

Hemorrhage

Fb/Nurse-Info

Hemorrhage

- Hemorrhage
 - Abnormal internal or external loss of blood

Hemorrhage Classification

CAPILLARY



- Slow, even flow
- Bright red color

VENOUS



- Steady, slow flow
- Dark red color

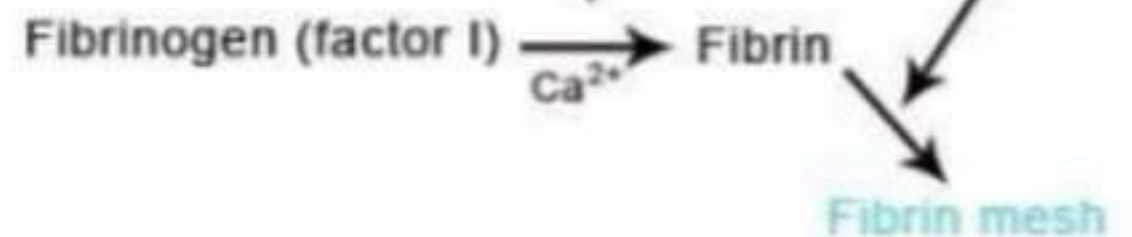
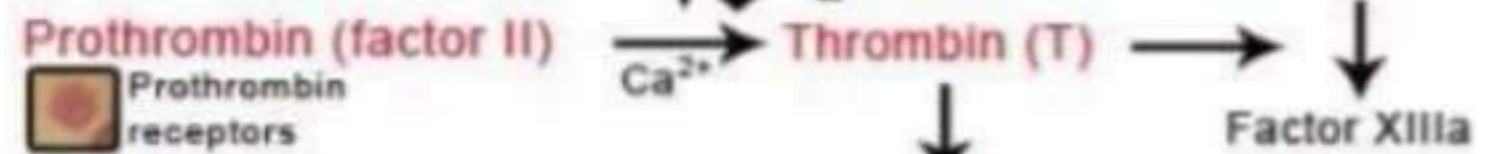
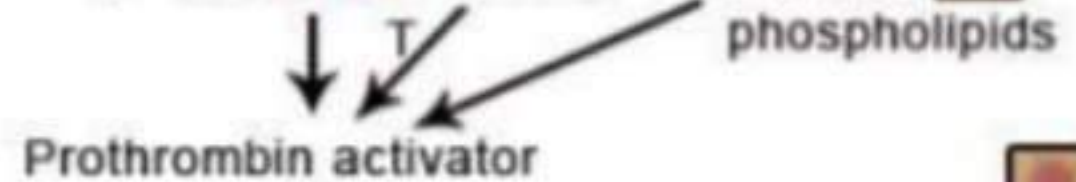
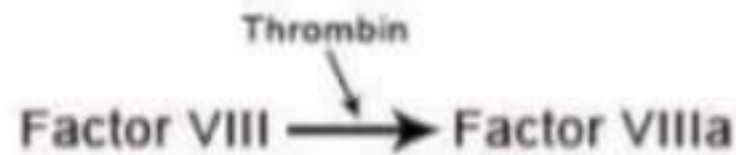
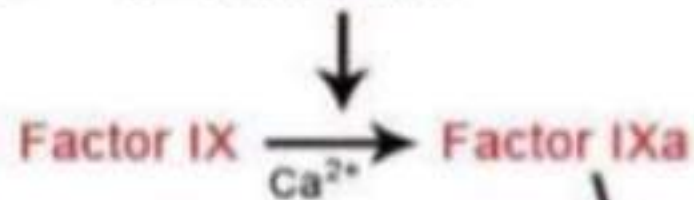
ARTERIAL



