

MINISTRY OF HEALTH OF UKRAINE
ZAPOROZHYE STATE MEDICAL UNIVERSITY
PATHOPHYSIOLOGY DEPARTMENT

TESTS COLLECTION
FOR PATHOPHYSIOLOGY PRACTICAL CLASSES

ZAPOROZHYE 2015

Editor: Kolesnik Yu.M. Professor, PhD, MD,
Author: Melnikova O.V. Associate Professor, PhD

Tests collection on pathophysiology is proposed for the students of the 3rd course medical student for better individual preparation for practical classes, submodules and module controls on pathophysiology according to the program of education. Tests included in this collection are of single type – with one best variant of answer. This test type is also used in state licensing examination “Krok 1 – general medicine”.

MODULE 1
SUBMODULE 1 “GENERAL NOSOLOGY”
General nosology. Pathophysiology general principles.

1. Which is the modern definition of DISEASE? Disease is a disturbance of living activity of the organism under the effect of pathogenic factor...
 - a. with development of pathological process
 - b. with development of functional and structural changes in the organism
 - c. with loss of capacity for work
 - d. with clinical features of disease
 - e. with disturbance of adaptation to environment conditions and ability for work
2. Which is the modern definition of PATHOLOGICAL PROCESS? Pathological process is:
 - a. sum of protective and pathological reactions of the organism
 - b. reaction of organs and tissues to the pathological irritant
 - c. inadequate reaction of organs and tissues to the pathological irritant
 - d. changes in living activity of the organism disturbance of adaptation to environment conditions and ability for work
 - e. inadequate reaction of the organism to the adequate irritation
3. Which is the modern definition of PATHOGENESIS? Pathogenesis is:
 - a. causes and conditions of disease's onset
 - b. the mechanism of onset, development, course and outcome of the disease
 - c. internal and external mechanisms of disease's onset
 - d. conditions of onset, development, course and outcome of the disease
 - e. reaction of organs and tissues to the pathological irritant
4. Which is the modern definition of PATHOLOGICAL REACTION? Pathological reaction is:
 - a. adequate reaction of the organism to the adequate irritation
 - b. inadequate reaction of the organism to the inadequate irritation
 - c. inadequate reaction of the organism to the adequate irritation
 - d. adequate reaction of organs and tissues to the pathological irritant
 - e. internal and external reaction of the organism of disease onset
5. Which is the modern definition of ETIOLOGY? Etiology is a science about...
 - a. factors of internal and external environment that take part in the onset of disease
 - b. internal and external causes of disease onset
 - c. conditions of the organism during the disease onset
 - d. causes and origins of disease's onset
 - e. main causes of the disease onset
6. Which of the examples listed below are PATHOLOGICAL REACTIONS?
 - a. fever
 - b. erythema on the skin after thermal influence
 - c. allergic reaction
 - d. inflammatory reaction
 - e. dilation of the pupil to the light
7. Which of the processes listed below is a TYPICAL PATHOLOGIC PROCESS?
 - a. inflammation
 - b. burn
 - c. poisoning
 - d. birth defect
 - e. acquired trauma
8. Which of the processes listed below is a TYPICAL PATHOLOGIC PROCESS?
 - a. burn
 - b. poisoning
 - c. birth defect
 - d. allergy
 - e. tumor
9. The knowledge about which period of disease is important for prophylaxis of infectious diseases?
 - a. incubation period
 - b. prodromal period
 - c. manifestation of disease
 - d. outcomes of the disease
 - e. convalescence
10. The patient complains of irritability, pain in bones and muscles, loss of appetite, headache. No specific signs of the disease are observed. Which period of disease is described?
 - a. incubation period
 - b. prodromal period
 - c. manifestation of disease
 - d. outcomes of the disease
 - e. convalescence
11. Which of the diseases from listed below can't be defined as civilization disease?
 - a. atherosclerosis
 - b. diabetes
 - c. pneumonia
 - d. allergy
 - e. stenocardia

12. Which of the diseases from listed below can't be defined as civilization disease?

- a. atherosclerosis
- b. burns disease
- c. diabetes
- d. allergy
- e. stenocardia

