PATHOPHYSIOLOGY OF PULMONARY SYSTEM 2

Test control

1. The external respiratory failure is the most likely characterized by:

1) dyspnea
2) cyanosis
3) hypoxia
4) hypoxemia
5) hypercapnia
6) hypocapnia
7) acidosis
8) alkalosis

2. The acute respiratory failure in compensatory stage is characterized by:

1) PaO_2 lower than 60 mm Hg
2) $PaCO_2$ lower than 35 mm Hg
3) PaO_2 higher than 60 mmHg
4) $PaCo_2$ higher than 45 mmHg

3. The acute respiratory failure in decompensatory stage is characterized by:

1) PaO_2 lower than 60 mmHg
2) $PaCO_2$ lower than 35 mm Hg
3) PaO_2 higher than 60 mmHg
4) $PaCO_2$ higher than 45 mmHg

4. Which of the indexes of flow-volume test the most likely show the obstruction of upper conductive airways?

1) reduction of flow volume –velocity at the level 75% VC
2) reduction of flow volume-velocity at the level 50% VC
3) reduction of flow volume –velocity at the level 25% VC
4) decreased top of flow-volume curve

5. Which of the indexes of flow-volume test the most likely show the obstruction of lower conductive airways in patient with emphysema?

1) decreased top of flow-volume curve
2) reduction of flow-volume velocity at the level 25% VC
3) reduction of flow-volume velocity at level 50% VC
4) reduction of flow-volume velocity at the level 75% VC

6. Choose the initial and main link in pathogenesis of adult respiratory distress syndrome:

1) pulmonary edema
2) disturbance of gas diffusion
3) decreased surfactant production
4) increased permeability of lung vessels for proteins\
5) right-to-left shunt in blood

7. Choose the initial and main link in pathogenesis of respiratory distress syndrome of the newborn:

1) pulmonary edema
2) disturbance of gas diffusion
3) decreased surfactant production
4) increased permeability of lung vessels for proteins
5) right-to-left shunt in blood

8. Inspiratory dyspnea characterizes the followings:

1) stenosis of trachea
2) the first stage of asphyxia
3) attack of bronchial asthma
4) edema of larinx
5) chronic obstructive pulmonary diseases
6) left ventricle heart failure

9. Expiratory dyspnea characterizes the followings:

1) broncho-obstructive syndrome
2) stenosis of trachea
3) the second stage of asphyxia
4) attack of bronchial asthma
5) edema of larynx
6) chronic obstructive pulmonary diseases

10. Point out the possible consequences of early expiratory closure of conducting airways:

1) increased maximal alveolar ventilation per minute
2) decreased maximal alveolar ventilation per minute
3) decreased residual volume
4) increased residual volume
5) lymphostasis
6) hypoxemia

11. What are the causes for early expiratory closure of conducting airways during expiration?

1) decreased resistance to airflow
2) increased resistance to airflow
3) increased laminar axis pressure of airflow in bronchiole
4) increased radial pressure of airflow in bronchiole
5) decreased radial pressure of airflow in bronchiole
6) increased transpulmonary pressure

12. Which of the followings can lead to development of primary emphysema?

1) bronchiectasis
2) senile age
3) deficiency of α_1- antitrypsin
4) bronchial asthma
5) playing on wind instrument

13. Which of the followings can evoke the development of secondary emphysema?

1) bronchiectasis
2) deficiency of α_1-antitrypsin
3) chronic obstructive pulmonary disease in smoker.
4) bronchial asthma
5)playing on wind instrument

14. Which of the followings can provoke the attack of bronchial asthma?

1) exciting
2) inhalation of allergen
3) physical exercises
4) inhalation of cold air
5) inhalation of β_1-adrenomimetic
6) inhalation of M-cholinolytic
7) intake of aspirin

15. In pathogenesis of bronchial asthma attack can take part the following substances:

1) Histamine
2) acetylcholine
3) catecholamines
4) leukotrienes: C_4, D_4, E_4
5) prostaglandin $F_2\alpha$

