«APPROVED»
at the educational meeting of the department of Pathophysiology
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Acting Head of the department of Pathophysiology Bogomolets NMU, Doctor of Medicine
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List of questions to prepare students for the final control (exam) by educational level of training specialists of the second (master's) level of higher education in the field of knowledge 22 «Health care» specialty 226 «Pharmacy, industrial pharmacy».

MODULE 1. GENERAL PATHOLOGY

1. Pathogenesis. Definition. Pathological (destructive) and adaptive - compensatory (protective) reactions in pathogenesis (on the example of blood loss).
2. The value of local and general in pathogenesis (show an example of inflammation).
3. Specific and nonspecific mechanisms of disease development.
4. Cause-condition relationship in pathogenesis, the role of circulus vitiosus in pathogenesis (example).
5. Mechanisms of ionizing radiation pathogenic effect on the body. Water radiolysis, radiotoxins. Radiosensitivityof tissues.
6. Acute radiation sickness, its forms. Bone marrow form of acute radiation sickness, main syndromes, their pathogenesis.
7. Long-term effects of ionizing radiation.
8. Effects of high atmospheric pressure on the body. Pathogenesis of compression and decompression syndromes (caisson disease). Explosive decompression.
9. Hereditary and congenital diseases, definition of concepts. Mutations as a cause of hereditary diseases.
10. Types, causes, consequences of mutations. The role of chromosomal aberrations in the emergence of tumors.
11. Classification of hereditary diseases. Give examples of monogenic hereditary diseases with different types of inheritance.
12. Polygenic (multifactorial) diseases. Explain the example of diabetes.
13. Chromosomal diseases, mechanisms of origin. Karyotypes and general characteristics of Down, Klinefelter, Shereshevsky - Turner syndromes.
14. Arterial hyperemia: definition, types, causes , mechanisms of development, manifestations and consequences.
15. Venous hyperemia: definition, causes , mechanisms of development, manifestations and consequences.
16. Ischemia: definitions, manifestations, types, causes, mechanisms of development and consequences.

17. Thrombosis: definitions, major pathogenetic factors and thrombus formation phases. The consequences of thrombus formation.
18. Stasis: types , pathogenesis and consequences.
19. Disturbances of microcirculation, classification. Sludge syndrome: definition, causes and mechanisms of development.
20. Inflammation. Definition. Signs of inflammation, mechanism of development.
21. Stages of inflammation. Stage of alteration, types, causes and mechanisms of development.
22. Inflammatory mediators, classification. Mechanisms of formation and biological action of plasma inflammatory mediators.
23. Cellular origin inflammatory mediators; characteristic of their biological effects.
24. Changes in local circulation in inflammation (by J. Kongame). Pathogenesis of arterial hyperemia in inflammation.
25. The mechanism of transition of arterial hyperemia to venous in inflammation
26. Exudation, its causes and mechanisms. Types of exudates.
27. Mechanisms of the edge state of leukocytes. Adhesion molecules, their role in the process of marginal standing and leukocyte emigration.
28. Mechanisms of leukocyte emigration. The sequence of output of leukocytes in the inflammation
29. The role of leukocytes in the pathogenesis of inflammation: at different stages of inflammation, in the development of local and general manifestations of inflammation
30. The stage of proliferation in inflammation, its mechanisms. The concept of growth factors.
31. General manifestations of inflammation.
32. Effect of hormonal factors on inflammation. Pro-inflammatory and anti-inflammatory hormones. Mechanism of anti-inflammatory action of glucocoricoids.
33. Fever: definition of the concept, etiology of fever. Types of pyrogens. Chemical nature and origin of secondary pyrogens, mechanism of their action.
34. Changes in the work of the center of thermoregulation during fever. The concept of the founding point of thermoregulation.
35. Stage of fever. Changes in heat production and heat transfer in different stages of fever. Types of temperature curves.
36. Disruption of energy exchange. The main exchange, its changes in pathology.
37. Starvation: definition, classification. Characteristics of major metabolic and metabolic disorders in different periods of complete fasting (with water).
38. Protein-calorie deficiency, its forms. Pathogenesis of the main clinical manifestations.
39. Hypoxia: definition of the concept, classification. Adaptive-compensatory and pathological reactions in hypoxia.
40. Characteristics of different types of hypoxia (hypoxic, respiratory, circulatory, hemic, tissue)
41. Reactivity. Definition of the concept. Types of reactivity.

