able to:

1. Understand anticoagulants .
2. Being familiar with antiplatelet drugs .
3. Learn about thrombolytics
4. Understand the hematopoietic agents

Introduction to hematologic pharmacology

- Hematologic pharmacology deals with drugs that affect

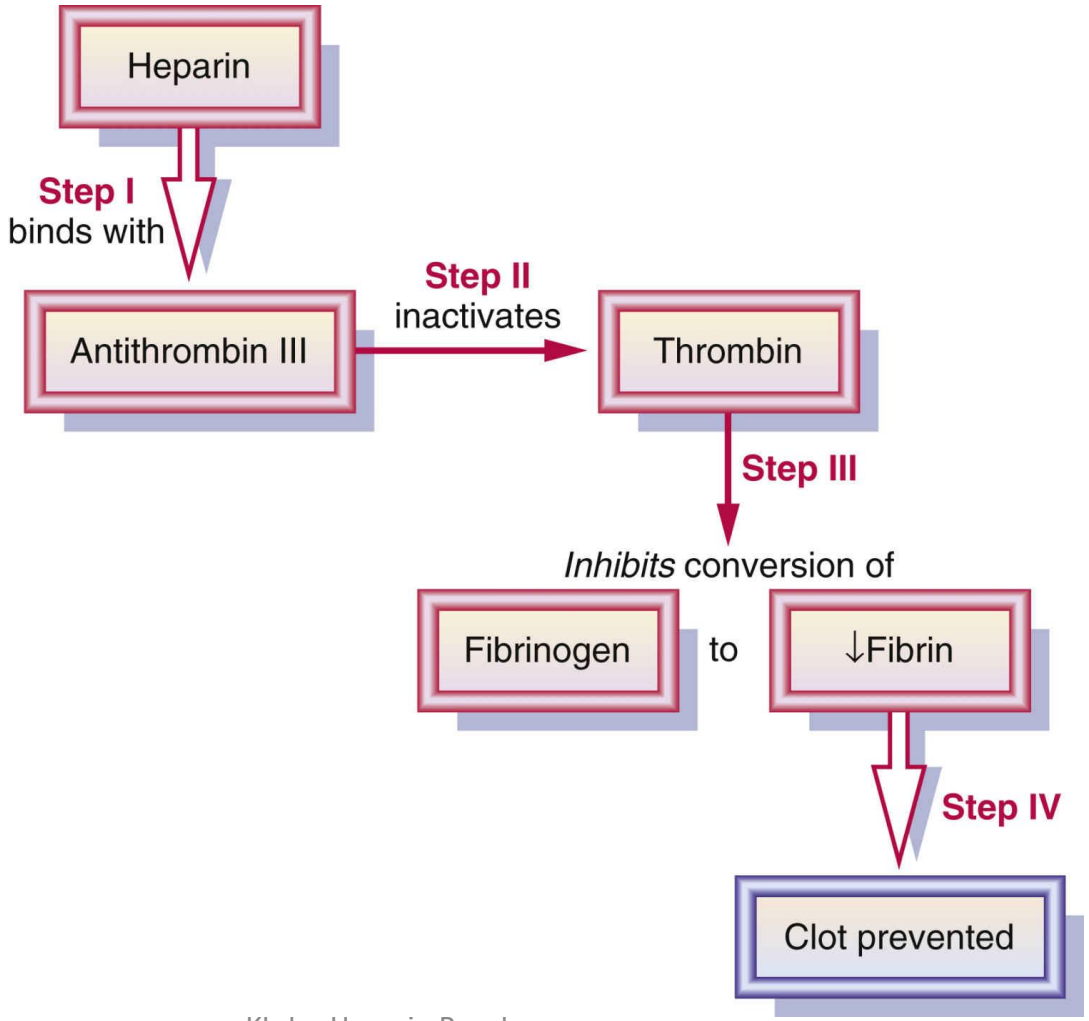
1. Blood cells
2. Clotting pathway
3. Coagulation pathway.

Drug classes related to blood

1. Anticoagulants (prevent clot formation).
2. Antiplatelet drugs (reduce platelet aggregation).
3. Thrombolytics (dissolve existing clots).
4. Hematopoietic agents (stimulate blood cell production).

