**Question for 1st concluding for pathophysiology, semester VI (2025-2026)**

1. What is the pathophysiological mechanisms of absolute leukocytosis?
2. What is the pathophysiological mechanism of relative leukocytosis?
3. What conditions are associated with relative leukocytosis?
4. What is the pathophysiological mechanism of relative leukocytosis in physical effort?
5. What leukocytosis are considered physiological?
6. What is the cause of neutrophilia?
7. What is the pathophysiological mechanism of neutrophilia?
8. What types of neutrophils are found in the peripheral blood in neutrophilia with “right nuclear shift”?
9. What forms of young neutrophils are found in the peripheral blood in neutrophilia with “left nuclear shift”?
10. What forms of young neutrophils are found in the peripheral blood in neutrophilia with “left nuclear shift” hyporegenerative type?
11. What forms of young neutrophils are found in the peripheral blood in neutrophilia with “left nuclear shift” regenerative type?
12. What forms of young neutrophils are found in the peripheral blood in neutrophilia with “left nuclear shift” hyperregenerative type?
13. What is the other clinical term to define neutrophilia with “left nuclear shift” hyperregenerative type?
14. What forms of neutrophils are found in the peripheral blood in neutrophilia with “right nuclear shift”?
15. For what type of neutrophilia there is characteristic the presence of signs of neutrophil degeneration?
16. What is the cause of neutrophilia with “left nuclear shift” hyperregenerative type?
17. What is the cause of neutrophilia with “right nuclear shift”?
18. Interpret changes in hemoleucogram: leucocyte count – 15,0x109/L, segmented neutrophils - 72 %, non-segmented neutrophils - 2%, metamyelocytes – 0%, myelocytes – 0%, eosinophils – 2%, lymphocyte 25%, basophiles -1%, monocyte - 5%. In blood smear there are giant hypersegmented neutrophils with pyknotic nuclei.
19. What is the cause of relative lymphocytosis?
20. What haematological disorders are associated with relative lymphocytosis?
21. What is the clinical significance of relative lymphocytosis in the patient?
22. What is the pathophysiological mechanism of absolute lymphocytosis?
23. What does represent agranulocytosis?
24. When can be found primary agranulocytosis?
25. When can be found secondary agranulocytosis?
26. What is the pathophysiological mechanism of primary agranulocytosis?
27. What is the pathophysiological mechanism of secondary agranulocytosis?
28. What are the characteristics of agranulocytosis in aplastic anemia?
29. What is the characteristic of agranulocytosis in aplastic anemia?
30. What is the pathophysiological mechanism of autoimmune neutropenia?
31. Neutropenia in the patient is associated with frequent infections. What is the pathogenesis?
32. How is defined hemoblastosis?
33. How is defined acute leucosis?
34. What pathological processes at the level of hematopoietic bone marrow are present in acute leucosis?
35. What does mean hyperplasia of hematopoietic bone marrow in pathogenesis of acute leucosis?
36. What is the hematologic sign of leukemic myeloid leucosis?
37. What is hematologic criterion of subleukemic myeloid leucosis?
38. What is the hematologic sign for leucocytopenic myeloid leucosis?
39. What does represent “hiatus leukemicus” in development of acute myeloblastic leukemia?
40. What is the pathogenetic mechanism of absolute primary erythrocytosis?
41. How hematocrit (Ht) and mean corpuscular volume (MCV) of erythrocytes is changed in absolute secondary erythrocytosis?
42. How hematocrit (Ht) and mean corpuscular volume (MCV) of erythrocytes is changed in relative erythrocytosis?
43. How change circulatory blood volume (CBV) and serum iron in absolute primary erythrocytosis?
44. How the erythropoietin level is changed in absolute primary erythrocytosis?
45. How the erythropoietin level is changed in absolute secondary erythrocytosis?
46. How the erythropoietin level is changed in relative erythrocytosis?
47. What clinical manifestations are characteristic in patient with Vaquez disease?
48. What pathogenetic mechanisms contribute to development of arterial hypertension in patients with absolute primary erythrocytosis?
49. What is the pathophysiological mechanism of itching in patients with Vaquez disease?
50. What type of erythrocytosis is found in patients with chronic respiratory failure?
51. How circulatory blood volume is changed in a patient with chronic respiratory failure?
52. How circulatory blood volume is changed in a patient with activation of HIF -1α gene?
53. How circulatory blood volume is changed in a patient with activation of JAK 2 gene?
54. What type of erythrocytosis is found in patients with hormone-producing tumor at the level of reticular layer of the adrenal cortex?
55. How circulatory blood volume is changed in a patient with hormone-producing tumor at the level of reticular layer of the adrenal cortex?