42. Resistance. Types of resistance.
43. Immunological reactivity, cellular and humoral mechanisms. Functions of B lymphocytes and different subpopulations of T lymphocytes.
44. Classes of antibodies, features of their function and effects of deficiency.
45. Types of disorders of immunological reactivity.
46. Disorders of the basic stages of the immune response. Violation of antigen recognition, antigen presentation. The role of interleukins and other cytokines in the regulation of the immune response.
47. Types of immune deficiency. Etiology, pathogenesis, types of primary immunodeficiencies.
48. Typical manifestations of immune deficiency are the effects of B-lymphocyte deficiency and different subpopulations of T-lymphocytes.
49. Secondary immunodeficiencies (immunosuppressive states) - etiology, pathogenesis.
50. AIDS. Etiology, pathogenesis.
51. Immunological tolerance. Formation mechanisms. The role of the thymus in maintaining tolerance. Consequences of violation of tolerance.
52. Allergy. Definition of the concept, principles of classification

MODULE 2. PATHOPHYSIOLOGY OF SYSTEMS AND ORGANS

1. Anemia: definition of the concept, classification of anemia (by etiology, pathogenesis, type of erythropoiesis, bone marrow regenerative capacity, color index, changes in erythrocyte size). Examples of hypo- and hyperchromic anemia.
2. Degenerative and regenerative forms of red blood cells. Etiology, pathogenesis, hematological characteristics of posthemorrhagic anemia (acute and chronic).
3. Hemolytic anemia. Classification of hemolytic anemias by etiology, by place of hemolysis. Mechanisms of hemolysis.
4. Acquired hemolytic anemia.
5. Hereditary hemolytic anemia. Hereditary membranopathy.
6. Inherited hemolytic anemia. Enzymopathy.
7. Inherited hemolytic anemia. Hemoglobinopathy. Sickle cell anemia (genetic defect that causes it, type of inheritance, pathogenesis, blood picture)
8. Inherited hemolytic anemia. Pathological forms of erythrocytes, in various types of hemolytic anemias.
9. Classification of anemias associated with disorders of erythropoiesis (deficiency, dysregulatory, hypo-, aplastic, etc.), general characteristics of causes and mechanisms of development.
10. Iron deficiency anemia. Etiology, pathogenesis, changes in peripheral blood. The concept of sideroblastic anemia.
11. Vitamin B12 and / or folic acid deficiency anemia. Causes of vitamin B12 deficiency and folic acid. Addison-Birmer's malignant anemia. Common disorders in the body due to vitamin B12 deficiency and / or folic acid. Hematologic characteristics of B12-, foliodeficient anemia.