Anticoagulants

A. Heparin: Mechanisms of action



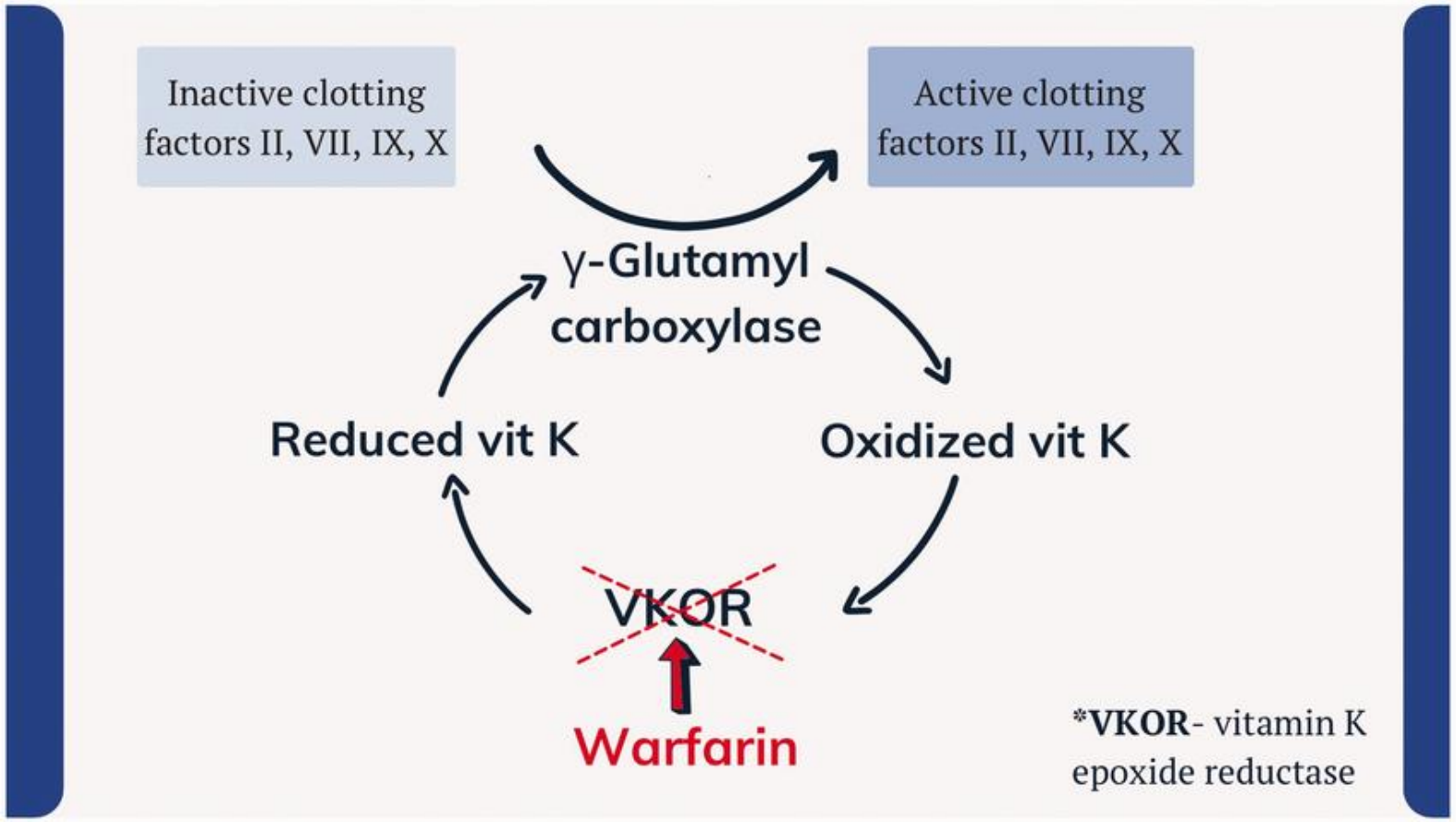
Anticoagulants

Adverse effects of heparin

1. Bleeding – Most serious risk.
2. Heparin-Induced Thrombocytopenia
