METHODOLOGICAL INSTRUCTIONS FOR INDIVIDUAL WORK OF STUDENTS

Discipline: General pathology

Discipline code: GP 3214

EP name and code: 6B10115 “Medicine”

Volume of study hours (credits): 90 hours/3 credits

Course and semester of study: III year, V semester

Volume of individual work: 120 hours

Shymkent, 2024

Methodological instructions for individual work of students are developed in accordance with the working study program of the discipline (syllabus) 6B10115 “Medicine” and discussed at the department meeting

Protocol No. 11 « 26 » 05 2024.

Head of the Department _____ Sadykova A.Sh.

Class No. 1

1. Topic: Action of pathogenic environmental factors. The role of reactivity in pathology.

2. Goal: to teach to explain the influence of external and internal factors on the reactivity of the body; explain the basic mechanisms of formation of the body's reactivity.

3. Tasks:

1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.

4. Form of completion/evaluation: Case - study /checklist.

5. Performance criteria: see Appendix No. 1.

6. Delivery time: 1-2 days.

7. Literature: see Appendix No. 2.

8. Control

Questions

1. Reactivity and resistance. Definition of concepts.
2. Types, forms of reactivity, their characteristics.
3. Factors that determine reactivity: the role of genotype, age, gender, constitution.
4. Pathological reactivity. Definition of the concept. Characteristic.
5. Immunity, its types.

Tests

1. Reactivity is….

A. the property of the organism as a whole to respond to changes in life activity to environmental influences

B.the body's response to a stimulus

C. protective reaction of the body to the action of a pathogenic stimulus

D. resistance of the body to pathogenic influences

E.nonspecific resistance of the body

2. Dysergy is called... body’s response to a stimulus.

A. weak

B.reduced

C. perverted

D.increased

E.adequate

3. Specific reactivity is a property of ….

A.organism to respond in a certain way to the influence of physical factors

B. this type of response to environmental influences

C. groups of individuals of a given species respond to environmental influences

D. body to respond to an antigenic stimulus

E. a specific organism to respond to environmental influences

4. Nonspecific pathological reactivity includes reactivity in... conditions.

A. allergic

B. immunodeficient

C.immunosuppressive

D. immunoproliferative

E.shock

Situational task

20 minutes after injecting an antibiotic into a patient with phlegmon of the leg, he developed anxiety, a feeling of fear, redness of the face, and a blood pressure of 180/90 mm Hg. After another 20 minutes, the patient’s condition sharply worsened: weakness, confusion, convulsions appeared, blood pressure was 75/55 mm Hg.

Questions
1. What condition has the patient developed?
2. What are the treatment options for this condition?

Class No. 2

1. Topic: The role of heredity in pathology. General body reactions to damage

2. Purpose: - to study the signs of pre-disease, the conditions for its occurrence and transition to disease. - study the general reactions of the body to damage; conduct pathophysiological analysis protective-adaptive reactions to stress.

3. Tasks:
1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.

4. Form of completion /evaluation: Case - study /checklist.

5. Performance criteria: see Appendix No. 1.

6. Due date: on the 3rd day.

7. Literature: see Appendix No. 2.

8. Control

Questions
1. What are the methods for determining the hereditary nature of diseases?
2. What are the general etiology and pathogenesis of hereditary forms of pathology?
3. What are the types of inheritance of diseases?
4. What are the ideas, causes, manifestations of chromosomal diseases?
5. What are the principles of prevention and treatment of hereditary forms of pathology?
6. What are the stages of stress?
7. What is a triad of Selye ?
8. What is protective - adaptive and pathogenic significance of stress?
9. What is shock?
10. What is coma?

Tests
1. Hereditary diseases are diseases...
A. which are based on damage to the genetic apparatus
B. with which the baby is born and which are not associated with damage to the genetic apparatus
C.caused in utero in the fetus by pathogenic factors
D. which are based on pathological changes in the phenotype
E.with hereditary predisposition
2. Chromosome translocation is ….
A. rotate a chromosome section 180 degrees
B. loss of a separate section of a chromosome
C. inclusion of an extra chromosome section
D. exchange of non-homologous fragments between two chromosomes
E.multiple repetition of the same chromosome section
3. The mutagenic effect of high temperature on a biological object is associated with ….
A. phenomena of cavitation in the cell
B.increased mobility of molecules and atoms in the gene
C. photon capture by the cell genome
D. the appearance of radiotoxins in the cell
E.ionization of atoms and molecules
4. Mutation of the structural gene underlies the development of....
A. phenylketonuria

B. alkaptonuria
C.albinism
D. afibrinogenemia
E. sickle cell anemia

No. 3

1. Topic: Disorders of protein metabolism. Disorders of mineral metabolism and vitamin metabolism.

2. Purpose: - to study the etiopathogenesis of protein metabolism disorders and starvation.
- study the etiopathogenesis of mineral metabolism disorders.
- study the causes and mechanisms of development of hypo- and hypervitaminosis.