12. Leukocytosis, principles of classification. Causes and mechanisms of development of reactive and redistributable leukocytosis.
13. Neutrophilic, eosinophilic, basophilic, lymphocytic and monocytic leukocytosis (in which pathological processes and diseases each of these species occurs)
14. The concept of nuclear shift of neutrophil granulocytes, its variants. Leukemoid reactions. Examples of leukocytic formulas in different types of shifts to the left.
15. Leukopenia. Causes and mechanisms of development, consequences for the body. Agranulocytosis. Etiology, pathogenesis. The main clinical manifestations.
16. The concept of hemoblastosis. Leukemia. Classification of leukemias.
17. Etiology of leukemia: physical, chemical, biological factors. Viruses that cause leukemia in humans.
18. Pathogenesis of acute and chronic leukemias. Blood picture in acute and chronic leukemia; systemic disorders in the body in leukemia.
19. The manifestations of tumor progression in leukemia, the concept of monoclonal and polyclonal stage of leukemia, "blast crisis", leukemic infiltrates.
20. Mechanisms of platelet-vascular and coagulation hemostasis
21. Platelet-vascular hemostasis disorders. Vasopathies.
22. Etiology and pathogenesis of thrombocytopenia and thrombocytopathy. Mechanisms of disorders of adhesion, platelet aggregation, release of platelet granules.
23. Coagulation hemostasis disoorders: causes and mechanisms of disorders of individual blood coagulation phases. Anticoagulation and fibrinolysis disorders.
24. DIC syndrome. Etiology and pathogenesis, main manifestations.
25. Definition of concepts of circulatory insufficiency, heart failure. The concept of acute and chronic circulatory insufficiency.
26. Types of heart failure (in the course, in the pathogenesis, in the predominant lesions of different parts of the heart)
27. Types of heart overload.
28. Intracardiac immediate compensation mechanisms and their characteristics
29. Myocardial hypertrophy, the stage of development of hypertrophy according to Meyerson.
30. Features of innervation, blood supply, structure and metabolism of hypertrophic heart.
31. Disorder of hemo- and cardiodynamics in circulatory insufficiency conditions.
32. Pathogenesis of chronic heart failure. Mechanisms of development of the main clinical manifestations of chronic circulatory insufficiency (hypoxia, acidosis, shortness of breath, cyanosis, edema).
33. Heart failure from myocardial injury, its types.
34. Non-coronarogenic heart damage, their etiology and pathogenesis, experimental modeling.
35. Pathogenesis of neurogenic heart lesions.
36. Coronarogenic heart damage. Insufficiency of coronary circulation. Causes and mechanisms of development.

37. Ischemic heart disease, its manifestations. Angina, myocardial infarction.
38. The manifestations and complications of myocardial infarction. Necrotic-resorption syndrome, Dressler's syndrome.
39. Reperfusion syndrome, etiology and pathogenesis.
40. Acute heart failure, etiology, manifestations.
41. Disorders of the heart rhythm. Types of arrhythmias.
42. Violation of automatism.
43. Extrasystoles: mechanism of origin, types of extrasystoles and main features of ECG in different types of extrasystoles.
44. Violation of conductivity. Blockades and main electrocardiographic manifestations of atrioventricular blockade I, II, III degree. Complete atrioventricular blockade, Morgany-Adams-Stokes syndrome.
45. Rhythm assimilation disorders.
46. Simultaneous disorders of automatism and conductivity. Shivering, atrial flicker. Atrial fibrillation. Ventricular fibrillation.
47. Hypertension: definitions, principles of classification. Primary and secondary arterial hypertension. Hemodynamic variants of arterial hypertension.
48. Experimental modeling of hypertension.
49. Primary arterial hypertension as a multifactorial disease. Etiology.
50. Pathogenesis of hypertension. The role of the kidneys in the pathogenesis of hypertension.
51. Causes and mechanisms of secondary arterial hypertension development.
52. Arterial hypotension. Etiology and pathogenesis of acute and chronic arterial hypotension. Collapse.
53. Arteriosclerosis: definition, classification. General characteristics of various forms of arteriosclerosis (typical localization, manifestations, complications).
54. Atherosclerosis. Etiology: risk factors, causative factors.
55. Experimental modeling of atherosclerosis.
56. Pathogenesis of atherosclerosis. Theories of atherogenesis.
57. The role of endothelial damage in atherogenesis. Factors causing damage. The role of growth factors.
58. Significance of disorders of blood content of major lipoproteins fractions. The role of hereditary and acquired disorders of receptor-mediated transport of lipoproteins (LP) (disorde of LP receptors, modification of LP) in atherogenesis.
59. Insufficiency of external respiration, definition of concept, classification.
60. Causes and mechanisms of alveolar ventilation disorders.
61. Obstructive and restrictive disorders of alveolar ventilation
62.. Causes and mechanisms of gas diffusion disorders.
63. Causes and mechanisms of ventilation-perfusion ratio in the lungs disorders.
64. Disorders of regulation of external respiration. Bradypnoe, tachypnoe, hyperpnoe, apnea.
65. Periodic respiration, terminal respiration. Etiology, pathogenesis.
66. Shortness of breath (dyspnoea). Causes and mechanisms of its development.
67. Digestion disorders in the oral cavity. Etiology, pathogenesis of caries and paradontosis. Causes, mechanisms and consequences of salivary glands disorders.