- Spurting blood
- Pulsating flow
- Bright red color

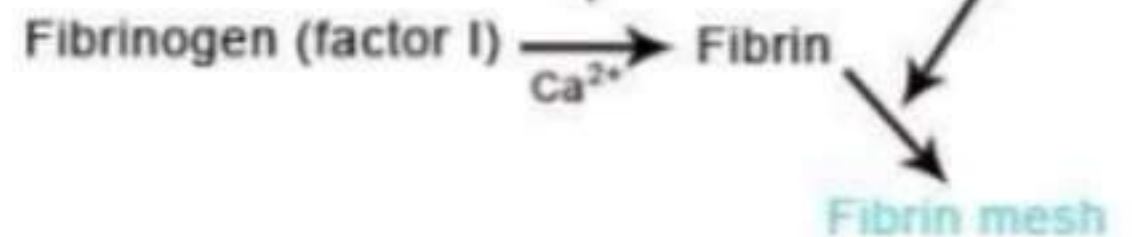
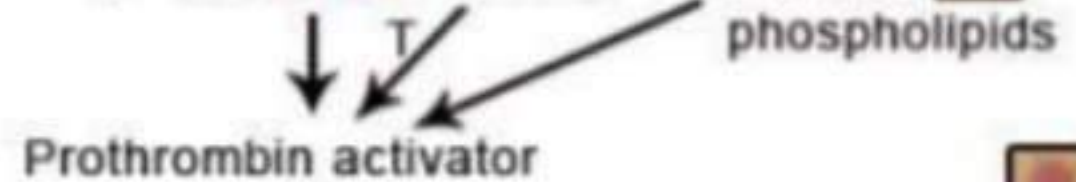
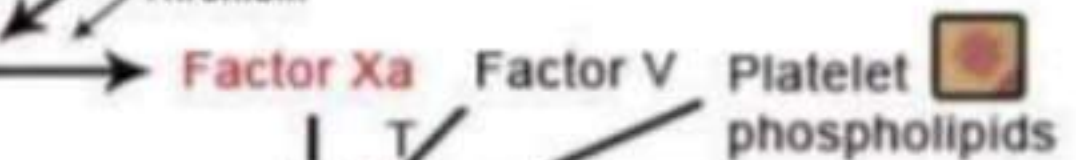
Intrinsic Pathway

Action - blood trauma or collagen contact.



Extrinsic Pathway

Action - tissue trauma.



External Hemorrhage

- Results from soft tissue injury.
- The seriousness of the injury is dependent on:
 - Anatomical source of the hemorrhage (arterial, venous, capillary)
 - Degree of vascular disruption
 - Amount of blood loss that can be tolerated by the patient

Internal Hemorrhage

- Can result from:
 - Blunt or penetrating trauma
 - Acute or chronic medical illnesses
- Internal bleeding that can cause hemodynamic instability usually occurs in one of four body cavities:
 - Chest
 - Abdomen
 - Pelvis
 - Retroperitoneum

Internal Hemorrhage

- Signs and symptoms :
 - Bright red blood from mouth, rectum, or other orifice
 - Coffee-ground appearance of vomitus
 - Melena (black, tarry stools)
 - Dizziness or syncope on sitting or standing
 - Orthostatic hypotension

Internal hemorrhage is associated with higher morbidity and mortality than external hemorrhage.

Physiological Response to Hemorrhage

- The body's initial response to hemorrhage is to stop bleeding by chemical means (hemostasis).
 - This vascular reaction involves:
 - Local vasoconstriction
 - Formation of a platelet plug
 - Coagulation
 - Growth of tissue into the blood clot that permanently closes and seals the injured vessel

Hemorrhage Control

- External Hemorrhage
 - Direct pressure and pressure dressing
 - General management
 - Direct pressure
 - Elevation
 - Ice
 - Pressure points
 - Constricting band
 - Tourniquet
 - May use a BP cuff by inflating the cuff 20–30 mmHg above the SBP
 - Release may send toxins to heart
 - » Lactic acid and electrolytes

Tourniquets are ONLY used as a
last resort!

