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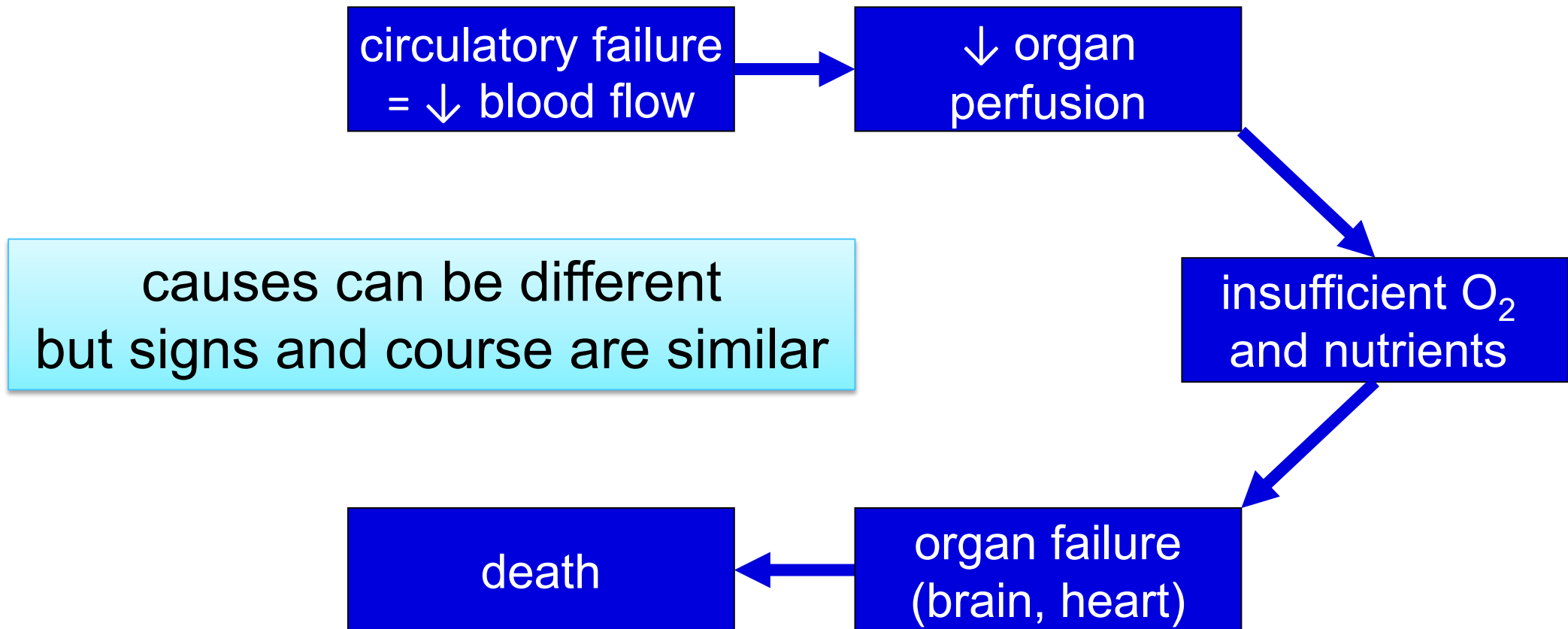
Shock

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Learning points

- Student will learn how to recognize signs and symptoms of shock.
- Student gains knowledge of different causes of shock.
- Student will learn about first aid to victims in shock.

What is shock?



Shock causes

- loss of circulating fluid (hypovolemic shock)
 - blood (haemorrhagic shock) – external or internal bleeding
 - loss of fluids (heat stroke, diarrhoea, burns)
- relative increase in blood vessels volume (distributive shock)
 - severe allergic reaction (anaphylactic shock)
 - severe infection (septic shock)
 - injury to the spinal cord or brain (neurogenic shock)

Shock causes II.

- heart (as a pump) failure (cardiogenic shock)
 - acute myocardial infarction
 - heart rhythm disturbances
 - decompensation of chronic heart failure
- obstacle to the blood flow (obstructive shock)
 - pulmonary embolism
 - tension pneumothorax
 - cardiac tamponade