16. Point out the principles of treatment of atopic bronchial asthma:

1) elimination of causative allergen
2) antigenspecific immunotherapy
3) inhibition of mast cell degranulation
4) use β-adrenoblockers
5) use β-adrenomimetics
6) use M-cholinoblockers
7) use glucocorticoids

17. Which types of breathing belong to terminal types?

1) Oligopnoe 4) Bradipnoe
2) Polypnoe 5) Apneistick breathing
3) Kussmaul breathing 6) Hasping breathing

18. Decreased neuron excitability of respiratory centre can lead to development of next types of breathing:

1) Polypnoe 4) Kussmaul breathing
2) Oligopnoe 5) Biota periodic breathing
3) Hyperpnoe 6) Cheyne-Stokes periodic breathing

19. Which type of breathing develops in premature newborn with disturbance of respiratory muscle synergism?

1) Periodic breathing 3) Hasping breathing
2) Apneistic breathing 4) Dissociative breathing

20. Kussmaul breathing is the most likely evidence of development in patient the followings:

1) Respiratory alkalosis 3) Metabolic alkalosis
2) Respiratory acidosis 4) Metabolic acidosis

21. Point out the type of coma, which accompained by Kussmaul breathing in patient with diabetes mellitus:

1) Hypoglycemic coma 3) Ketoacidic coma
2) Hyperglycemic coma

22. In what manne the <u>minute alveolar ventilation</u> changes during polypnoe?

1) Increased 2) Decreased 3) remained normal

23. In what manner <u>the minute alveolar ventilation</u> changes during hyperpnoe?

1) Increased 2) Decreased 3) remained normal

24. In what manner the <u>minute alveolar ventilation</u> changes during oligopnoe?

1) increased 2) Decreased 3) remained normal

25. The main role in pathogenesis of stenotic breathing belongs to:

1) decreased excitability of breathing centre
2) increased excitability of breathing centre
3) accselerated Herring-Breuer respiratory reflex
4) delayed Herring-Breuer respiratory reflex

26. Point out the pathological type of breathing , which appears during delayed inhibitory influence of nerve vagus and apneustic centre on inspiration neurons:

1) Cheyne-Stokes respiration 4) Hasping breathing
2) Biotta respiration 5) Apneustic breathing

27. What are the possible causes of tachypnoe?

1)Hypoxia 4) compensative alkalosis
2) hyperoxia 5) compensative acidosis
3) increased excitability of respiratory centre

28. What are the possible causes of bradypnoe?

1) Hypoxia 5) Compensative acidosis
2) Hyperoxia 6) Compensative alkalosis
3) decreased excitability of respiratory centre
4) Increased arterial blood pressure

29. Point out the causes of hemic hypoxia:

1) Decrease PO_2 in air 4) B_{12} hypovitaminosis
2) Bronchial asthma 5)Poisoning by CO
3) chronic blood loss 6) Poisoning by nitrates

30. Point out the causes of respiratory hypoxia:

1) Decrease PO_2 in air 4) bronchial asthma
2) Pulmonary edema 5) Decreased surface for gas diffusion
3) Poisoning by CO 6) Decreased surfactant secretion

31. Exogeneous type of hypoxia can develop during:

1) B_1 hypovitaminosis 4) mountainous disease
2) staing for a long time in closed volume
3) Poisoning by cyanides 5) Poisoning by CO

32. Point out the causes of tissue hypoxia:

1) Decrease PO_2 in air 4) bronchial asthma
2) B_{12} hypovitaminosis 5) Mountainous disease
3) Poisoning by cyanides

33. Point out the causes of circulatory hypoxia:

1) Traumatic shock 4) decreased cardiac output
2) DIC syndrome 5) myocarditis
3) Uncomplicated myocardial infarction

34. Point out the causes of mixed type of hypoxia:

1) Traumatic shock 4) acute massive blood loss
2) Uncomplicated myocardial infarction
3) Poisoning by nitrates 5) Myocarditis

35. Which signs and symptoms appear during acute hypoxia in compensative stage:

1) Tachycardia 4) Increased hematocrite
2) Tachypnea 5) Spasm of coronary vessels
3) Hyperpnea 6) Decreased minute alveolar ventilation

