- 60 years old man ,known diabetic and hypertensive presented to ER with hx of severe chest pain and SOB, his BP was 80/6o, his ECG was abnormal and shifted to CCU….

- A 25 years old man having RTA was admitted in ER having multiple injuries, he was drowsy, having cold sweating ,his pulse was weak and thready…

A 27 years old menstuating lady presented to medical clinic with hx of high grade fever, confusion and tachpnic,bounding pulse, BP 130/90, TLC is raised with polymorph, FDPs are also raised…

- A 25 years old lady presenting with hx of poluria,she is wasted having low BP, she is having pigmentaion on palmar creases and buccal mucosa, her heart size is small on chest x-rays and also having abnormal electrolytes….

Circulatory shock-
inadequate blood flow or tissue perfusion to provide nutrition and oxygen.

Causes of circultory shock

1. Shock caused by decreased cardiac output.

2. Shock with normal cardiac out put.

Causes of Circulatory Shock

- A. ↓ Cardiac function curve
  1. Myocardial infarction
  2. Valvular disease
  3. Arrythmias
  4. Cardiomyopathy
  5. Myocarditis
- B. ↓ Venous return
  1. ↓ Blood volume
  2. ↓ Vascular tone

Shock without decreased out put.

1. Increased BMR.

2. Abnormal tissue perfusion patterns.

Blood Pressure in Shock..?

Stages of shock

- A. Non progressive/ compensated
- B. Progressive.
- C. Irreversible

Non progressive/Compensated Shock

- A. Sympathetic output/ Baroreceptor reflex
- B. Renin AII system
- C. CNS ischemic response
- D. ADH
- E. Reverse stress relaxation
- F. Absorption of fluid into blood
- G. Catecholamine release by adrenal med .