3. Osteoporosis (Long-term use)

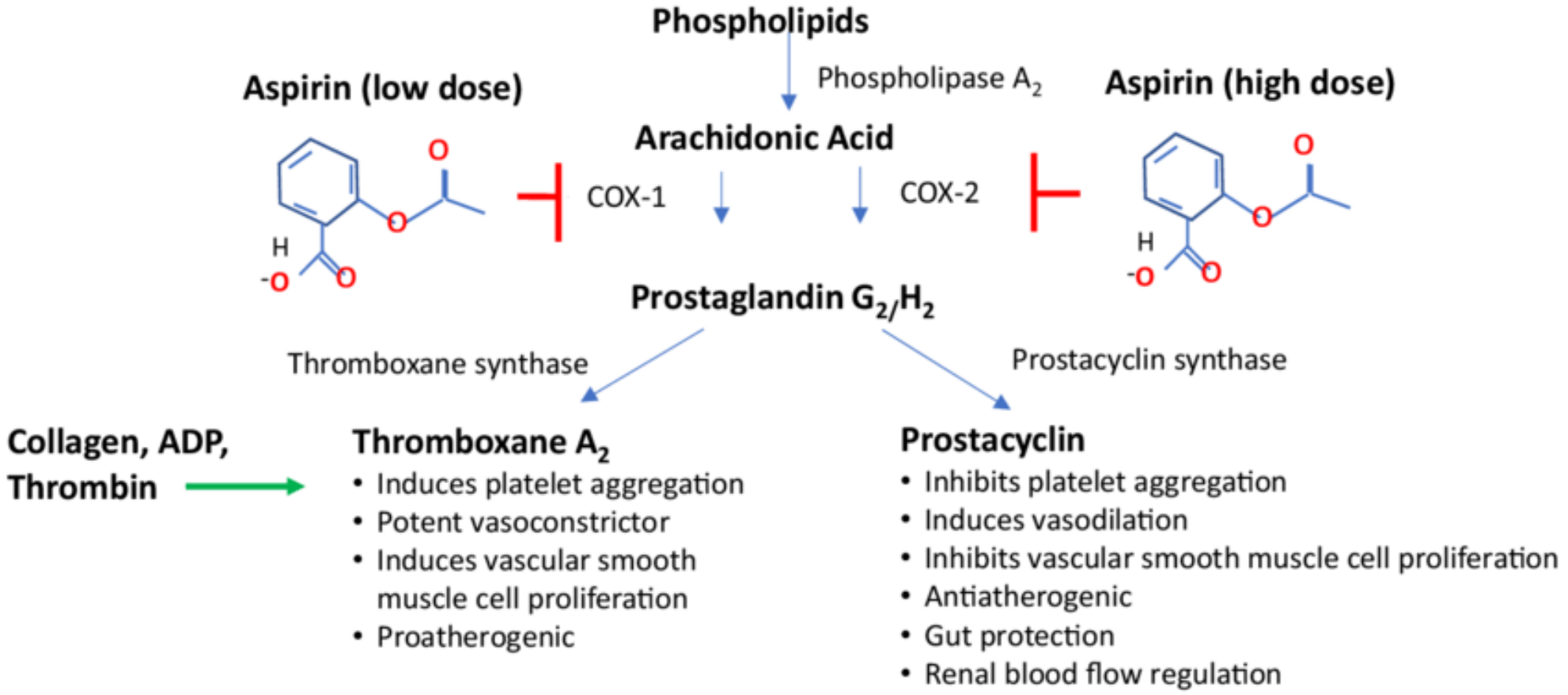
Anticoagulants

B. Vitamin K Antagonists (Warfarin): Mechanisms of action



Antiplatelet Drugs

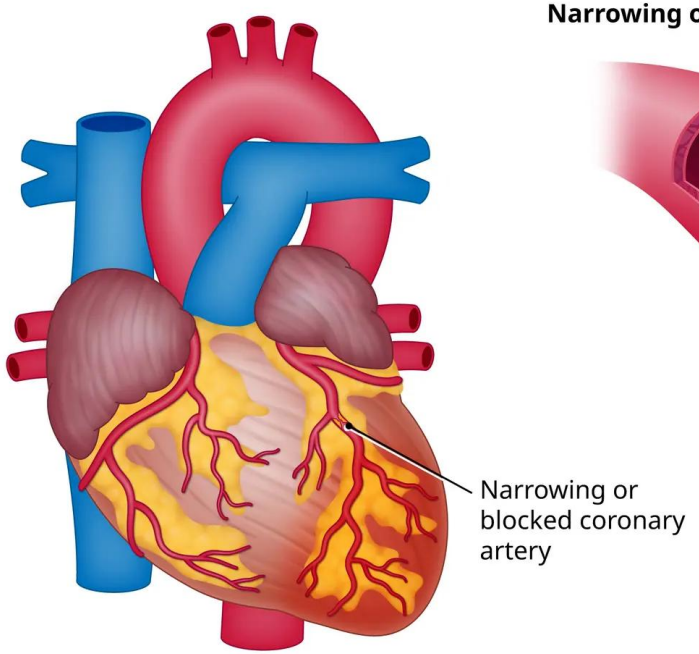