56. What type of erythrocytosis is found in patients with renal ischemia?
57. What type of erythrocytosis develop and how change the erythropoietin level (EPO) in smokers?
58. How change arterial blood pressure (BP) in a patient with relative erythrocytosis?
59. How change arterial blood pressure (BP) in a patient with absolute primary erythrocytosis?
60. How reticulocyte count is changed in relative erythrocytosis?
61. What erythrocytes are subjected to excessive hemolysis?
62. What are pathophysiological mechanisms of autoimmune hemolytic anemia?
63. What are biochemical changes characteristic for intravascular hemolysis?
64. What is a characteristic pathophysiological mechanism for intravascular hemolysis?
65. What type of hemolysis is characteristic for clinical conditions associated with changes in erythrocyte shape and flexibility?
66. What are specific manifestations in intravascular hemolysis?
67. What is the mechanism of intravascular hemolysis in hemolytic anemias?
68. What is the pathophysiological mechanism of autoimmune hemolytic anemia?
69. What is the pathophysiological mechanism of aplastic anemia triggered by cytostatic administration?
70. What are haematological changes in the peripheral blood in aplastic anemia?
71. What types of anemia are considered macrocytic according to mean corpuscular volume (MCV ) > 100 fl?
72. What types of anemias are considered microcytic according to mean corpuscular volume (MCV ) ˂ 80 fl?
73. What types of anemias are considered microcytic according to mean corpuscular volume (MCV ) ˂ 80 fl?
74. What types of anemias are considered hyperchromic according to mean corpuscular hemoglobin (MCH) > 35 pg?
75. What types of anemias are considered hypochromic according to mean corpuscular hemoglobin (MCH) ˂ 27 pg?
76. What type of anemia is considered hypochromic according to mean corpuscular hemoglobin (MCH) ˂ 27 pg?
77. What type of anemia is considered hypochromic according to mean corpuscular hemoglobin (MCH) ˂ 27 pg?
78. What types of anemias are considered hyperregenerative according to reticulocyte count in the peripheral blood > 1,5%?
79. What types of anemias are considered hyporegenerative according to reticulocyte count in the peripheral blood ˂ 1,5%?
80. What can be possible causes leading to B12 vitamin deficiency in the patients?
81. How mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH) are changed in B12 deficiency anemia?
82. How mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH) are changed in folate deficiency anemia?
83. How mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) are changed in folate deficiency anemia?
84. How mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) are changed in B12 deficiency anemia?
85. How mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH) change in B12 deficiency anemia?
86. What is the pathogenetic mechanism of neurologic syndrome in B12 deficiency?
87. What is the pathogenetic mechanism of neurologic syndrome in B12 deficiency?
88. What is the pathogenetic mechanism of gastrointestinal syndrome in B12 deficiency?
89. What are pathogenetic mechanisms of neurologic syndrome in B12 deficiency?
90. What is the pathogenetic mechanism of atypical mitosis in B12 deficiency anemia?
91. What is the pathophysiological mechanism of clinical manifestations in folate deficiency anemia?
92. What is the pathophysiological mechanism of clinical manifestations in folate deficiency anemia?
93. What are pathophysiological mechanisms of clinical manifestations in B12 deficiency anemia?
94. What is the pathogenetic mechanism of iron deficiency anemia in chronic inflammation?
95. What are pathogenetic factors involved in development of iron deficiency anemia?
96. What is a pathogenetic factor involved in development of iron deficiency anemia?
97. How mean corpuscular volume (MCV) and mean corpuscular hemoglobin (MCH) are changed in iron deficiency anemia?
98. How mean corpuscular hemoglobin concentration (MCHC) and mean corpuscular hemoglobin (MCH) are changed in iron deficiency anemia?