36. **Acute exogeneous hypoxia in compensatory stage is characterized by :**

1) Increased minute alveolar ventilation 4) Decreased $PaCO_2$
2) Activation of erythrocytopoiesis 5) Decreased PaO_2
3) Activation of glycolysis

37. What are the compensatory changes inside the cell during hypoxia?

1) Inhibition of glycolysis 4) activation of lipid peroxidation
2) Activation of glycolysis 5) mobilization of creatinphosphates
3) Mobilization of glycogen

38. Which of the following s play the main role in pathogenesis of hypoxic cell injury?

1) Mobilization of creatinphosphates
2) Activation of phospholipase A_2
3) Inhibition of lipid peroxidation
4) Increased Na inside the cell
5) Increased Ca in mytohondria

39. The blood oxygenous capacity increases during hypoxia due to:

1) Tachypnea
2) Tachycardia
3) Increased cardiac output
4) Activation of erythropoeisis
5) throwing out the deposited blood

40 The hemoglobin dissociation curve shifts to the left during:

1) metabolic acidosis
2) metabolic alkalosis
3) decreased body temperature
4) hypocapnia
5) increased body temperature
6) sickle-cell anemia

41. The hemoglobin dissociative curve shifts to the write during:

1) Metabolic acidosis
2) Metabolic alkalosis
3) Increased 2,3-D-phosphoglycerate in erythrocytes
4) Hypocapnia
5) Increased body temperature

42. Hemoglobin's affinity to oxygen decreases during:

1) Metabolic acidosis
2) sickle-cell anemia
3) Increased 2,3-D-phosphoglycerate
4) Hypocapnia
5) Increased body temperature

43. Hemoglobin's affinity to oxygen increases during:

1) Metabolic acidosis
2) Metabolic alkalosis
3) Decreased body temperature
4) Hypocapnia
5) sickle–cell anemia

44. Hypoxia without hypoxemia can develop during:

1) Poisoning by CO
2) Damaged mytohondria
3) Damaged respiratory centre
4) Poisoning by cyanide
5) B_1, B_2 hypovitaminosis

45. Person, who lives in high mountains for long time, has:

1) Increased 2,3-D-phosphoglycerate
2) Inhibition of proteins and amino acids synthesis
3) Increased hematocrit
4) hypertrophic heart
5) Pulmonary hyperventilation

46. Medical examination of patient's external breathing revealed the followings: ↑TV, ↑V/min, ↓AV/min, ↓MLV, ↓IRV, ↓VC, ↑TLC, ↑RV, ↓FEV/min, ↓index Tiffeneau. These indexes the most likely testified to:

1) Pneumonia
2) Hydrothorax
3) Chronic obstructive pulmonary disease with emphysema
4) Tuberculosis of lung
5) Dry pleuritis

47. Medical examination of patient's external breathing revealed the followings:↑V/min, ↓MLV, VC-normal, ↓FEV/min, ↓ index Tiffeneau, ↓ AV/min, ↓ RR, ↑ TLC, (not more than 20% predicted). These indexes the most likely testified to:

1) Pneumonia
2) Hydrothorax
3) Bronchial asthma without secondary emphysema
4) Tuberculosis
5) Dry pleuritis

48. Medical examination of patient's external breathing revealed the followings:↓TV, ↑V/min, ↓AV/min, ↓MVL, ↓RR, ↓IRV, ↓ERV, ↓VC, ↓TLC, ↓RV, ↓FEV/min, index Tiffeneau = 90%. These indexes the most likely testified to:

1) Emphysema
2) Bronchial asthma
3) Bronchitis
4) Croupous pneumonia
5) Closed pneumothorax
6) Kifoscoleosis

49. Medical examination of patient's external breathing revealed the followings: BR=30/min, ↓TV, ↑V/min, AV=3l/min, CO=4,5 l/min, ↓RR, DLC=15 ml/1 mmHg/min. These indexes the most likely testified to changes in gas content and pH of blood:

1) Decreased PaO_2
2) Decreased $PaCO_2$
3) Increased $PaCO_2$
4) Decreased blood pH
5) Increased blood pH