Asprin: Mechanism of action

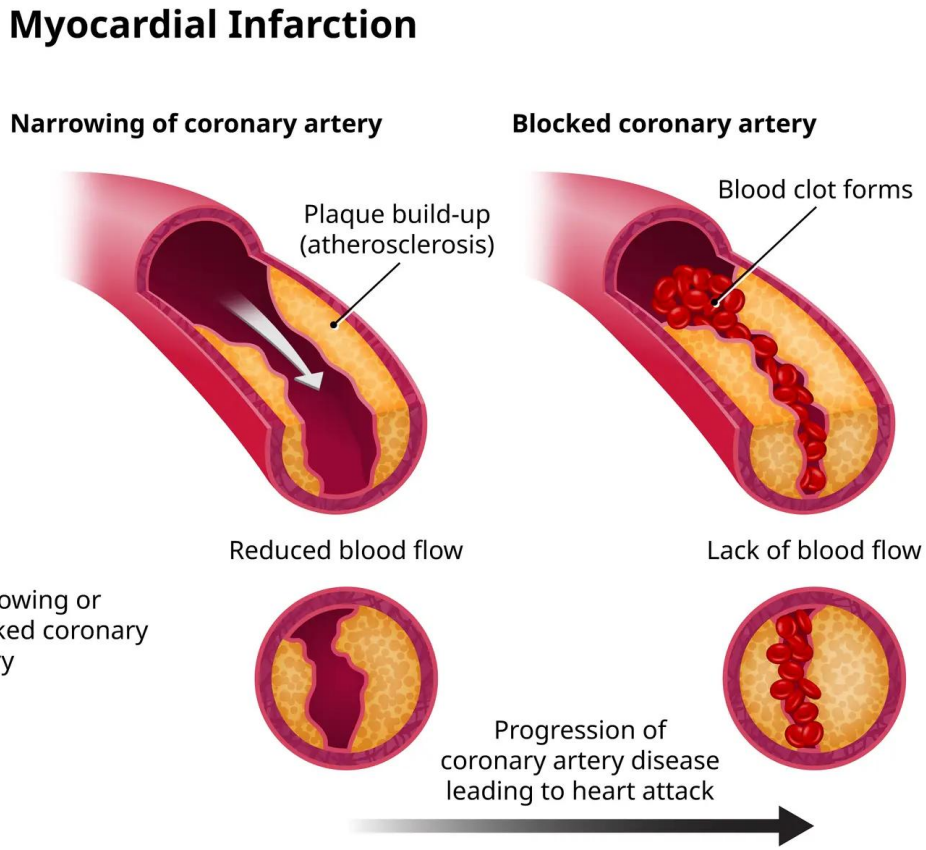


Antiplatelet Drugs

Uses: MI, stroke prevention. What is the difference between them?

Adverse Effects: GI bleeding, ulcers. Why?