Progressive Shock

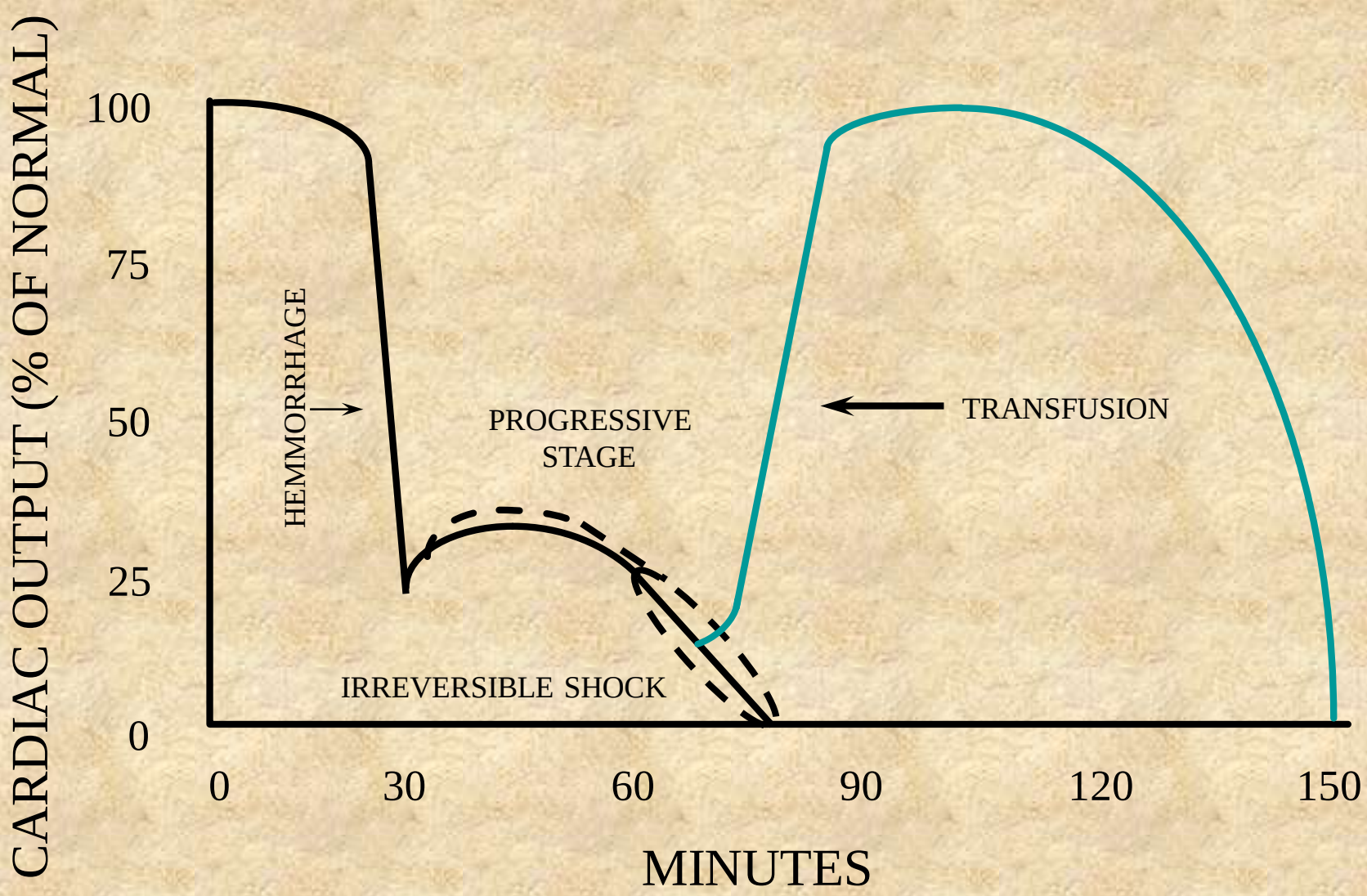
- A. Cardiac Depression.
- B. Myocardial depressant factor
- C. Vasomotor center failure causes vascular dilation
- D. Sludged blood / blocked small blood vessel
- E. Capillary permeability increased
- F. Endotoxin release, tissue enzymes
- G. Cell damage in liver, (Na-K pump failure,mitochondria damage,lysosomes)
- H. Tissue acidosis

Irreversible shock.

Where therepy give short relief but cant be reversed.

Depletion of cellular high energy phosphates is the most important marker.

