

# HYPOXIA

1. The state of impaired oxygen regime is defined as:
  1. Anoxia.
  2. Hyperoxia.
  3. Hypoxemia.
  4. Hypoxia.
  5. Hypoxidosis.
  
2. What is "hypoxidation"?
  1. Reduced  $PO_2$  in arterial blood.
  2. Reduced oxygen content in arterial blood
  3. Reduced oxygen demand that is not due to hypoxia.
  4. Reduced amount of oxyhaemoglobin.
  5. State of impaired oxygen regime.
  
3. What is "hypoxia"?
  1. Disrupted oxygen exchange.
  2. Oxygen toxicity.
  3. Oxygen deficiency.
  4. Reduced oxygen needs.
  5. Limited aerobic capacity.
  
4. What is the main functional aspect of hypoxia?
  1. Decreased oxygen reserves in the body.
  2. Adequate oxygen deficiency.
  3. Oxygen hyporesponsiveness.
  4. Hyperadaptation to oxygen insufficiency.
  5. Inadequate oxygen supply/oxygen demand.
  
5. Which is NOT a cause for the development of local hypoxia?
  1. Arterial spasm.
  2. Arterial hyperemia.
  3. Arterial compression.
  4. Arterial obstruction.
  5. Arterial occlusion.
  
6. What is the pathophysiological classification of hypoxia:
  1. Hypoxic, hemic, circulatory,  $O_2$  utilization, mixed.
  2. Compensated, uncompensated, subcompensated, overcompensated.

3. Fulminant, acute, subacute, chronic.
4. Local, organic, systemic, generalized.
5. Pulmonary, cardiovascular, blood, mixed.

7. What could cause hypoxic hypoxia?

1. Acute haemoglobin deficiency.
2. Blocked cytochrome oxidase.
3. Increased oxygen export by the lungs.
4. Increased CO<sub>2</sub> production.
5. Insufficient pulmonary oxygen transfer.

8. Exogenic hypoxic hypoxia is a result of:

1. Disturbance in respiratory lung function.
2. Decreased pO<sub>2</sub> in the inhaled air.
3. Damaged respiratory center.
4. Increased pO<sub>2</sub> in the exhaled air.
5. Disorders of the respiratory muscles.

9 . Which index is primary decreased in exogenous hypoxic hypoxia?

1. Alveolar pO<sub>2</sub>.
2. Inspiratory pO<sub>2</sub>.
3. Arterial pO<sub>2</sub>.
4. Oxyhemoglobin saturation.
5. Alveolar oxygen transfer.

10. Which statement refers to exogenous hypoxic hypoxia?:

1. Respiratory system is seriously compromised.
2. Respiratory system is intact.
3. Must be accompanied by hypercapnia.
4. Dramatically reduction of hemoglobin amount.
5. There is a risk for atelectasis.

11. The main pathogenetic unit of hypoxic hypoxia is:

1. Arterial hypoxemia.
2. Arterial hypercapnia.
3. Arterial hypoxia.
4. Arerial hyperoxia
5. Arterial disoxia.

12. Main mechanisms disturbing oxygen intake in endogenous hypoxic hypoxia are:

1. General alveolar hypoventilation.
2. Decreased ventilation/perfusion ratio.
3. Impaired oxygen diffusion.
4. Oxygen insufficiency in the inhaled air.
5. 1, 2, 3.
6. 1, 2, 3, 4.

13. Hemic (blood) hypoxia is generally divided into:

1. Exogenous and endogenous.
2. Congenital and acquired.
3. Compensated and decompensated.
4. Anemic and inactivity.
5. Hypo- and hyperoxic.

14. Hemic (blood) hypoxia is characterized with:

1. Arterial hypoxia.
2. Reduced oxygen transporting capacity of the blood.
3. Arterial hypercapnia.
4. Impaired oxygen utilization from cells.
5. Independently reduced tissue  $pO_2$ .

15. Carboxyhemoglobinemia develops as a result of:

1. CO poisoning.
2. KCN poisoning.
3. vit B12 deficiency .
4. Sulfonamides overdose.
5. NO deficiency.

16. Which of the following characteristics is not typical for CO?:

1. High haemoglobin affinity.
2. Cytochromes inhibition in tissues.
3. Strong pyrogenic effect.
4. Shifting oxyhaemoglobin dissociation curve to the left.
5. Carboxyhemoglobin formation.

