

# Shock - polytrauma/high School (nurse)

Template:High School

Shock is caused by an imbalance between the supply and demand for nutrients and oxygen and the ability to remove pollutants from the cells.

- Shock from circulatory failure → hypovolemic, hemorrhagic, burn, etc. → volume loss.
- Shock from vascular disorder → neurogenic, septic anaphylactic → excessive vasodilatation.
- Pump failure shock → cardiogenic shock → heart damage.

## Pathophysiology

- Compensation of BP decrease → increase in sympathetic tone → centralization of circulation.
- Volume compensation → movement of interstitial fluid into capillaries, formation of ADH → vasoconstriction of the periphery and GIT and water retention → drop in BP in the kidneys → activation of the renin-angiotensin-aldosterone system.
- Manifest shock → hypoxia → organ involvement → MOS (ARDS, DIC).

## Symptoms

- Compensation phase:
  - Thirst.
  - Hypotension.
  - Tachycardia.
  - Cold sweat.
  - Pallor.
  - Oliguria - anuria.
  - Tachypnea.
  - Impairment of consciousness.
- Decompensation phase:
  - Severe metabolic acidosis.
  - Violation of the intestinal barrier → penetration of intestinal bacteria into the circulation.
  - The retreat of centralization of circulation.
  - Unconsciousness..
  - DIC.

## Shock index

- Estimation of fluid loss.
- Heart rate / systolic pressure.
  - Standard = 0.5 → loss up to 10%.
  - Start of shock (compensation) = 1 → loss up to 30%.
  - Severe shock (decompensation) = 2 or more → loss over 30%.

## Patient examination

- **The ABC system**
  - A = DC throughput.
  - B = respiration (oxygen demand).
  - C = circulation (reimbursement of losses).
  - D = consciousness system BHBN.
    - Alert and oriented.
    - Responds to voice.
    - Responds to AP.
    - He doesn't respond.
  - E = exposure and surroundings.
    - Investigate, cover up.
  - F = FF
    - Complete assessment of FF, SaO<sub>2</sub>, ECG, MK, NGS, laboratory, presence of family.

- G = comfort.
  - Soothing P/k, pain management.
- H = head to toe examination.
- I = Examination of hindquarters.

## Basic medications

- Infusion, transfusion.
- Sympathomimetics.
  - Adrenaline, Noradrenaline.
  - Dopamine (increases blood pressure and blood flow to organs).
  - Dobutamine (acts on the myocardium).
- Cardiotonics.
  - Inamrinone, Milrinom (increasing tissue perfusion and beta-receptor activity).
- Cardiac glycosides (Digoxin).
- Nitrates.
  - NTG, Nitroprusside.
- Vasopressin (ADH).
- ATB.

## Polytrauma

- Combination of impairment of organ systems.
- Impairment of one or more vital functions.
- Early development of traumatic shock.
- The severity of the condition is proportional to the frequency of affected systems.
- Typical injury mechanisms cause typical injuries.

## P/K Investigation

- **Anamnesis brief ..**
  - Symptoms - difficulties.
  - What happened and how.
  - Allergy.
  - Medicines used.
  - Previous illnesses.
  - When and what did he last eat?
- **After stabilization of the condition.**
  - Blood transfusion.
  - Vaccination.
  - General examination.

## Treatment principles

- Triage.
  - Investigation and stabilization of FF.
  - Immobilization of the cervical spine.
  - Preparation for transport - for surgery.
1. Stop bleeding.
  2. Provision of FF.
  3. Immobilization of the cervical spine.
  4. Monitoring.
  5. Immobilization of fractures.
  6. Neurological higher.
  7. Two large venous inlets.
  8. Blood and urine sampling.
  9. Check for wounds, bruises.
  10. Fulfillment of surgeries.
  11. Calming down loved ones.

## Trauma team

- Ingredients:
  - Traumatologist.
  - Anesthesiologist, intensivist.
  - Surgeon.
  - Radiographer.
  - Neurosurgeon, neurologist, orthopedist, ENT, urologist, dental surgeon...
- Prepared when handing over P/K ZZS!!!

## Links

### Related articles

- Polytrauma
- Rival
- Disseminated intravascular coagulation

### Literature

- KOLEKTIV AUTORŮ, . *Nurse and Emergencies*. 1. edition. Grada, 2008. 552 pp. ISBN 978-80-247-2548-2.
- ŠTĚTINA, Jiří. *Disaster and mass casualty medicine*. 1. edition. Grada, 2000. ISBN 80-7169-688-9.
- BYDŽOVSKÝ, Jan. *Acute conditions in context*. 1. edition. Triton, 2008. ISBN 978-80-7254-815-6.