

⑨ Drugs used in the therapy of shock.

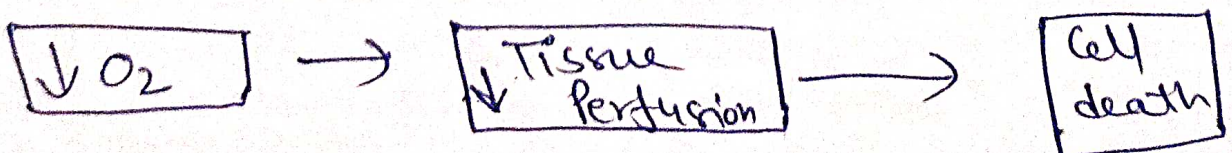
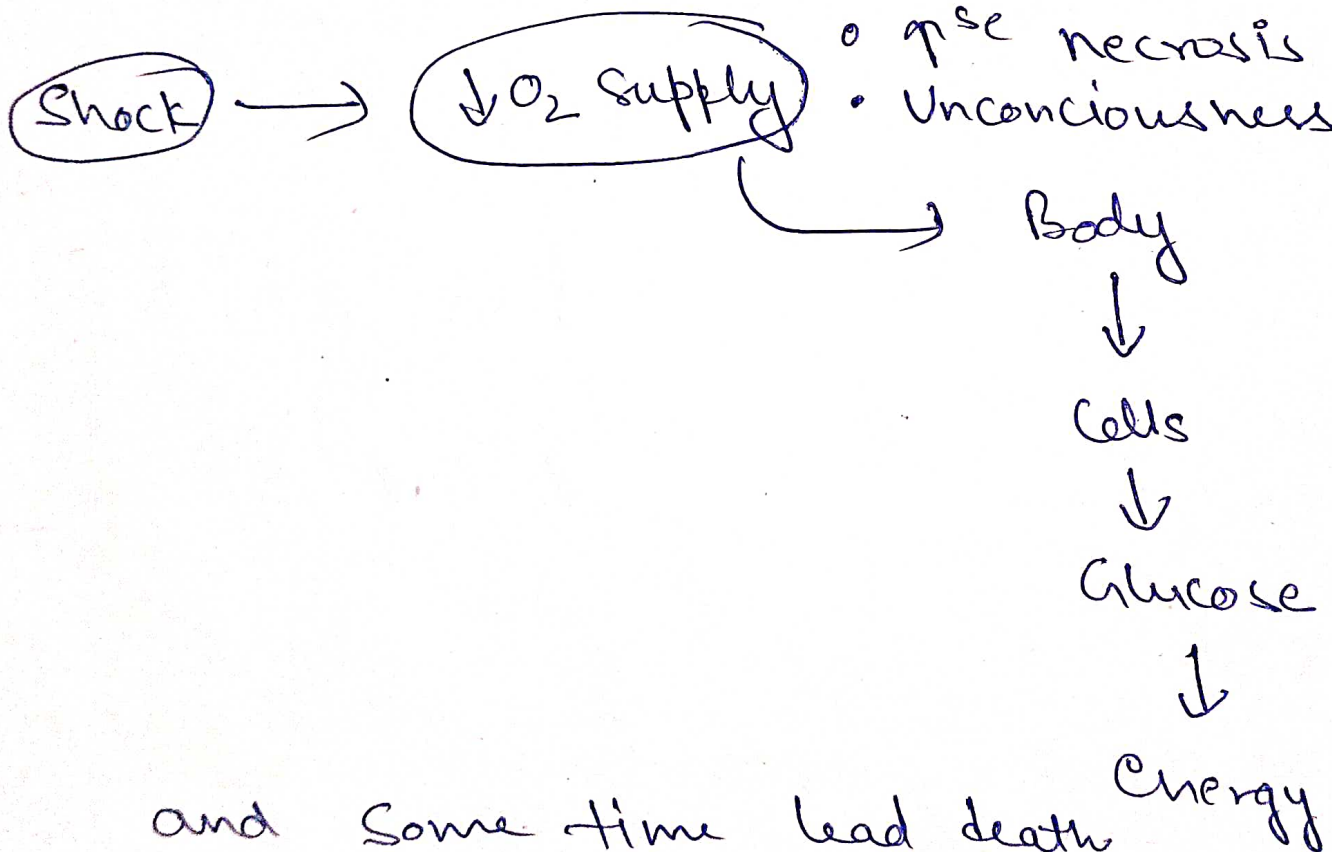
Shock -