99. How mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) are changed in iron deficiency anemia?
100. How hemoglobin (Hb), mean corpuscular hemoglobin (MCH) and seric ferritin are changed in iron deficiency anemia?
101. How hemoglobin (Hb), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) are changed in iron deficiency anemia?
102. How mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) are changed in iron deficiency anemia?
103. In what conditions can be found normocythaemic hypovolemia?
104. In what conditions can be found oligocythemic hypovolemia?
105. In what condition can be found polycythemic hypovolemia?
106. In what conditions can be found oligocythemic hypervolemia?
107. In what conditions can be found polycythemic hypervolemia?
108. What are compensatory reactions in anemias?
109. What are pathogenetic mechanisms of iron deficiency anemia which develop in chronic inflammatory diseases?
110. What metabolic effects of B12 are disturbed in megaloblastic anemia?
111. What is the pathogenetic mechanism of pernicious anemia?
112. What is the pathogeny of neurological manifestations in pernicious anemia triggered by deficiency of B12?
113. What is the pathogenesis of gastrointestinal syndrome in folate deficiency anemia?
114. What does represent pancytopenia?
115. How mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and seric ferritin are changed in iron deficiency anemia?
116. In what pathological conditions there is attested heart overload with resistance?
117. What is the role of NO deficiency in vascular remodeling associated with hypertension?
118. In what pathological conditions there is attested heart overload with volume?
119. In what pathological conditions there can develop dysmetabolic heart failure?
120. What are possible causes of right heart failure?
121. What is one of the immediate cardiac compensatory reactions in heart failure?
122. What are immediate cardiac compensatory reactions in heart failure?
123. What is one of the late cardiac compensatory reactions in heart failure?
124. What is one of the immediate extracardiac compensatory reactions in heart failure?
125. What are immediate extracardiac compensatory reactions in heart failure?
126. What is one of late extracardiac compensatory reaction in heart failure?
127. What is the mechanism of homeometric hyperfunction of the heart?
128. What is one of the mechanisms of heterometric hyperfunction of the heart?
129. For what heart disorders there is characteristic homeometric hyperfunction?
130. For what heart disorders there is characteristic heterometric hyperfunction?
131. What is the mechanism of hypervolemia in chronic heart failure?
132. What is the role of NO deficiency in vascular remodeling associated with arterial hypertension?
133. What is the role of endothelin 1 (ET-1) in increasing peripheral vascular resistance?
134. What are pathogenetic mechanisms of cardiac edema?
135. What is the role of angiotensin II (And II) in increasing peripheral vascular resistance?
136. What is the role of renal ischemia in pathogeny of cardiac edema?
137. What is the pathogeny of secondary hyperaldosteronism in pathogenesis of circulatory insufficiency?
138. What are Ang II mechanisms in the pathogenesis of essential hypertension?
139. In what pathological processes can be attested sinus bradycardia?
140. What is the main pathogenetic link of renovascular hypertension?
141. What cardiac arrhythmias are caused by excitability disorders?
142. What cardiac arrhythmias are caused by automatism disorders?
143. What are compensatory mechanisms of diastolic heart failure?
144. Which factors disturb heteromeric mechanism?
145. What factors lead to myocardial concentric hypertrophy?
146. What are mechanisms of peripheral cardiac edema?
147. What factors increase the peripheral vascular resistance?
148. What is the role of NO deficiency in pathogenesis of essential HTA?
149. What does hypercapnia represent?
150. What does hypoxemia represent?
151. What does polypnea represent?
152. What does bradypnea represent?
153. What does hyperventilation represent?
154. What changes of alveolar air composition are found in condition of hyperventilation?
155. What changes of arterial blood gas composition are attested in condition of hyperventilation?
156. What does hypoventilation represent?
157. What changes of alveolar air composition is attested under condition of hypoventilation?
158. What changes of arterial blood gas composition are attested in condition of hypoventilation?
159. What does pulmonary restriction mean?
160. What are the causes of extrapulmonary restriction?
161. What does the intraparenchymatouse pulmonary restriction mean?
162. What are the causes of intraparenchymatouse restrictive lung diseases?
163. What is the mechanism of shallow and accelerated breathing?
164. What changes of pneumogram are characteristic for the restrictive diseases?
165. How do the intrathoracic pressure and venous return to the heart change in shallow breathing?
166. What are the sources of proteolytic enzymes which damage pulmonary alveoli?
167. What is characteristic for pulmonary emphysema?
168. What is the main pathogenetic link in pulmonary emphysema?
169. What is the main pathogenetic link in pulmonary emphysema?
170. What changes of pulmonary parenchyma are characteristic for emphysema?
171. Which are the types of pulmonary emphysema?
172. Who develops more frequent the centracinar emphysema?
173. Who develops more frequent the panacinar emphysema?
174. Who develops more frequent the paraseptal emphysema?
175. What does the pneumothorax mean?
176. What is the main pathogenetic link of pneumothorax?
177. What does the pneumosclerosis mean?
178. What factors provoke obstruction of respiratory superior airways?
179. What are the causes of rare and deep breathing (stenotic breathing)?
180. What is one of the mechanisms of stenotic breathing?
181. In what pathological cases there can be attested expiratory dyspnea?
182. What are pathophysiological mechanisms of bronchial obstruction?
183. What active biological substances have bronchodilator effect?
184. What is the pathogeny of hypoxemia and hypercapnia in pulmonary congestion?
185. What is the pathogeny of hypoxemia and hypercapnia in pulmonary fibrosis?
186. What is the main pathogenetic loop in development of hypoxia and hypercapnia in pulmonary congestion?
187. What is pathogenesis of cardiac asthma with orthopnoea in pulmonary congestion?
188. What factors can trigger the development of pulmonary edema?
189. What factor triggers the development of pulmonary edema?
190. What is pathogenesis of pulmonary edema?
191. What factors can lead to development of acute respiratory distress syndrome in adults?
192. What factors control the diffusion coefficient of gas in the fluid environment in the body (blood)?
193. What physical parameters of alveolar air delay the gas diffusion across the alveolo-capillary membrane?
194. What processes impede the diffusion of gases across the alveolo-capillary membrane?
195. What factors reduce the oxygen capacity of the blood?
196. What factor reduces the oxygen capacity of the blood?
197. What hemoglobin compounds have low oxygen capacity?
198. What physico-chemical parameters delay oxyhemoglobin dissociation in systemic circulation?
199. What physico-chemical parameters enhance oxyhemoglobin dissociation in systemic circulation?
200. What does represent asphyxia?