13. Choose the example of etiologic therapy from the given:

- a. infectious disease treatment with antibiotics
- b. allergic disease treatment with anti-histamine medicines
- c. diabetes mellitus treatment with insulin
- d. arthritis treatment with immune-stimulating medicines
- e. arthritis treatment with analgetics

14. Choose the example of pathogenic therapy from the given:

- a. infectious disease treatment with antibiotics
- b. allergic disease treatment with anti-histamine medicines
- c. headache treatment with analgetics
- d. arthritis treatment with immune-stimulating medicines
- e. arthritis treatment with analgetics

15. Choose the example of substitutive therapy from the given:

- a. infectious disease treatment with antibiotics
- b. allergic disease treatment with anti-histamine medicines
- c. diabetes mellitus treatment with insulin
- d. arthritis treatment with immune-stimulating medicines
- e. arthritis treatment with analgetics

16. Choose the example of symptomatic therapy from the given:

- a. infectious disease treatment with antibiotics
- b. allergic disease treatment with anti-histamine medicines
- c. diabetes mellitus treatment with insulin
- d. arthritis treatment with immune-stimulating medicines
- e. arthritis treatment with analgetics

17. Which mechanism is forming general reactivity and resistance of the organism?

- a. activation of mononuclear phagocytes system
- b. chain complement reactions
- c. activation of vegetative nervous system
- d. immunological mechanisms
- e. activation of the respiratory system

18. Dosed physical loading was made to a patient with the stenocardia for studying of reserve ability of heart. Which kind of pathophysiology method was used in this case?

- a. instrumental research
- b. clinical experiment

- c. clinical observation
- d. functional test
- e. stationary observation

19. Experiment is the one of basic methods of pathophysiology. Choose the correct sequence of the stages of making an experiment.

- a. discussion of possible results => making => analysis of results => conclusions
- b. planning => carrying out => conclusions => analysis of results
- c. planning => carrying out => analysis of results => conclusions
- d. carrying out => analysis of results => planning => conclusions
- e. discussion of possible results => carrying out => conclusions => analysis of results

20. Many diseases develop on the certain stages. Choose the typical sequence of the stages of development of many diseases.

- a. Prodromal period => latent (incubative) period => manifestation of disease => outcome of disease
- b. manifestation of disease => prodromal period => outcome of disease => latent (incubative) period
- c. latent (incubative) period => prodromal period => manifestation of disease => outcome of disease
- d. latent(incubative) period => period of hidden signs => prodromal period => manifestation of disease
- e. latent period(incubative) => prodromal period => outcome of disease

21. Choose the disease that can be named "illness of civilization"?

- a. rheumatism
- b. piles
- c. diabetes mellitus
- d. cirrhosis of the liver
- e. pancreatitis

22. Patient with stomach peptic ulcer disease after the treatment felt himself better. Digestion was normalized, pains disappeared. However in a few weeks pains and heartburn appeared again. How will you describe such flow of illness?

- a. Period of remission
- b. Complication of illness
- c. Relapse
- d. Prodromal period
- e. Latent period

23. The stenosis of pylorus was found at the X-ray examination of a patient with peptic ulcer disease. How can you characterize the presence of stenosis of the pylorus in the patient?

- a. Pathological condition
- b. Pathological process
- c. Disease

- d. Pathological reaction
 - e. Compensatory reaction
- 24.** Patient was admitted with a peptic ulcer disease of stomach. He has been ill for 3 years. Now he complains of pain in epigastrium, heartburn, nausea, signs of blood in the stool. How can you describe such state of the patient?
- a. relapse
 - b. complication
 - c. remission
 - d. pathological reaction
 - e. pathological condition
- 25.** The student has caught pneumonia after super-cooling at the end of the winter. He had a nervous overstrain. Which was the direct reason of the disease?
- a. Nervous overstrain
 - b. Super-cooling
 - c. Insufficient feeding
 - d. Hypovitaminosis

- e. Pathogenic microorganism
- 26.** Which type of resistance underlies the steadiness of human organism towards effect of both specific and wide ranges of non-specific damaging agents?
- a. individual resistance
 - b. active resistance
 - c. cross-resistance
 - d. passive resistance
 - e. specific resistance
- 27.** The patient arrived to the hospital from the smelting workshop in the condition of hyperthermia. Which is the direct cause of consciousness loss during the heat stroke?
- a. decrease of the brain blood supply
 - b. arterial pressure drop
 - c. increased water loss through sweating
 - d. decrease of heart reject
 - e. dilatation of peripheral vessels