68. Disorders of the secretory functions of the stomach. Pathological gastric secretion, types; causes and mechanisms of development. Role of nervous and humoral mechanisms in violation of secretion.
69. Peptic ulcer. Etiology and pathogenesis. Factors of damage, causes of decrease in protective properties and regenerative capacity of the stomach and duodenum. Pathogenesis of stress ulcers.
70. Didestive disorders in the intestines, etiology, pathogenesis.
71. Disorders of the cavity and parietal digestion in the intestine. Malabsorption syndrome: definitions, manifestations.
72. Etiology and pathogenesis of acute pancreatitis. Pathogenesis of pancreatic shock.
73. Disorders of the motor function of the stomach and intestines. Mechanisms of development of the main manifestations of gastric and intestinal dyskinesias.
74. Intestinal obstruction: types, etiology, pathogenesis.
75. Liver failure: definition, classification according to different principles of classification.
76. Etiology and pathogenesis of liver failure.
77. Experimental models of liver failure.
78. Disorders of carbohydrate, protein and lipid metabolism in liver failure.
79. Disruption of liver detoxification function. Types, etiology and pathogenesis of hepatic coma. The role of cerebrotoxic substances in the development of hepatic encephalopathy.
80. Disorders of biliary function of the liver. Types of jaundice. Their etiology and pathogenesis.
81. Disorders of the exchange of bile pigments in different types of jaundice.
82. Effects of bile acids on the body. Cholemic syndrome.
83. Dyscholia. Cholelithiasis.
84. Portal hypertension syndrome: etiology, pathogenesis, manifestations. Mechanisms of ascites development.
85. Causes and mechanisms of impaired glomerular filtration, tubular reabsorption and secretion. The use of functional tests to determine the status of the main functions of the kidneys.
86. Quantitative and qualitative changes of urine. Oliguria, anuria and polyuria. Water, osmotic and hypertensive diuresis. Hypo- and isostenuria.
87. Pathological components of urine: proteinuria, cylindruria, glucosuria, aminoaciduria, hematuria, leukocyturia. The concept of selective and non-selective proteinuria and its mechanisms.
88. Etiology and pathogenesis of acute renal failure.
89. Etiology and pathogenesis of chronic renal failure. Uremia.
90. Mechanisms of development of general manifestations of renal failure: edema, hypertension, anemia, acidosis, osteodystrophy.
91. Diffuse glomerulonephritis: etiology, pathogenesis, experimental models.
92. Nephrotic syndrome. Etiology, pathogenesis.
93. General mechanisms of endocrine disruption. Hypofunction and hyperfunction of endocrine glands; primary, secondary endocrinopathy

94. Dysregulatory endocrinopathy.
95. Glandular endocrinopathy.
96. Peripheral endocrinopathy.
97. Pathology of the hypothalamic-pituitary system. Causes and mechanisms of development of syndromes of excess and lack of pituitary hormones.
98. Etiology, pathogenesis, clinical manifestations of panhypopituitarism. Causes, mechanisms, clinical manifestations of partial insufficiency of adenohypophysis hormones (STG, TSH, ACTH, gonadotropins).
99. Pathophysiology of the neurohypophysis. Diabetes mellitus.
100. Adrenal insufficiency: types (primary, secondary; acute, chronic). Etiology, pathogenesis, clinical manifestations of chronic adrenal insufficiency. Addison's disease.
101. Hyperfunction of the adrenal cortex. Hyperfunction of the glomerular zone of the cortex - primary and secondary hyperaldosteronism, their etiology, manifestations.
102. Hyperfunction of bundle zone of adrenal cortex. Cushing's Disease and Syndrome. Manifestations associated with excess glucocorticoids.
103. Pathology of adrenal medulla. Feochromocytoma.
104. Hypothyroidism: causes and mechanisms of development, pathogenesis of major disorders in the body.
105. Hyperthyroidism: causes and mechanisms of development, pathogenesis of major disorders in the body.
106. Goiter: types of goiter, their etiology and pathogenesis; characteristic of disorders of gland function.
107. Disorders of the parathyroid glands.
108. Impaired genital function: primary and secondary hyper- and hypogonadism.
109. Stress. Stages and mechanisms of development. The concept of stress damage and “adaptation diseases”.
110. Features of development of typical pathological processes in the nervous system.
111. Disorders of sensory functions of the nervous system.
112. Pain. Types of pain. Modern ideas about the causes and pathogenesis of pain. General reactions of the body to pain. Natural antinociceptive mechanisms.
113. Disorders of the motor function of the nervous system.
114. Disorders of trophic function of nervous system. Neurogenic dystrophy. Etiology, pathogenesis.
115. Aging. Modern theories of aging.
116. Extreme states, definitions, types of extreme states.
117. Shock. Definition, etiology of shock states. Types of shocks.
118. Pathogenesis of shock conditions. Disorders of the neuro-endocrine system, impaired systemic hemodynamics and microcirculation. Cell disorders in shocks. Shock organs.
119. Features of development of different types of shock: hypovolemic, cardiogenic, septic, anaphylactic, traumatic. Crash syndrome.
120. Collapse. Etiology, pathogenesis.

