

Thrombolytic therapy

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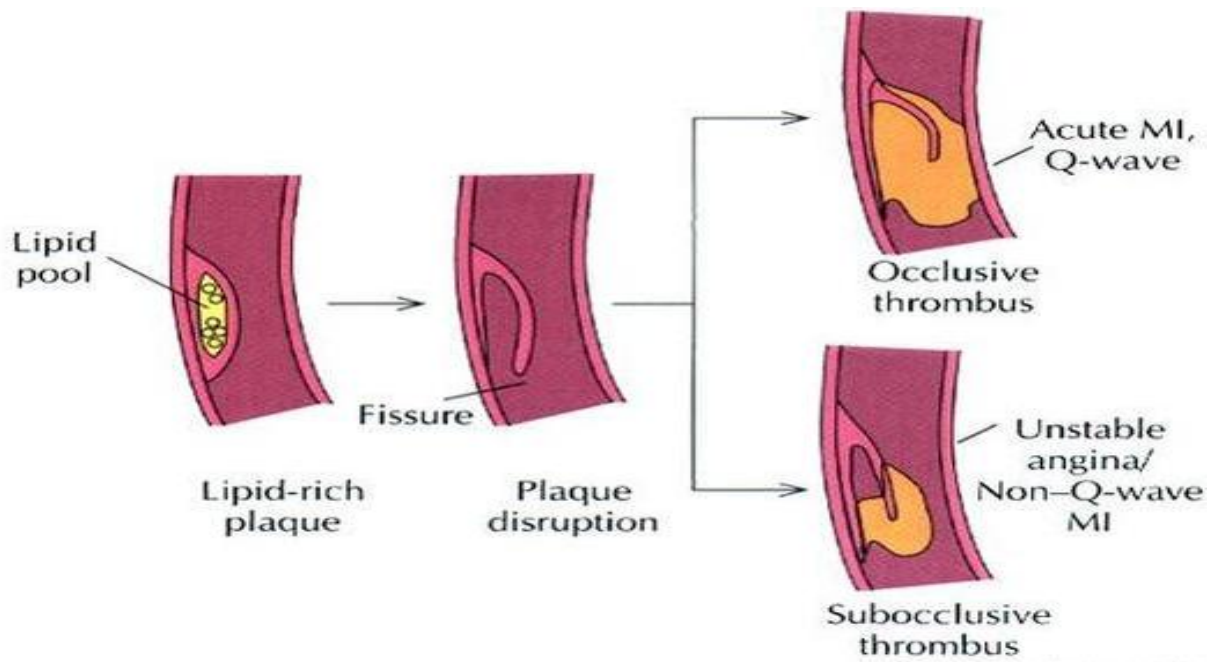
Definition of Thrombolytics :

Thrombolytic agents are drugs used to lyse already formed blood clots in clinical settings where ischemia may be fatal.

Pathophysiology :

When an atherosclerotic plaque ruptures → thrombosis → occlusion (blockade) of the artery → myocardial infarction or unstable angina → necrosis

- If we can breakdown the thrombus then we can save the myocardial cells from necrosis.