It is a condition in which our body's cells does not get proper amount of O_2 supply (Hypoxia) which results in decrease in tissue perfusion.

which leads to -

- Organ damage

- Heart failure.
- Brain stroke
- q^{sc} necrosis
- Unconsciousness



organ damage ↪

• Cause of shock -

- ↓ in Blood Volume (blood supply)
- Excessive loss of body fluids.
- Haemorrhage
- Trauma
- Severe burns
- Allergic reactions
- Poisoning etc
- Dehydration
- Diarrhoea

Sign and Symptoms of shock -

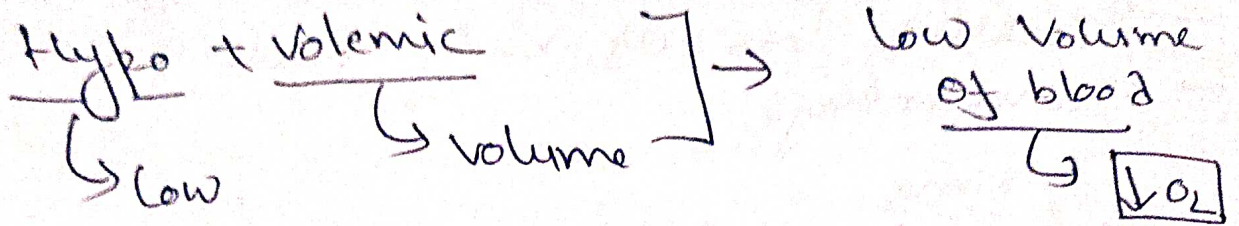
- Nausea and vomiting
- Pale skin
- Shortness of breathing
- Rapid breathing
- Sweating
- Cold hand & feet

Types of shock

There are mainly five types of shock -

- ① Hypovolemic shock
- ② Cardiogenic shock
- ③ Anaphylactic shock
- ④ Septic shock
- ⑤ Neurogenic shock

① Hypovolemic shock

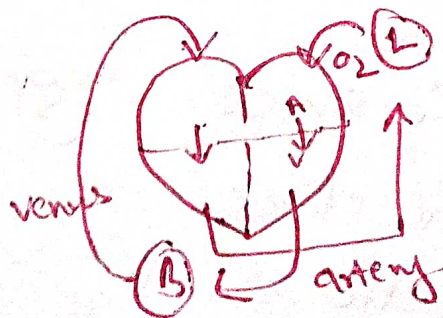
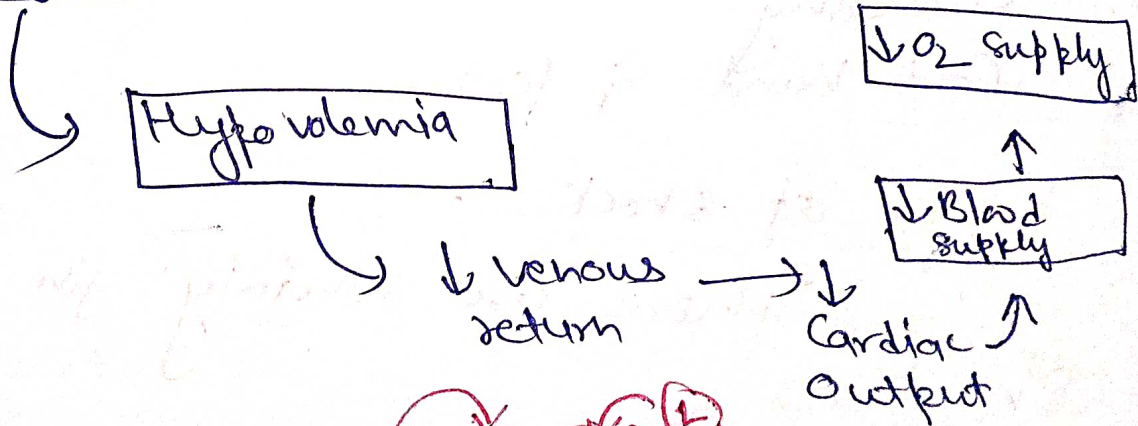


It is one of the type of shock which caused due to low volume of blood.

