Exam questions from PATHOPHYSIOLOGY course for Dentistry students

GENERAL PATHOPHYSIOLOGY

1. Definition of disease and health - etiology, pathogenesis, symptoms, syndromes, course and outcome of disease. Definition of norm. Methods of objective assessment of disease.
2. Role of internal and external factors in the onset of illness. Monofactorial and multifactorial diseases - examples.
3. Pathophysiology of hereditary diseases.
4. Inflammation - components of inflammatory response, inflammatory mediators, acute phase proteins, local and systemic inflammatory response.
5. Multi-organ dysfunction in systemic inflammation (MODS), systemic inflammatory response syndrome (SIRS).
6. Fever - mechanism of fever, effects of fever on body functions, major types of fever.
7. Non-specific (natural) and specific (acquired) immunity of the organism - disorders, regulation and function. Immune deficits (immunodeficiency). AIDS. Manifestation of immune disorders on the skin and on the oral mucosa.
8. Immunopathological reactions. Hypersensitivity. Allergies - types and examples.
9. Autoimmune diseases. Transplant immunity.
10. External factors of the origin and development of the disease - factors of physical and chemical nature, biological and psychosocial pathogenic stimuli.
11. Pathophysiological aspects of the harmful effects of tobacco smoking and alcohol on the human body.
12. Cell damage and death - apoptosis and necrosis.
13. Repair of tissue damage - bleeding, inflammation, epithelization, granulation tissue, fibrosis, scarring. Pathological course of wound healing.
14. Tumor growth - the development of tumors, factors that increase the risk of tumor formation, mechanisms of tumor cell transformation. Paraneoplastic syndromes.
15. Disturbances of volume and osmotic equilibrium - mechanisms, regulation, hypovolemic and hypervolemic states, clinically significant examples.
16. Ion balance and equilibrium disorders - Na +, K +, regulation, causes of disorders, consequences, clinically relevant examples.
17. Pathogenesis of swelling - causes, examples, clinical manifestations, consequences.
18. Disorders of acid-base balance – ABB regulation, classification of disorders, compensation, correction, combined disorders, treatment principles, complications.
19. Pathophysiology of puberty, climax and aging.

PATHOPHYSIOLOGY OF BLOOD

20. Anemia due to increased red blood cell loss.
21. Anemia due to reduced erythrocyte production.

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22. Polycythemia – absolute (primary, secondary), relative.
23. Leukopenia, leukocytosis, granulocyte function disorders - non-tumorous changes.
24. Pathophysiological aspects of blood transfusion and blood derivatives - complications, risks, consequences. Pathophysiological aspects of stem cell transplantation.
25. Bleeding conditions - primary disorders of hemostasis - vasculopathy, thrombocytopenia, thrombocytopathy. Secondary disorders of hemostasis - coagulopathies.
26. Increased blood clotting. Thrombophilia, risk factors. Thrombosis. Embolism - types, examples. DIC.

PATHOPHYSIOLOGY OF CARDIOVASCULAR SYSTEM

27. Pathophysiology of blood pressure changes - arterial hypotension and hypertension. Pathogenesis, course, remodeling of the heart and circulatory system, clinical classification.
28. Acute circulation failure - basic classification (syncope, shock, sudden death), examples.
29. Acute and chronic heart failure - pathogenesis, consequences, clinical syndromes.
30. Circulatory shock - causes, classification, stages, clinical monitoring, pathophysiological basics of therapy. Late shock complications (MODS).
31. Increased venous pressure - central, peripheral, pulmonary. Venous disorders - chronic venous insufficiency, phlebitis, consequences and complications. Pulmonary embolism.
32. Left and right heart failure - pathogenesis, consequences, clinical syndromes.
33. The role of compensatory mechanisms for heart failure, factors detrimental to cardiac insufficiency.
34. Heart rhythm disorders (arrhythmia) - bradyarrhythmia, tachyarrhythmias, disturbances of excitation and conduction (AV blocks).
35. Blood flow disturbance in the heart - valvular defects.
36. Myocardial infarction disorders. Mechanism of myocardial ischemia, risk factors, pathogenesis of origin, local manifestations and consequences, causes and consequences of coronary artery narrowing.
37. Clinical forms of ischemic heart disease - acute coronary syndrome, angina pectoris.
38. Acute myocardial infarction - mechanism of onset, stages, consequences and complications, ECG changes, basic therapeutic approaches.