121. Coma. Definition, classification. Role of brain energy disorders, osmotic disorders, ionic and acid - base homeostasis in coma pathogenesis.
122. Pathogenesis of various types of comas: in mechanical trauma, metabolic comas (diabetic, hepatic, uremic).

8. Profile questions to prepare for the exam

1. Principles of pharmacological influence on the main consequences of cell damage (hypoxia, the action of physical, chemical and infectious agents, immune reactions, genetic defects).
2. Pharmacological facilities of correction of cell damage: O_2-dependent ones (so called "hypoxic triad", oxidative stress).
3. Directions of pharmacological correction of cell damage: calcium-dependent ones (so called "Calcium triad") and damage caused by ATP deficiency or disorders of cell membrane permeability.
4. Directions of pharmacological correction of cell damage: electrolyte-osmotic and acidotic mechanisms, of intracellular edema and acidosis correction.
5. Necrosis and apoptosis, their characteristic features. Extrinsic and intrinsic pathways of apoptosis, perspectives for the investigation of its pharmacological correction (use example of anticancer drugs action for explanation).
6. Basic principles of pharmacological correction of viral infection types.
7. Basic principles of pathogenetic pharmacological correction of of intoxication according to the origin of the toxic substances.
8. Principles of pathogenetic pharmacological correction of general effect of low temperature on the body (hypothermia).
9. General principles of pharmacological correction in ionizing radiation damage.
10. Principles of pharmacological correction of bone marrow form of acute radiation disease in ionizing radiation damage.
11. Specifics of drug administration according to the patient's reactivity, dependence on age, sex, heredity and condition of nervous and endocrine systems.
12. Possible pharmacological facilities to increase the resistance of the human body.
13. Principles of pathogenetic pharmacological correction of disorders of non-specific and specific (immunological) resistance.
14. Characteristics of the main stages of the immune response (humoral and cellular). Immune system deficiency: primary and secondary immunodeficiencies. Contemporary approaches of immunological correction.
15. The main principles of pathogenetic pharmacological correction of secondary immunodeficiencies (immunosuppressive conditions).
16. Principles of etiotropic and pathogenetic therapy of AIDS.
17. AIDS: the main clinical periods, manifestations and complications. Approaches of symptomatic therapy.
18. Etiotropic therapy and preventive measures of allergy.
19. Principles of pathogenetic and symptomatic therapy of allergy.
20. The main types of allergy mediators. Rationale for pharmacological