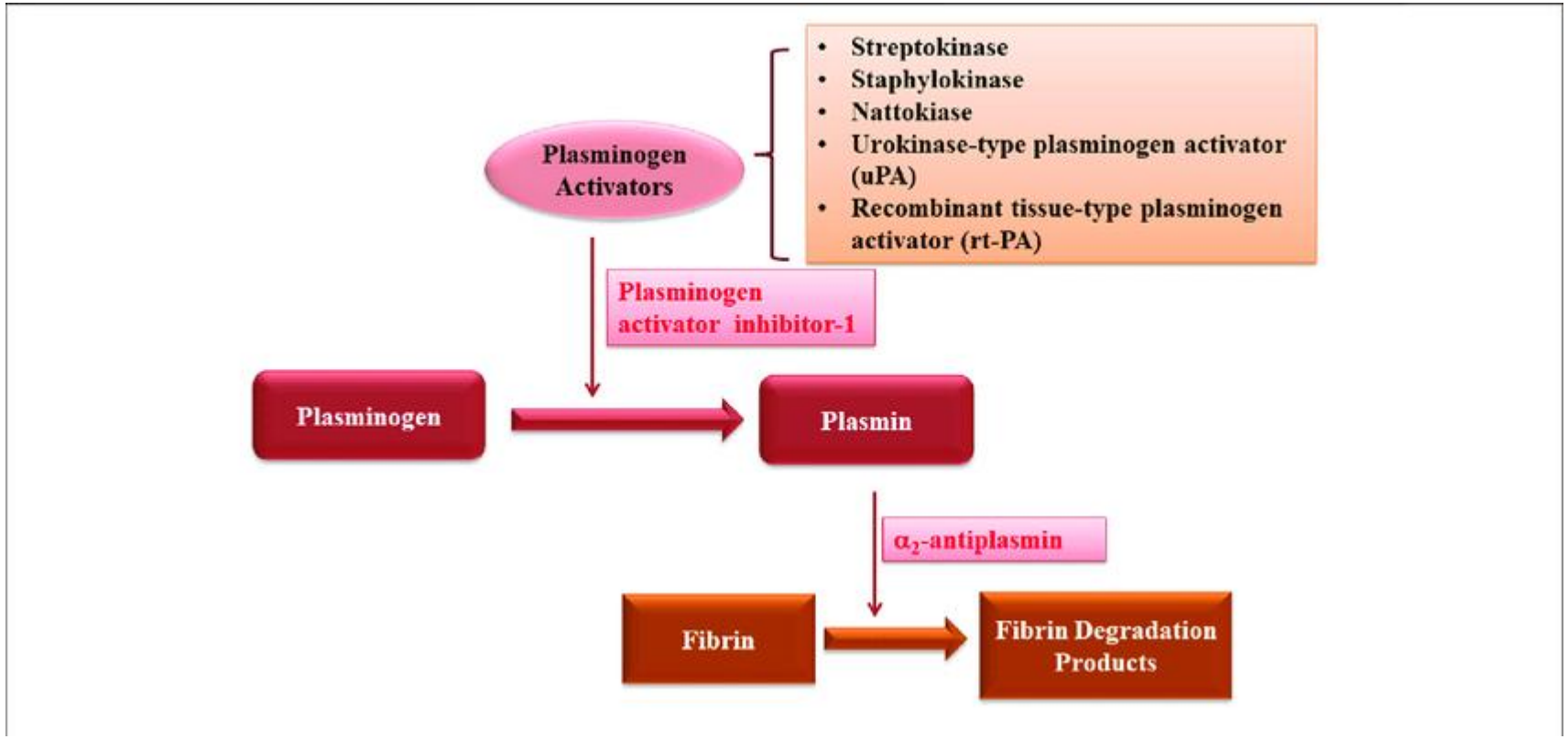


Thrombolytics

Mechanism of action

Uses: Stroke and acute MI.