PATHOPHYSIOLOGY OF THE RESPIRATORY SYSTEM

39. Overview of the most common and most severe respiratory illnesses. Risk factors.
40. Hypoxia of the organism and oxygen transport disorders.
41. Respiratory failure - acute and chronic respiratory insufficiency, types, causes of onset or worsening.
42. Disorders of diffusion of gases, ventilation/perfusion disorders in the lungs.

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43. Types of breathing and breathing disorders - clinical manifestation, compensation, consequences.
44. Acute respiratory disturbances – obstruction of respiratory tract, oxygen-free gas mixtures, sudden decrease in atmospheric pressure, sleep apnea, pneumothorax, pulmonary embolism, drowning, aspiration of stomach contents.
45. ARDS and RDS - pathogenesis, causes, consequences.
46. Pathogenesis of pulmonary edema - pathophysiological implications for lung function.
47. Ventilation disorders. Obstructive diseases, restriction diseases. Chronic obstructive pulmonary disease (chronic bronchitis, emphysema). Bronchial asthma.
48. Tumor diseases of the lungs - risk factors, compensation, consequences.

DISORDERS OF METABOLISM

49. Artificial nutrition - enteral and parenteral. Indications, contraindications, complications.
50. The role of nutrition as a major factor in civilization diseases. Diets. Nutritional genomics.
51. Nutritional disorders - fasting, eating disorders. Mental anorexia. Bulimia.
52. Lipid metabolism disorders - the risk factor of the most common and most serious civilization diseases of the heart and blood vessels. Atherosclerosis.
53. Atherosclerosis - risk factors, endothelial dysfunction, atherogenesis, consequences.
54. Disorders of protein metabolism - hypoproteinemia, disorders of detoxification and nitrogen excretion. Disorders of amino acid metabolism - phenylketonuria.
55. Disorders of purine metabolism. Gout. Disorders of vitamin metabolism - examples, consequences.
56. Disorders of metabolism of micronutrients and trace elements and their consequences. Iron, fluorine, zinc, magnesium, copper, etc.

PATHOPHYSIOLOGY OF THE GASTROINTESTINAL TRACT

57. Pathophysiology of tooth decay.
58. Pathophysiology of stomatitis, gingivitis and periodontitis.
59. Pathophysiology of the oral cavity - disorders of chewing and secretion of saliva. Pathophysiology of salivary glands. Dysphagia.
60. Symptoms of systemic diseases in the oral cavity.
61. Esophageal pathophysiology - esophageal motility disorders, hiatal hernia, gastroesophageal reflux, esophageal inflammation, esophageal varices.
62. Disorders of motility and stomach emptying. Dyspepsia, nausea, vomiting - types, causes, consequences.
63. Disorders of stomach secretion. Gastritis.
64. Ulcer disease, peptic ulcer of the stomach, peptic ulcer of the duodenum. Pathophysiology of states after resection of the stomach.

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65. Disorders of motility of the small and large intestine, diarrhea, obstipation - types, causes, consequences.
66. Inflammatory diseases of the colon - ulcerative colitis, Crohn's disease. Colorectal carcinoma.
67. Maldigestion, malabsorption - primary, secondary.
68. Bleeding from GIT - forms, causes, localization, consequences.
69. Disorders of pancreatic exocrine activity - etiology, pathogenesis, examples, consequences.

PATHOPHYSIOLOGY OF THE LIVER

70. Acute and chronic liver failure. Metabolic disorders. Hepatic encephalopathy and coma.
71. Subicterus, icterus, pseudoicterus. Significant clinical and laboratory findings in different types of jaundice.
72. Liver inflammation - hepatitis. Classification, laboratory and clinical findings, consequences.
73. Causes of liver damage - alcohol, toxic effects of drugs, cholestasis, and circulatory disorders. Reaction of the liver to damage. Hepatic cirrhosis. Steatosis and steatohepatitis - causes and consequences.
74. Pathophysiology of portal circulation. Ascites.
75. Cholelithiasis, cholecystitis - causes, complications, consequences.