approaches of mediators effects correction.
21. Principles of pharmacotherapy of anaphylactic reactions.
22. Principles of pathogenetic therapy of autoimmune disorders.
23. The main principles of pharmacological correction of pseudoallergy.
24. Principles of pathogenetic therapy of different types of hypoxia (hypoxic (exogenous), respiratory, hemic, circulatory, tissue).
25. General principles of pathogenetic therapy of acute inflammation.
26. Principles of pathogenetic correction of inflammation depending on the stage.
27. Correction principles of pathological effects of inflammatory mediators. Pathophysiological basis of nonsteroidal anti-inflammatory drugs (NSAID) administration.
28. General principles of pathogenetic and symptomatic therapy of chronic inflammation.
29. Pathophysiological basis of glucocorticoids administration in allergic and autoimmune inflammation.
30. General principles of antipyretic therapy.
31. General principles of pathogenetic and symptomatic therapy of fever.
32. Pathophysiological basis of pyrotherapy.
33. Pathophysiological basis of pharmacological correction of microcirculation disorders.
34. Rationale for antibacterial therapy administration.
35. General principles of pathogenetic pharmacotherapy of tumors.
36. Substantiation of chemotherapy for the treatment of malignant tumors.
37. Principles of pharmacological correction of hyperglycemic states.
38. Principles of pathogenetic pharmacotherapy of type 1 diabetes mellitus.
39. Principles of pathogenetic correction of type 2 diabetes mellitus.
40. General principles of correction of long-term chronic complications of diabetes mellitus (micro- and macroangiopathies).
41. Principles of pharmacological correction of different types of diabetic comas.
42. General principles of correction of acidosis.
43. General principles of correction of alkalosis.
44. Principles of pathogenetic and symptomatic therapy of edema.
45. General principles of correction of cardiac edema.
46. General principles of correction of lymphatic edema (lymphedema).
47. General principles of correction of oncotic edema (due to decrease of colloid osmotic pressure).
48. Effects of drugs on protein metabolism, on nitrogen balance, on azotemia.
49. Possible correction principles of protein composition disorders (hyper-, hypo- and dysproteinemia).
50. Principles of possible correction of hereditary disorders of aminoacids metabolism: phenylketonuria, alkaptonuria, albinism, tyrosinosis.
51. Principles of possible correction of gout, hyper- and hypouricemia.
52. Pharmacological correction of alimentary hyperlipidemia.

53. General principles of correction of hyper-, hypo- and dyslipoproteinemia.
54. Pathogenetic basis of antiatherosclerotic drugs action.
55. General pathogenetic principles of obesity treatment.
56. Principles of pharmacological correction of acute and chronic blood loss.
57. Principles of pharmacological correction of anemias due to disorders of erythropoiesis, general characteristics of causes and mechanisms of their development.
58. Principles of pharmacotherapy of iron deficiency anemia.
59. Principles of pharmacotherapy of anemia caused by deficiency of vitamin B12 and/or folic acid: causes, pathogenesis of symptoms.
60. Principles of pharmacotherapy of acute leukemia.
61. Principles of pharmacotherapy of chronic leukemia.
62. Pathogenesis of clinical syndromes in leukemia.
63. Principles of pharmacological correction of acquired coagulopathies.
64. Hemophilia as a hereditary disorder of coagulation (secondary) hemostasis: types, etiology, pathogenesis, principles of pharmacotherapy.
65. Von Willebrand disease (VWD) as a disorder of vascular-platelet and coagulation hemostasis: types, etiology, pathogenesis and clinical manifestations. Principles of pharmacotherapy of Von Willebrand disease (VWD) as a disorder of vascular-platelet and coagulation hemostasis.
66. Principles of pharmacological correction of disseminative intravascular coagulation (DIC) syndrome.
67. Principles of pathogenetic pharmacotherapy of of ischemic heart disease (IHD), myocardial infarction.
68. Principles of pharmacotherapy of reperfusion syndrome in pathogenesis of myocardial infarction.
69. Basic principles of pharmacotherapy of acute heart failure.
70. Principles of pathogenetic pharmacological correctionof of chronic heart failure and its complications.
71. General approaches of pharmacological correction of different hemodynamic types of arterial hypertension.
72. General principles of pharmacotherapy of essential hypertension.
73. General principles of pharmacotherapy of secondary arterial hypertension.
74. General principles of preventive pharmacotherapy of atherosclerosis as a multifactorial disease.
75. Principles of pathogenetic pharmacological correction of atherosclerosis and of endothelial injury as initial process in atherogenesis.
76. Principles of pathogenetic correction of bronchial obstruction.
77. Disorders of digestion in oral cavity. Etiology and pathogenesis of caries, periodontitis and periodontal disease.
78. Principles of etiotropic, pathogenetic and symptomatic pharmacotherapy of peptic gastric and duodenal ulcer.
79. Principles of its pharmacotherapy of acute pancreatitis.
80. Principles of detoxification of acute hepatic encephalopathy and hepatic coma.