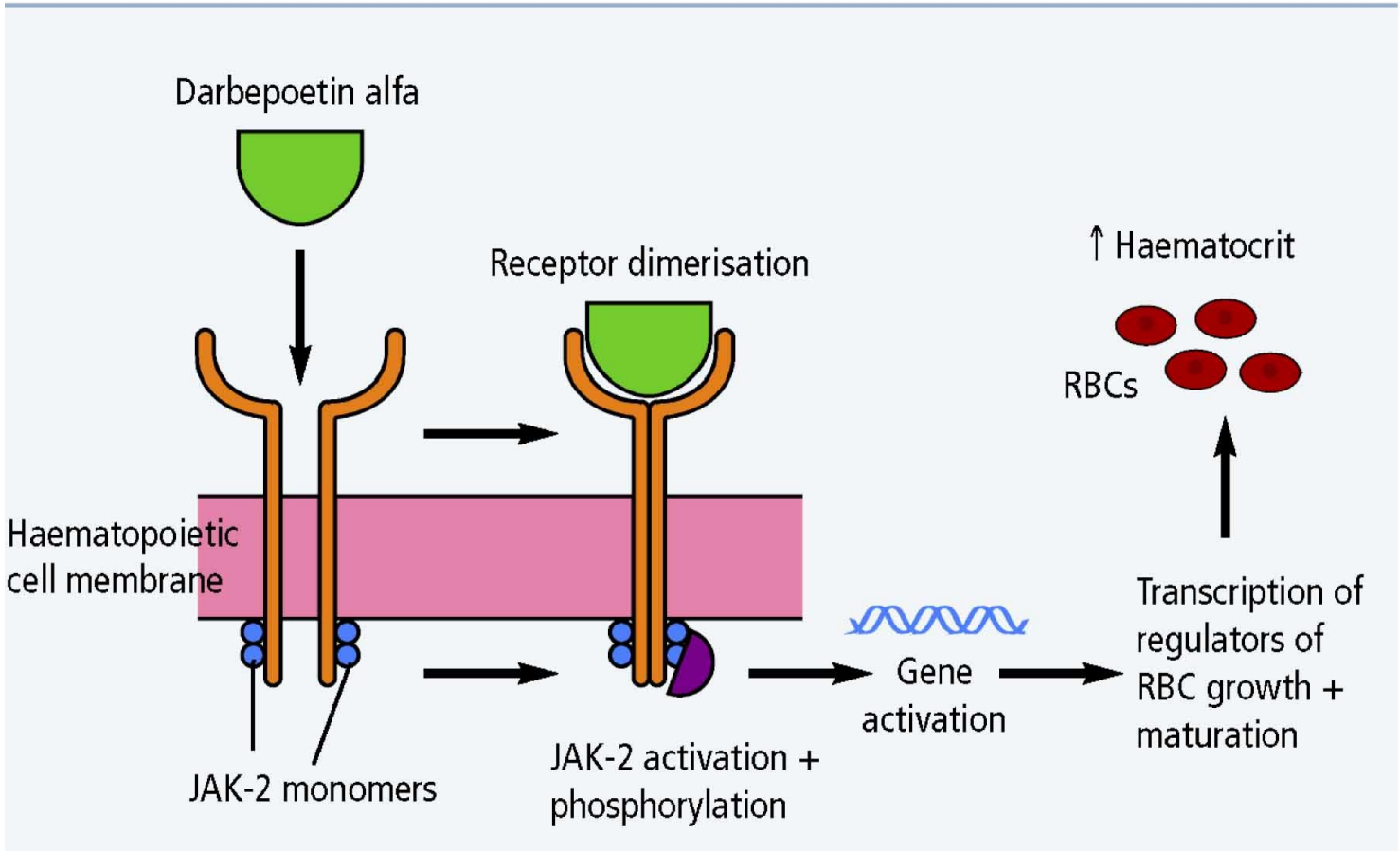
Adverse effects: Severe bleeding.



Hematopoietic agents

A. Erythropoiesis stimulating agents.

- Examples: Epoetin alfa, Darbepoetin alfa
- Mechanisms of action
- Uses: Anemia due to chronic kidney disease



Hematopoietic agents

B. Iron supplements

- Example: Ferrous sulfate, Iron dextran
- Uses: Iron-deficiency anemia.

C. Vitamin B12 & Folic Acid

Non-pharmacological management and role of physiotherapy

A. Exercise and circulation improvement

- For Anticoagulated Patients: Gentle, low-impact exercises to reduce clot risk.
- For Anemia Patients: Gradual exercise progression to improve endurance.

B. Post-stroke rehabilitation

Patients receiving thrombolytics require rehabilitation for motor function recovery.