3. Tasks:
1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.

4. Form of completion /evaluation: Case - study /checklist.

5. Performance criteria: see Appendix No. 1.

6. Due date: on the 5th day.

7. Literature: see Appendix No. 2.

8. Control

Questions
1. What are the disorders in the formation and breakdown of proteins?
2. What are the changes in intermediate amino acid metabolism?
3. What are the disorders of the final stage of protein metabolism?
4. What are the metabolic disorders of macroelements?
5. What are micronutrient metabolic disorders?
6. What are the characteristics of the exogenous form of hypovitaminosis?
7. What are the characteristics of the endogenous form of hypovitaminosis?
8. What is the etiopathogenesis of the main symptoms of various types of hypovitaminosis ?
9. What is the pathogenesis of clinical manifestations of hypervitaminosis?

Tests
1. A positive nitrogen balance in the body develops with....
A) diabetes mellitus
B) excess glucocorticoids
C) protein starvation
D) tumor cachexia
E) excess insulin
2. Negative nitrogen balance in the body occurs ….
A) for burn disease
B) with hyperinsulinism
C) during the growth period of the body
D) during pregnancy
E) with an excess of anabolic hormones
3. Hypoproteinemia is....
A) a decrease in the total amount of protein, mainly due to albumin
B) an increase in the content of proteins in the blood
C) the appearance of unusual (pathological proteins) in the blood
D) and changes in the ratio of blood proteins
E) a decrease in the content of gamma globulins in the blood
4. Vitamin A deficiency leads to the development of...
A) hemerolopia

B) calcification
C) xerophthalmia
D) osteomalacia
E) hemorrhagic diathesis
5. Manifestations of hypovitaminosis B_1 include ….
A) calcification
B) polyneuritis
C) osteomalacia
D) xerophthalmia
E) hemorrhagic diathesis

No. 4

1. Topic: Midterm examination No. 1.
2. Goal: to consolidate the material covered within 7 days.
3. Tasks:
1. Complete test tasks on the topics covered.
2. Case - study.
4. Form of completion /assessment: midterm examination 2-stages in the form of testing and case - study / checklist for midterm examination
5. Performance criteria: see Appendix No. 1.
6. Due date: on the 7th day.
7. Literature: see Appendix No. 2.
8. Control

Tests

1. The onset of clinical death is indicated by ….
A) cessation of breathing and heartbeat, lack of reflexes
B) rare pulse
C) confusion
D) a sharp decrease in blood pressure
E) rare shallow breathing
2. Duration of clinical death – ….
A) 5-6 min
B) 1-2 min
C) 30-60 min
D) 1-2 hours
E) 1-2 days
3. When clinical death occurs, the functions of... are turned off first.
A) parenchymal organs
B) endocrine glands
C) central nervous system
D) immune system
E) reproductive system
4. Pre-disease is....
A) a state intermediate between health and illness
C) the simplest form of the pathological process
C) typical pathological reaction of the body
D) first stage of the disease
E) a combination of damage and adaptive mechanisms
5. Factors contributing to the development of atherosclerosis are....
A) hypocholesterolemia