Compensatory mechanisms

the aim is to provide sufficient blood flow (and O₂) to the vital organs

- **lungs:** increase in respiratory rate (raise amount of O₂ in blood)
- **heart:** increase in heart rate (pump more blood)
- **blood vessels:** preferred blood supply for vital organs at the expense of the others (muscles, skin, gut)

limited in the elderly or severely ill

Shock signs

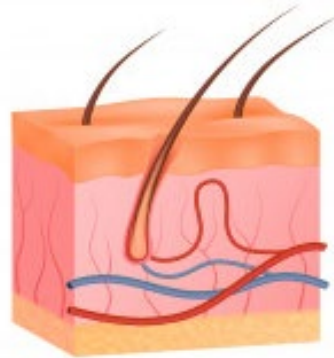


- ↑ heart rate
- weak or absent pulse at the wrist



- ↑ respiratory rate
- shallow breathing

- pale, cold skin
- sweating
- grey-blue skin
- prolonged capillary refill time



- weakness, dizziness
- thirst
- restlessness, confusion
- drowsiness, unconsciousness
- nausea, vomiting



Shock phases

I. compensated shock

- compensatory mechanisms provide vital organs blood supply
- rapid, strong pulse at the wrist
- pale and cold skin, sweating

II. decompensated shock

- exhausted compensatory mechanisms, decreased vital organ blood supply
- rapid and weak pulse at the wrist
- rapid and shallow breathing
- grey-blue skin, prolonged capillary refill time
- weakness, dizziness, thirst, restlessness
- nausea and vomiting

Shock phases II.

III. terminal shock

- irreversible changes of vital organs, vital functions failure
- very rapid, weak or absent pulse at the wrist
- grey-blue skin, no capillary refill
- drowsiness to unconsciousness
- shallow breathing, gasping (agonal breathing)

... death

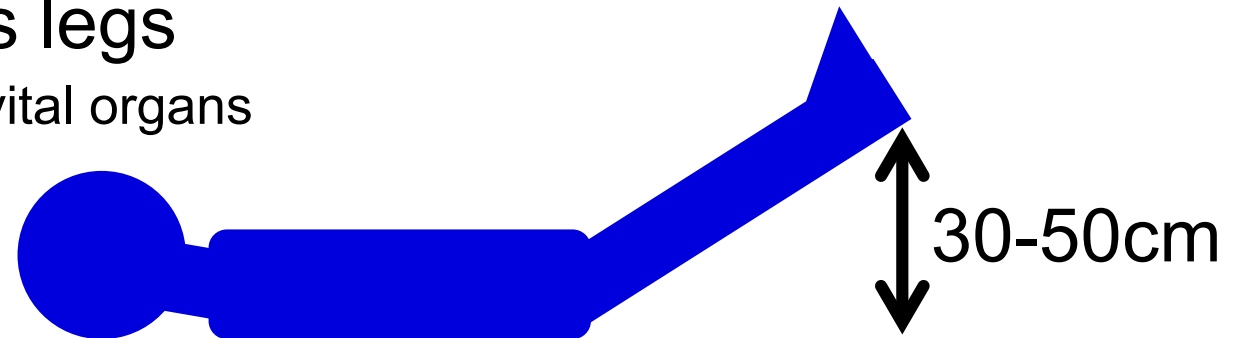
First aid

- treat any possible cause of shock
 - very limited options
- injuries:
 - control external bleeding
 - stabilize fractures (decrease internal bleeding)
- anaphylaxis – separate lecture

Avoid complications



- keep the victim warm and dry (blankets, space blanket)
- do not allow eating or drinking (despite felling thirsty)
- do no give any medications
- treat pain – stabilize fractures
- lay down and raise victims legs
 - transfer of blood from legs to the vital organs



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Monitoring

- talk to the victim, keep him/her calm
- take pulse at the wrist (frequency, strength)
- breathing
- skin colour and temperature, capillary refill
- in case of consciousness open the airways
- start CPR if needed

repeated / continuous
do not leave the victim

call emergency – secure fast transfer
avoid rapid position change

Shock with dominant shortness of breath

- common signs and symptoms:
 - fast or irregular beatings of the heart
 - coughing up pink frothy sputum (contains blood)
 - leg swelling
 - usually the elderly
 - no history of injury or fluid loss
- (common) cause is cardiogenic or obstructive shock
 - leg raising is not appropriate – sufficient filling of blood vessels, worsens breathing
 - the victim commonly finds a convenient position
 - usually sitting position

Take home message

Shock is not only a fright.

Rescuer safety is always first.

Dominant signs of shock are related to the circulatory failure –
paleness and sweaty skin are common even before an exam.

First aid options are limited – secure fast transport.

Learning outcomes

- Student is able to briefly describe the course of shock.
- Student recognizes the symptoms of shock.
- Student knows the causes of shock.

Sources

- First Aid Manual, Krohner JR (ed.), 2nd edition, DK Publishing, 2004, pp 120-121.
- Images from <https://www.freepik.com/>

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