PATHOPHYSIOLOGY OF THE NERVOUS SYSTEM

76. Pain - pathogenesis, meaning, types of pain, examples of pain perception, mediators, principles of pharmacological influence.
77. Pathophysiology of pain in orofacial area. Headaches.
78. Afferent nervous system disorders - peripheral and central, spinal cord syndromes.
79. Central and peripheral motor neuron disorders - central and peripheral paralysis.
80. Spinal cord injuries, spinal shock. Spinal hemisection syndrome (Brown-Séquard syndrome).
81. Disorders of the extrapyramidal system - hypokinetic and hyperkinetic syndromes.
82. Disorders of the autonomic (vegetative) nervous system.
83. Ataxia - types, clinical distinction, manifestations. Pathophysiology of walking disorders.
84. Disorders of consciousness and cognitive function.
85. Memory malfunctions. Speech disorders - aphasia. Dementia. Alzheimer's disease.
86. Cerebral infarction, cerebral ischemia, stroke, cerebral edema.
87. Pathophysiology of epilepsy - types, causes, differential diagnosis.

PATOPHYSIOLOGY OF KIDNEYS

88. Nephrotic and nephritic syndrome - pathogenesis, manifestations, consequences.
89. Pathophysiology of acute renal failure - causes, phases, symptoms, metabolic consequences.
90. Pathophysiology of chronic renal failure - causes, symptoms, metabolic and clinical consequences. Uremic syndrome.
91. Proteinuria and hematuria - types, causes, diagnostic criteria, examples, consequences.

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92. Urolithiasis - pathogenesis, types of stones, complications.
93. Pathogenesis of kidney diseases from extrarenal causes.

PATHOPHYSIOLOGY OF THE ENDOCRINE GLANDS

94. Hierarchy of the endocrine system and its significance in pathogenesis of endocrine disorders. Negative feedback and endocrine disorders.
95. Hypothalamic disorders, diabetes insipidus.
96. Pathophysiology of the pituitary system - hypopituitarism, hyperpituitarism, acromegaly and gigantism, prolactinoma.
97. Hyperthyroidism - manifestations in different systems of the body.
98. Thyroid gland disorders – eufunctional goiter, hypothyroidism - manifestations in different systems of the body.
99. Parathyroid gland disorders - hyper and hypoparathyroidism.
100. Pathophysiology of calcium and phosphorus balance disorders - clinically relevant examples.
101. Acute and chronic insufficiency of the adrenal cortex.
102. Pathophysiology of Cushing's disease and syndrome.
103. Pathophysiology of primary and secondary hyperaldosteronism.
104. Mechanism of feedback in the menstrual cycle, amenorrhea, galactorrhea.
105. Obesity - etiology, types, body weight and its evaluation, insulin resistance and other endocrine metabolic changes. Metabolic syndrome.
106. Disorders of carbohydrate metabolism. Hyperglycemia and hypoglycemia - causes, values, regulation, clinical symptoms, complications.
107. Diabetes mellitus - etiopathogenesis of DM type I, II.
108. Acute complications of diabetes mellitus – hyperglycemic, hypoglycemic comas. Causes, pathogenesis, clinical manifestations, regulatory mechanisms, consequences.
109. Chronic complications of diabetes mellitus - metabolic mechanism of pathogenesis, examples, clinical manifestations, consequences.
110. Stress and stress response - characteristics, phases, regulatory mechanisms, metabolic, cardiovascular and other stress changes. Eustress. Distress.
111. Overview of civilization diseases - social significance, epidemic extent, principles of prevention and therapy.
112. Psychosomatic disorders. Iatrogenic diseases.
113. Pathophysiology of comas - classification, causes, development, compensation, consequences.

PATHOPHYSIOLOGY OF THE CONNECTIVE TISSUE

114. Pathophysiology of connective tissue - connective tissue disorders and disorders of collagen.
115. Pathophysiology of bones - osteoporosis, osteomalacia and rickets, osteodystrophy.