Internal Hemorrhage Control

- Hematoma
 - Pocket of blood between muscle and fascia
- General Management
 - Immobilization, stabilization, elevation
- Epistaxis: Nose Bleed
 - Causes: trauma, hypertension
 - Treatment: lean forward, pinch nostrils
- Hemoptysis
- Esophageal Varices
- Melena
- Diverticulosis
- Chronic Hemorrhage
 - Anemia

Stages of Hemorrhage

- 60% of body weight is fluid.
 - 7% circulating blood volume (CBV) in men
 - 5 L (10 units)
 - 6.5% CBV in women
 - 4.6 L (9–10 units)

Stages of Hemorrhage

Stage 1

- 15% loss of CBV
 - 70 kg pt = 500–750 mL
- Compensation
 - Vasoconstriction
 - Normal BP, pulse pressure, respirations
 - Slight elevation of pulse
 - Release of catecholamines
 - Epinephrine
 - Norepinephrine
 - Anxiety, slightly pale and clammy skin

Stages of Hemorrhage

Stage 2

- 15–25% loss of CBV
 - 750–1250 mL
- Early decompensation
 - Unable to maintain BP
 - Tachycardia and tachypnea

Stages of Hemorrhage

Stage 2

- Decreased pulse strength
- Narrowing pulse pressure
- Significant catecholamine release
 - Increase PVR
 - Cool, clammy skin and thirst
 - Increased anxiety and agitation
 - Normal renal output

Stages of Hemorrhage

Stage 3

- 25–35% loss of CBV
 - 1250–1750 mL
- Late decompensation (early irreversible)
 - Compensatory mechanisms unable to cope with loss of blood volume

Stages of Hemorrhage

Stage 3

- Classic Shock
 - Weak, thready, rapid pulse
 - Narrowing pulse pressure
 - Tachypnea
 - Anxiety, restlessness
 - Decreased LOC and AMS
 - Pale, cool, and clammy skin

Stages of Hemorrhage

Stage 4

- >35% CBV loss
 - >1750 mL
- Irreversible
 - Pulse: Barely palpable
 - Respiration: Rapid, shallow, and ineffective
 - LOC: Lethargic, confused, unresponsive
 - GU: Ceases
 - Skin: Cool, clammy, and very pale
 - Unlikely survival

Hemorrhage Assessment

- Initial Assessment
 - General Impression
 - Obvious bleeding
 - Mental Status
 - CABC
 - Interventions
 - Manage as you go
 - O₂
 - Bleeding control
 - Shock
 - BLS before ALS!

Hemorrhage Assessment

Fractures and Blood Loss

- Pelvic fracture: 2,000 mL
- Femur fracture: 1,500 mL
- Tibia/fibula fracture: 500–750 mL
- Hematomas and contusions: 500 mL

Hemorrhage Assessment (5 of 5)

- Ongoing Assessment
 - Reassess vitals and mental status:
 - Q 5 min: UNSTABLE patients
 - Q 15 min: STABLE patients
 - Reassess interventions:
 - Oxygen
 - ET
 - IV
 - Medication actions
 - Trending: improvement vs. deterioration
 - Pulse oximetry
 - End-tidal CO₂ levels

Bleeding



Severe Bleeding is a life-threatening condition, therefore the bleeding must be controlled quickly. There are 4 procedures to follow;

Apply Pressure → Elevate → Dress the Wound → Monitor

1. Apply Direct Pressure

This is to try and stop the flow of blood and encourage a clot to form.

4. Monitor

If the wound is severe you may need to monitor the player as they may go into shock due to blood loss. You may also want to check that the dressing isn't too tight and restricting circulation.

2. Apply a Dressing

Applying a sterile non-fluffy dressing covers the wound protecting it and preventing the spread of infection.

3. Elevation

Elevate the bleeding limb or area above player's heart (if practicable). This will reduce the amount of blood flow to the wound.