Causes

- ↑ blood loss
- Trauma
- Haemorrhage
- Electrolyte loss
- Diarrhoea
- Vomiting etc.

• Any Causes



→ Treatment -

- Saline
- Plasma
- IV fluids (bloods)

Plasma ^{Volume} Expanders -

These agents which have relative high molecular weight and boost the plasma volume by increasing the osmotic pressure.

② Cardiogenic shock -

It is one of the type of shock which is caused due to heart disease. Mainly due to myocardial infarction & Angina pectoris.

Causes -

Myocardial infarction
Angina Pectoris
Heart failure
Some other heart diseases

} ↓ O₂ supply
↳ due to ves in blood supply

• Any Causes

Cardiogenic shock

- ↓ Cardiac output
 - ↑ Total peripheral resistance
 - Vasoconstriction
- ↓ Blood supply

Multorgan damage → death.

Shock

Pain, necrosis etc

↓ O₂ supply

Treatment

- Vasodilators
- O₂ administration
- Pain relievers
- Some drugs to treat CVS diseases

③ Anaphylactic shock

It is one of the type of shock which is caused due to some allergic reactions such as hypersensitivity

Causes

↑ release of histamine and other mediators.

Anaphylactic shock

→ • ↓ C.O.
• ↓ Blood supply
↓

Treatment

Epinephrine → ↑ C.O + inotropic ↓ O₂ supply

O₂ administration

Corticosteroids → vasodilation, + inotropic

④ Septic shock

It is due to some bacterial infection such as gram (+ve) and gram (-ve) bacteria.

Caused - ↑ Endotoxins liberation.

Septic shock

→ ↓ venous return } ↓ O₂ supply
↓ Cardiac output }

Treatment

- Antibiotics therapy
- O₂ administration
- Corticosteroids (large amount)

⑤ Neurogenic shock

It is caused by damage to the nervous system.

Treatment

Phenylephrine

Drugs Used → Classification

① Sympathomimetics agents →

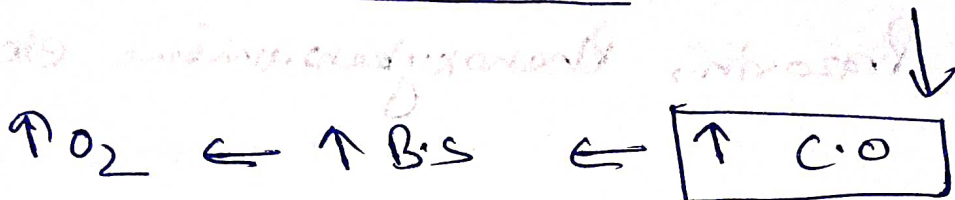


• those drugs which copy the action of sympathetic Nervous system and

Give the similar action.

① Epinephrine

- Used to treat anaphylactic & septic shock.
- It binds on both α (Alpha) and β (Beta) receptor and cause —
- Cardio inotropic effect \rightarrow \uparrow force of contraction



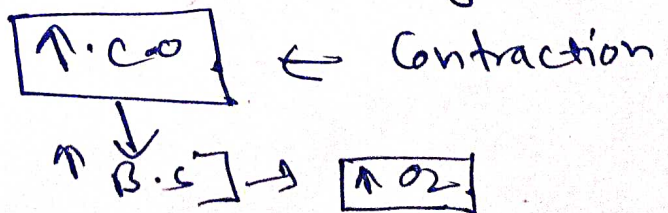
- β_2 receptor \rightarrow \uparrow Heart rate \rightarrow \uparrow C.O. \rightarrow \uparrow B.S \downarrow $\uparrow O_2$