81. Principles of pharmacological correction of different types of jaundice in disorders of excretory (biliary) function of the liver.
82. Principles of pharmacotherapy of cholelithiasis.
83. Principles of pharmacotherapy of acute diffuse glomerulonephritis.
84. Basic principles of pharmacological correction of acute renal failure.
85. Basic principles of pharmacotherapy of chronic renal failure.
86. Principles of pharmacological correction of uremic coma.
87. Principles of pharmacological correction of diabetes insipidus.
88. Principles of its pharmacological correction of of acute adrenocortical insufficiency.
89. Principles of hormone replacement therapy of adrenocortical insufficiency. Withdrawal syndrome: manifestations and prevention.
90. The concept of iatrogenic endocrinopathies caused by irrational pharmacotherapy or self-medication, their pathogenesis and complications.
91. Principles of pathogenetic pharmacotherapy of hypothyroidism, autoimmune Hashimoto's thyroiditis (myxedema).
92. Principles of pathogenetic pharmacotherapy of hyperthyroidism, toxic diffuse goiter (Graves' disease).
93. Principles of preventive pharmacotherapy of goiter of thyroid gland.
94. Principles of pathogenetic pharmacological correction of pain.
95. The main principles of pharmacological correction of shock states, collapse, coma.
96. Principles of possible pharmacological correction of shock depending on stage of its development.
97. The main principles of pharmacological correction of different types of shock (hypovolemic, cardiogenic, traumatic, burn, anaphylactic, septic one, crash syndrome.
98. Principles of pharmacological correction of collapse according to etiology and pathogenesis.

Recommended literature

BASIC

1. Pathophysiology / M.V. Kryshtal., V.A.Mikhnev, N.N.Zayko et al. – Kyiv: Medicine Publishing, 2017. – 656 p.
2. Ataman O.V. Crash Course in Pathophysiology. Questions & Answers. – Vinnytsia: Nova Knyha, 2019. - 520 p.

ADDITIONAL

1. Fundamentals of pathology according to Robbins. In 2 volumes. Vinei Kumar, Abul K. Abbas, John C. Astaire. Translation of 10 English editions / Translator I. Davydenko, I. Sorokina. K.: VSV "Medicine", 2020. - 532 p.
2. Pathophysiology of Disease: An Introduction to Clinical Medicine. Gary D. Hammer, Stephen J. McPhee. – McGraw Hill / Medical; 8th edition (November 26, 2018), 832 p.

3. Essentials of Pathophysiology : Concepts of Altered Health States. – [4th ed.] / C. Porth, K.J. Gaspard. - Philadelphia : Wolters Kluwer, 2015. – 1222 p.
4. Molecular biology of the cell / Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter - Sixth edition, 2015.
5. Oral Pathology: Clinical Pathologic Correlations / J.A. Regezi, J.J. Sciubba, R.C.K. Jordan. – Elsevier Health Sciences, 2016. – 496 p.
6. Oral Pathology. – [4th ed.] / J.V. Soames, J.C. Southam. – Oxford University Press, 2005. – 278 p.

Information resources

1. The program of the course "Pathological Physiology", https://nmuofficial.com/zagalni-vidomosti/kafedri/department-of-pathophysiology/
2. Library of Bogomolets NMU, https://librarynmu.com/
3. National Scientific Medical Library of Ukraine, https://www.library.gov.ua/
4. Vernadskyi National Library of Ukraine, http://www.nbuv.gov.ua/
5. The official page of the Department of Pathophysiology, http://nmu.ua/zagalni-vidomosti/kafedri/department-of-pathophysiology/informatsiya-dlya-studentiv/
6. Specialized medical and biological portals on the Internet.