17. Which statement refers to methemoglobin:

1. It is irreversible compound.
2. Iron is a third valence.
3. It is formed in the presence of CO.

4. Congenital form is hemoglobin F.
5. Physiologic methemoglobinemia is not significant for the body.

18. The main pathogenetic unit of hemic hypoxia is:

1. Decreased pO<sub>2</sub> in arterial blood.
2. Decreased blood volume.
3. Decreased oxygen capacity of blood.
4. Reduced erythrocytes life.
5. 1, 3, 4.

19. What is the general effect from the development of circulatory hypoxia?

1. Methemoglobin reductase block.
2. Decreased ventilation/perfusion ratio.
3. Effective hemoglobin deficiency.
4. Direct mitochondrial decoupling.
5. Tissue hypoperfusion.

20. Which of the following is NOT a cause for circulatory hypoxia development?

1. Arterial hyperemia.
2. Arterial spasm.
3. Decreased blood flow to tissues in Right-Sided Heart Failure (RSHF).
4. Blockage of arterial vessel by thrombus.
5. Thromboembolic development.

21. Which statement refers to ischemic type circulatory hypoxia?

1. There is oxygen substrate deficiency.
2. Shortened blood/tissue contact time.
3. Reduced cellular O<sub>2</sub> utilization.
4. Generalized edema development.
5. General indicator is venous hyperoxia.

22. The main pathogenetic unit of circulatory hypoxia is:

1. Reduced effective hemoglobin.
2. Systolic cardiac dysfunction.
3. Reduced effective circulatory volume.
4. Decreased hematocrit.
5. Blood depots depletion.

23. In which hypoxia type the processes of O<sub>2</sub> intake, transport and delivery to the cells are not disturbed?:

1. Circulatory hypoxia.
2. Hypoxic hypoxia.
3. Hemic hypoxia of anemic type.
4. O<sub>2</sub> utilization hypoxia.
5. Hemic hypoxia of inactivity type.

24. Basic mechanisms for development of O<sub>2</sub> utilization hypoxia are:

1. Increased mitochondrial oxygen reduction.
2. Decreased mitochondrial oxygen reduction.
3. Reduced efficiency of the oxygen energy production.
4. Insufficient functional energy provision.
5. 2, 3.
6. 1, 2, 4.

25. Toxic suppression of transelectronases leads to:

1. Decoupling of oxidative phosphorylation.
2. Mitochondrial lysis.
3. Non-utilization of the delivered oxygen.
4. Tissue oxygen redistribution.
5. Reverse oxygen transport.

26. Tissue hypoxia is the final result of:

1. Reduced physical activity.
2. Absolute starvation.
3. Each metabolic abnormality.
4. Severe and/ or progressive systemic hypoxia
5. Progressive, oxygen-dependent enzyme dysfunctions.

27. Which of the following pulmonary reactions has no adaptive function?:

1. Alveolar hyperventilation.
2. Increased oxygen diffusion through the alveolar-capillary membrane.
3. Increased pulmonary perfusion.
4. Pulmonary atelectasis development.
5. Euler-Liljestrand reflex.

28. What is the aim of lung adaptations?

1. Easier CO<sub>2</sub> export.
2. Increasing pCO<sub>2</sub> above 44 mmHg.

3. Increasing arterial pO<sub>2</sub>
4. Increasing pulmonary arteries pressure.
5. Increased converting enzyme formation.

29. What is the aim of cardio-circulatory adaptations:

1. Increasing alveolar ventilation.
2. Improved tissue perfusion.
3. Increased oxygen transporting capacity of the blood.
4. Alteration in tissue enzymes activity.
5. They are not essential.

30. Increased oxygen transporting capacity of the blood is a result of:

1. Increased blood pressure.
2. Increased tissues vascularization.
3. Compensatory heart hypertrophy.
4. Compensatory diminished erithrolysis.
5. Compensatory erythropoesis.

31. Which are tissue-cellular adaptations caused by reduced oxygen delivery to cells?

1. Increasing oxygen transport.
2. Improvement of tissue perfusion.
3. Increasing utilization of supplied oxygen.
4. Improving oxygen delivery to vital organs.
5. Inhibition of key cell enzymes.