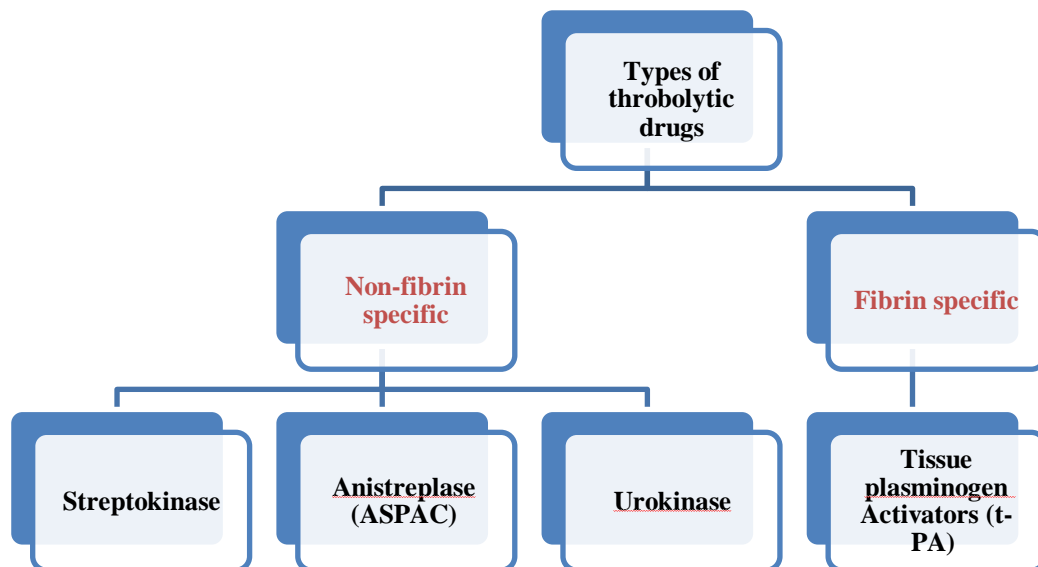
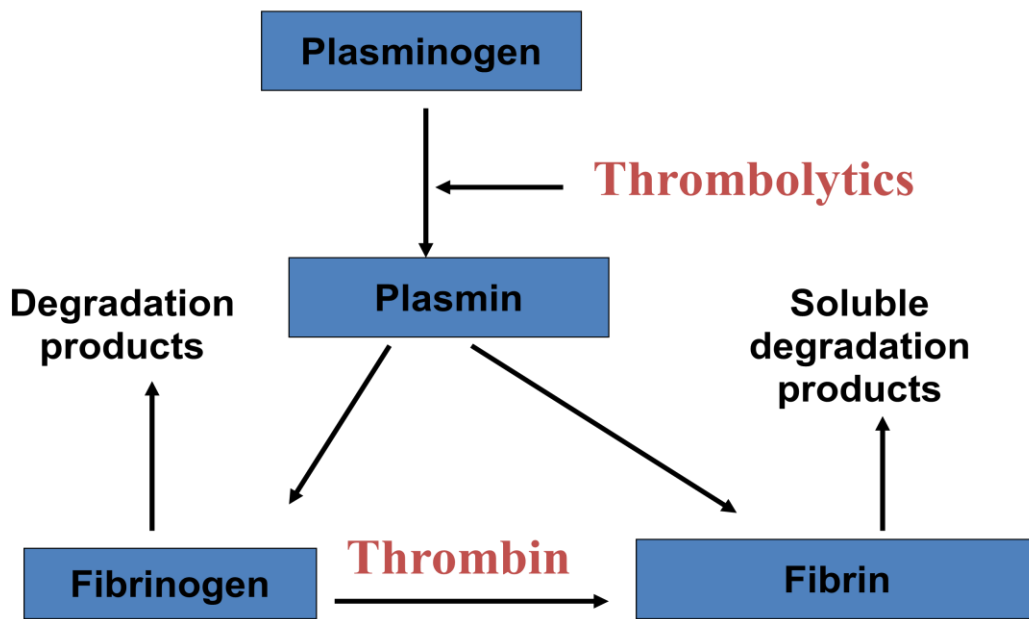


- Mechanism of Action of thrombolytic drugs

Thrmolytic Agents :

They act directly or indirectly to convert **Plasminogen** to **Plasmin**. **Plasmin** then breaks down **Fibrin**.

Mechanism of Action of thrombolytic drugs



Fibrin-specific agents :

are much more active upon binding to fibrin, by increasing the affinity for plasminogen at the clot (thrombus) surface rather than plasminogen in blood.

Uses of thrombolytic drugs :

1. Acute myocardial infarction.
2. Acute thrombotic stroke.
3. Peripheral artery occlusion " Blockade".
4. Pulmonary embolism.
5. Deep venous thrombosis.

Contraindications to Thrombolytics :

- Cerebrovascular disease
- Recent head trauma or cranial tumor
- Active internal bleeding
- Major surgery within two weeks
- Active peptic ulcer
- Pregnancy
- Uncontrolled hypertension

Note: basically, anything that cause bleeding

Alteplase

- Is a human t-PA.
- Fibrin-specific
- Limited fibrinolysis
- has very short half life (5 min.)
- (60 mg i.v. bolus + 40 mg infusion over 2 h).

Reteplase

- Is another human t-PA.
- Fibrin-specific
- Limited fibrinolysis
- Given as two I.V. bolus of 10 U.

Fibrinolytic Inhibitors Antiplasmin

inhibit plasminogen activation and thus inhibit fibrinolysis and promote clot stabilization.

☐ Aminocaproic Acid & tranexamic cid

- ✓ acts by competitive inhibition of plasminogen activation
- ✓ Given orally

☐ Aprotinin

- ✓ It inhibits fibrinolysis by blocking plasmin
- ✓ Given orally or i.v.

Uses of Fibrinolytic Inhibitors

- ✓ Fibrinolytic therapy-induced bleeding (antidote).
 - ✓ Adjuvant therapy in hemophilia.
 - ✓ Postsurgical bleeding.