B) suppression of atherogenesis
C) lipidemia
D) hypercholesterolemia
E) hypoglycemia
6. An external condition that contributes to the occurrence of human disease is....
A) constitutional anomalies
B) altered heredity
C) malnutrition
D) early childhood
E) old age
7. Age plays a role in the etiology of the disease as … .
A) only conditions
C) both causes and conditions
C) only reasons
D) only a factor contributing to the occurrence
E) only a factor that prevents the occurrence
8.... reactivity refers to the stronger effect of hypoxia on adults than on newborns.
A) age
B) species
C) biological
D) sex
E) individual
9. The uniqueness of each individual is determined by ….
A) individual reactivity
B) sex
C) species reactivity
D) constitutional features
E) group reactivity
10. Alcoholism is...
A) a type of drug addiction
B) a type of substance abuse
C) bad habit
D) psychosomatic illness
E) congenital mental illness
11. Macrocytosis of erythrocytes and leukopenia in patients with alcoholism are caused by....
A) toxic effects of ethanol on bone marrow stem cells
B) folic acid deficiency
C) iron deficiency
D) increased destruction of red blood cells and leukocytes in the blood during severe alcohol intoxication
E) thiamine deficiency
12. Early manifestations of opium withdrawal syndrome include....
A) sweating
B) fever
C) feeling of anxiety, impatience
D) drowsiness
E) constriction of the pupils
13. Necrosis is...
A) irreversible cell damage
B) a total change in the cytoplasm of the damaged cell

C) transformation of a cell into a malignant one
D) genetically programmed cell death
E) trophic cell disorders
14. Shrinkage of the cell nucleus is called....
A) pyknosis
B) karyorrhexis
C) karyolysis
D) autolysis
E) necrobiosis
15. The difference between apoptosis and necrosis is....
A) occurs with severe damage to cell membranes
B)o ensures the removal of “excess” cells under physiological conditions
C) and initiates inflammation
D) accompanied by “shrinking” of cells
E) lysosomal enzymes play a role in the implementation of its mechanisms
16.Which mediator most stimulates protein synthesis in the liver?
acute phase?
A) GTP
B) IL-1
C) IL-6
D) IL-0
E) TNFa
17. The primary exogenous pyrogen is
A) Y-IFN
B) IL 1
C) lipopolysaccharides
D) TNFα
E) IL-0
18. What is the main link in the pathogenesis of fever
A) production of endopyrogens in the body
C) entry of exopyrogens into the body
C) change in the excitability of thermosensitive neurons
D) permeability of the blood-brain barrier to endopyrogen
19. Hyperkalemia is observed when...
A) tissue breakdown
B) alkalosis
C) excess aldosterone
D) excess vasopressin
E) lack of growth hormone
20. Hypernatremia occurs when there is excessive secretion of...
A) aldosterone
B) sex hormones
C) thyroid hormones
D) natriuretic hormone
E) antidiuretic hormone
21. Hypercalcemia occurs when...
A) hypersecretion of parathyroid hormone
B) hypersecretion of vasopressin
C) alkalosis

D) hypersecretion of aldosterone

No. 5

1. Topic: Acid-base disorders.

2. Purpose: to study the etiopathogenesis of acid-base disorders.

3. Tasks:

1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.

4. Form of completion /evaluation: Case - study /checklist.

5. Performance criteria: see Appendix No. 1.

6. Due date: on the 9th day.

7. Literature: see Appendix No. 2.

8. Control

Questions

1. What is the etiopathogenesis of acidosis ?
2. What is the etiopathogenesis of alkalosis ?
3. What are the principles of correction of acidosis and alkalosis ?
4. What is the etiopathogenesis non-gas alkalosis?
5. What is hypercapnia?
6. What are the features of acid-base disorders in children?

Tests

1. The basis of gas acidosis is....

A) an excess of non-volatile acids
B) poisoning with mineral acid
C) accumulation of carbon dioxide in the body
D) strong release of CO2 from the body
E) excess bases in the blood

2. The cause of non-gas acidosis is ….

A) hypersecretion of adrenal steroid hormones
B) sodium bicarbonate poisoning
C) prolonged vomiting
D) shortness of breath with encephalitis
E) profuse diarrhea

3. The development of gas alkalosis leads to....

A) hypoventilation of the lungs
C) hyperventilation of the lungs
C) circulatory insufficiency
D) hypercapnia
E) an increase in carbon dioxide content in the atmosphere

No. 6

1. Topic: Pathophysiology of the infectious process. Fever.

2. Purpose: - to study the causes and mechanisms of development of the infectious process, the general etiology and pathogenesis of life disorders under the influence of infectious agents.

- teach how to conduct a pathophysiological analysis of pathological processes associated with the development of fever.

3. Tasks:

1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.