Progressive and Irreversible Shock



Hypovolemic Shock

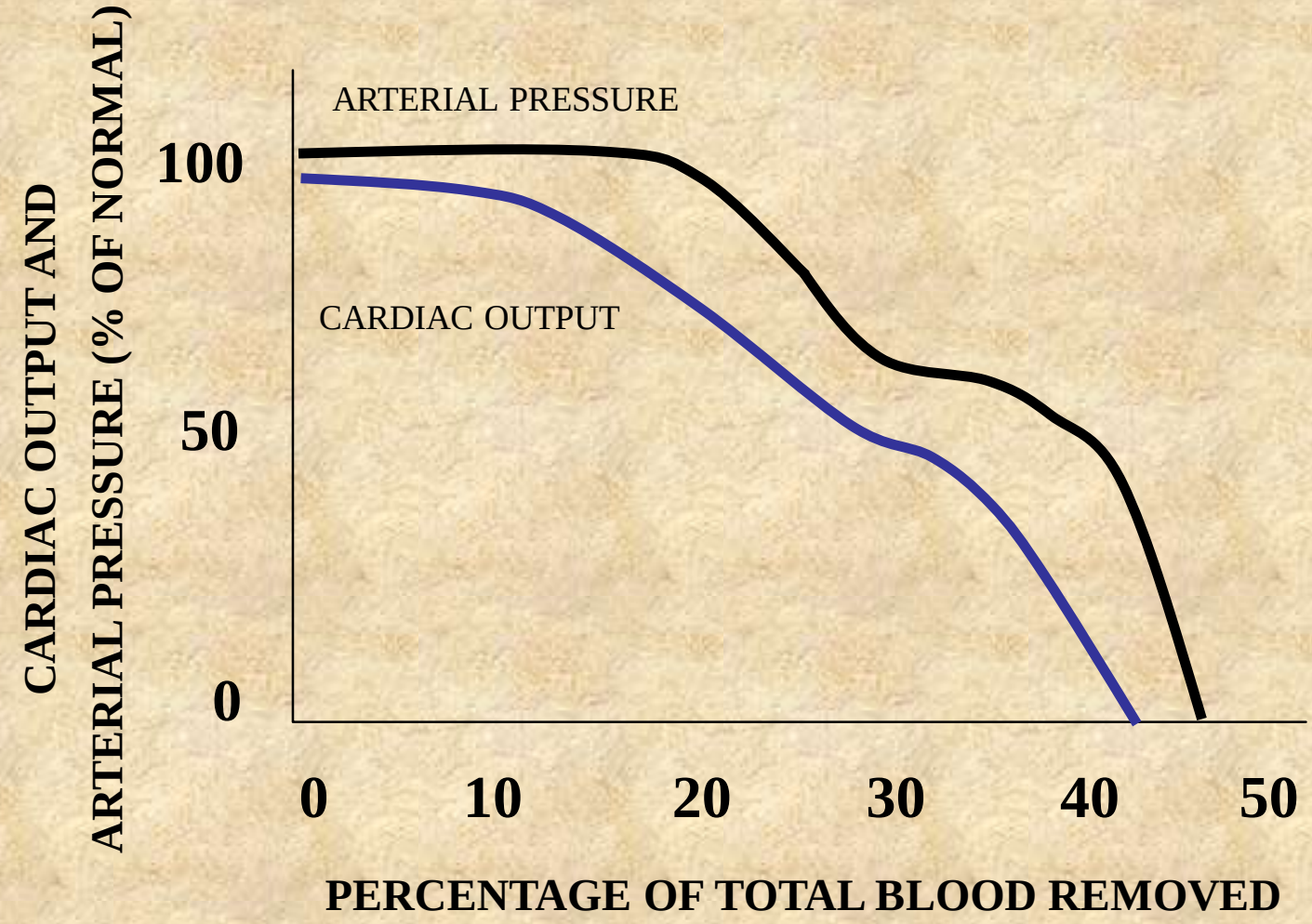
1. Hemorrhage / bleeding-
2. GI
    a. Vomiting
    b. Diarrhea
    c. intestinal obstruction.

Hypovolemic Shock (cont'd)

- 3. Renal fluid loss
    a. Diabetes mellitus
    b. Diabetes insipidus
    c. Excessive use of diuretics - therapy:

- 4. Cutaneous fluid loss
    a. Burns - direct plasma loss
    b. Perspiration/sweating
- 5. Endocrine cause. ?

Arterial Pressure and Cardiac Output Responses to Hemorrhage



Obstruction to Blood Flow Causes Shock

- A. Pulmonary embolus
- B. Cardiac tamponade
- C. Dissecting aortic aneurysm

Neurogenic Shock

Sudden loss of vasomotor tone.

venous pooling.

- A. Drug induced

  1. Ingestion (barbituates)

  2. deep general anesthesia

  3. Ganglionic blockers

- B. Brain damage
- C. Spinal injury/spinal anesthesia.

Anaphylactic Shock

- Antigen-antibody reaction releases histamine $\Rightarrow$ vasodilation + cap. Permeability

- Therapy:
- Sympathomimetic, glucocorticoids

Septic Shock (Septicemia)

- A. Highly absorbent tampons
- B. Peritonitis
- C. Spread of infection from any organ

Symptoms

marked vasodilation

1. CO
2. High fever
3. Disseminated intravascular coagulation

Therapy for Shock

- A. Hypovolemia - volume expander
- B. Sympathomimetic
- C. Glucocorticoids
- D. Morphine to block pain
- E. Head down position