② Nor-Epinephrine

- Used to treat cardiogenic & septic shock

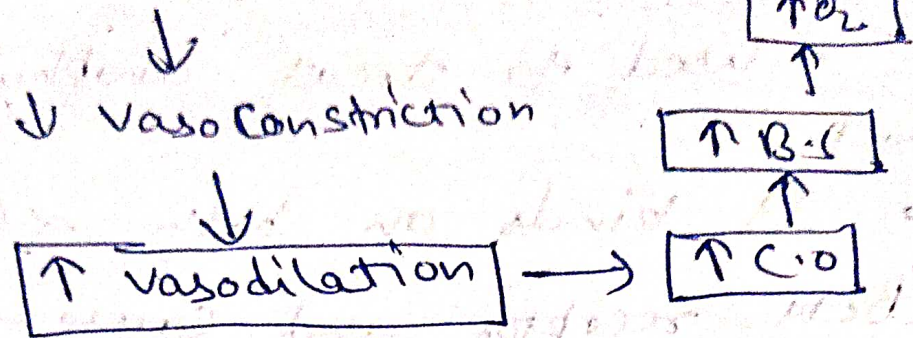
- At β receptor, cardio inotropic effect

- Vasodilation of coronary artery \rightarrow



② Alpha blockers

- Blocks alpha receptor

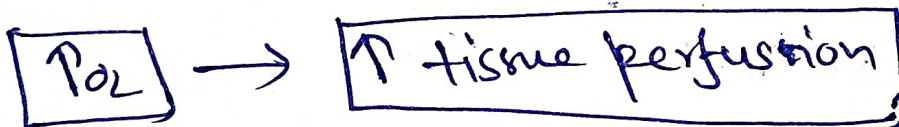


→ Used to treat Cardiogenic shock

eg. Prazosin, Phenoxybenzamine etc.

③ Oxygen →

• Administration of O_2 can treat all kind of shock



④ Plasma Expanders →

→ Used to treat hypovolemic shock

→ They boost the plasma volume by increasing the osmotic pressure.

↑ Plasma volume expanders

↑ Plasma volume

↑ Blood volume

↑ Blood supply

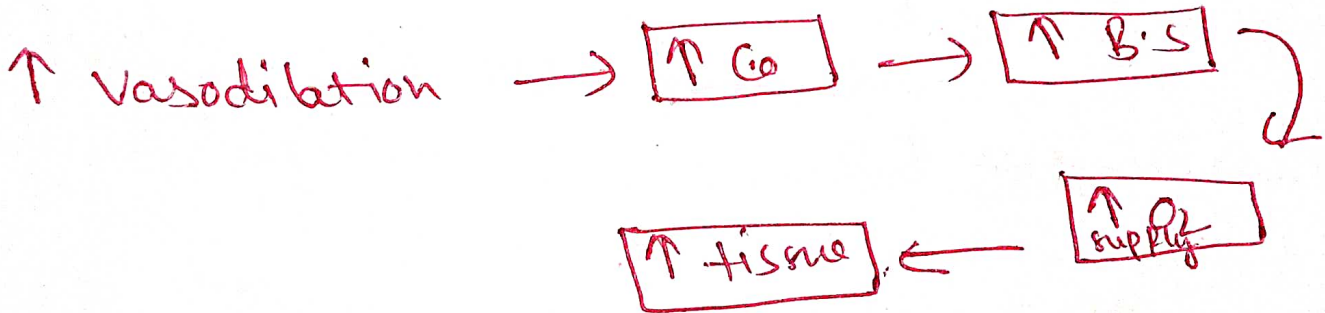
↑ O₂ supply

eg - Dextran etc.

⑤ Corticosteroids

→ Mainly used to treat anaphylactic and septic shock

⇒ they mainly give their action by ↑ se Vasodilation.



⇒ They also have some (the inotropic effects)

eg - Hydrocortisone, Methylprednisolone, Dexamethasone etc

Classification

- ① Sympathomimetic agents - Epinephrine
Nor Epinephrine
- ② α -blockers - Prazosin
Phenoxybenzamine
- ③ Oxygen
- ④ Plasma expanders - Dextran
- ⑤ Corticosteroids \rightarrow Hydrocortisone
Methylprednisolone
Dexamethasone