4. Form of completion /evaluation: Case - study /checklist.
5. Performance criteria: see Appendix No. 1.
6. Due date: on the 11th day.
7. Literature: see Appendix No. 2.
8. Control
Questions
1. What is the etiopathogenesis of the infectious process?
2. What is the role of micro- and macroorganisms in the development of the infectious process?
3. What are the pathophysiological principles of prevention and treatment of the infectious process ?
4. What are the types of sepsis?
5. Definition of fever.
6. Etiology of fever.
7. Pathogenesis of fever.
8. Stages of fever.
Tests
1. The latent period of infectious diseases is called ….
A) prodromal period
B) latent period
C) pre-disease
D) incubation period
E) high period
2. External causes of illness include ….
A) gender
B) pathological heredity
C) age
D) infectious agents
E) pathological constitution
3. Etiotropic treatment includes...
A) antibacterial therapy
B) physical therapy
C) isolation of the patient
D) healthy lifestyle
E) hardening
No. 7
1. Topic: Immunopathological processes
2. Purpose: to study the causes and mechanisms of development of disorders that arise from acquired and hereditary deficiency of the immune system, as well as the etiopathogenesis of AIDS.
3. Tasks:
1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.
4. Form of completion /evaluation: Case - study /checklist.
5. Performance criteria: see Appendix No. 1.
6. Due date: on the 13th day.
7. Literature: see Appendix No. 2.
8. Control
Questions
1. What are the typical forms of violations of immunogenic reactivity of the body exist?
2. How do immunodeficiency states develop?

3. What is the etiopathogenesis of AIDS?
4. What are autoimmune diseases?

Tests

1. Secondary immunodeficiencies can occur when....
A) extensive burns
B) x-ray irradiation
C) uremia
D) gas embolism
E) renal arterial hypertension
2. The mechanism of development of immune tolerance is identified.
A) insulating
B) macrophage
C) helper
D) hyperimmune
E) clonal
3. Immunodeficiencies may be based on a deficiency of the following factors or processes....
A) antibody formation
B) phagocytosis with the participation of granulocytes
C) complement system
D) lysozyme
E) transferrin

No. 8

1. Topic: Pathology of tissue growth.
2. Purpose: to study the general pathogenesis of tissue growth disorders.
3. Tasks:
1. Prepare literature on the topic of the class.
2. Study and analyze theoretical material.
3. Solve cases on the topic of the class and answer all questions.
4. Form of completion /evaluation: Case - study /checklist.
5. Performance criteria: see Appendix No. 1.
6. Due date: on the 11th day.
7. Literature: see Appendix No. 2.
8. Control

Questions

1. What are the violations of the main periods of human growth?
2. How do hypobiotic processes arise?
3. How do hyperbiotic processes arise?
4. What types of hypertrophy are there?
5. What is atrophy?

Tests

1. Among the following tissue growth disorders, highlight the process that is classified as hypobiotic:
A. Hypertrophy
B. Tumour
C. Atrophy
D. Regeneration
E. Hyperplasia
2. With eosinophilic pituitary adenoma, during the period of body growth … develops.
A.acromegaly
B.gigantism

C. dysplasia
D.pituitary dwarfism
E.Itsenko - Cushing's disease
3. Hypoproduction of growth hormone at a young age leads to ….
A. pituitary gigintism
B. pituitary cachexia
C. adiposogenital dystrophy
D. pituitary dwarfism
E. acromegaly

Appendix No. 1

Case - study	Excellent corresponds to points 95-100 90-94	- solved cases within a certain time; - gave complete answers to all questions
	Good corresponds to points 85-89 80-84 75-79 70-74	- solved cases within a certain time; - gave complete answers to all questions; - when solving cases made unprincipled mistakes
	Satisfactorily corresponds to points 65-69 60-64 50-54	- solved cases within a certain time; - gave incomplete answers to questions; - made fundamental mistakes when solving cases
	Unsatisfactory corresponds to points 25-49	- solved the cases incorrectly or did not solve them at all; - made serious mistakes when solving cases
	Unsatisfactory corresponds to points 0-24	

Testing	Excellent corresponds to points 95-100 90-94	- performed correctly 90-100% of test tasks
	Good corresponds to points 85-89 80-84 75-79 70-74	- performed correctly 70-89% of test tasks
	Satisfactorily corresponds to points 65-69 60-64 50-54	- performed correctly 50-69% of test tasks
	Unsatisfactory corresponds to points 25-49	- performed correctly in less than 50% test tasks
	Unsatisfactory corresponds to points 0-24	

Appendix No. 2