Physical factors influence on human body (UV rays, ionizing radiation)

- 28.** The ultraviolet radiation is used in medicine with the different aims. Which mechanism from listed below underlies the positive therapeutic effect of UV radiation upon the organism?
- a. activation of medicine effects
 - b. melanin synthesis increasing in the skin
 - c. activation of vitamin D synthesis
 - d. activation of cellular division
 - e. activation of lipid peroxidation
- 29.** Which of the following is the principal ultraviolet wavelength responsible for sunburn?
- a. UVC (100-280 nm)
 - b. UVB (280-320 nm)
 - c. UVA (320-400 nm)
 - d. all of them
 - e. none of them
- 30.** The UV radiation is causing both negative and positive influences on the human organism. Choose the sign of UV-rays deficiency from the following:
- a. early ageing
 - b. reduction of skin elasticity
 - c. sunburns
 - d. vitamin D deficiency
 - e. skin tumours development
- 31.** The UV radiation is causing both negative and positive influences on the human organism. Choose the sign of UV-rays overdose from the following:
- a. vitamin D deficiency
 - b. skin tumours development
 - c. immune deficiency
 - d. disturbance of psychic activity
 - e. increase of skin elasticity
- 32.** Each kind of radiant energy can cause both positive and negative effect. Which tissue is the most sensitive to ultraviolet radiation affection?
- a. epidermis
 - b. bone marrow
 - c. vascular epithelium
 - d. retina
 - e. subcutaneous fat
- 33.** Which diseases treatment can include irradiation with ultra-violet rays?
- a. heart diseases
 - b. GIT diseases
 - c. blood diseases
 - d. skin diseases
 - e. eyes diseases
- 34.** Which rays can be used in treatment of inflammatory processes?
- a. UV rays
 - b. IR rays
 - c. UV rays and IR rays
 - d. UV rays and X-rays
 - e. IR rays and gamma rays
- 35.** Which is the most dangerous removed consequence after ionizing radiation influence?
- a. malignant neoplasm
 - b. asthenia syndrome
 - c. early aging
 - d. bone marrow hypoplasia
- 36.** How will biodose of ultraviolet radiation change if the skin will be smeared with photosensitizing substance?
- a. it will increase
 - b. it will decrease
 - c. it will not change

- 37.** How will biodose of ultraviolet radiation change if the skin will be smeared with photoprotective substance?
- it will increase
 - it will decrease
 - it will not change
- 38.** Which medicines from the listed below can be photoreactive?
- sulfonamides
 - non-steroid anti-inflammatory drugs
 - barbiturates
 - vitamin B group
 - all of them
- 39.** The main portion of spectrum of solar radiation belongs to infra-red, visible and ultraviolet rays that have both positive and negative effects. Which causes and conditions lead to the development of sunstroke?
- effect of solar radiation upon the retina of the eye
 - long-term effect of solar radiation upon the head
 - combination of high temperature and solar radiation
 - combination of solar radiation with high humidity
 - in all cases listed above
- 40.** Patients with disturbance of porphyrinic exchange might have accumulation of photosensitizers in the organism. How do these substances influence on the organism?
- increase sensitivity of the organism to antibodies
 - cause development of allergic reaction to the visible light
 - increase sensitivity of retina photoreceptors to visible light
 - increases sensitivity of the organism to UV rays
 - increase sensitivity of the organism to the allergens
- 41.** Which conditions may cause hyperthermia with extreme degree – heat stroke?
- intensive infra-red radiation
 - intensive ultraviolet radiation
 - ionizing radiation
 - normal temperature but high air humidity
 - normal temperature but low wind speed
- 42.** During running parallel experiment rats were exposed to prolonged direct solar radiation in open chambers and in ones covered by glass. Tumor development at hair uncovered places of skin was marked in animals in open chambers. Which factor influence is this phenomena connected with?
- sun heat
 - ultraviolet radiation
 - biologic carcinogens
 - exogenous chemical carcinogens
 - infrared radiation
- 43.** Which from the given is the definition of ultraviolet rays biodose for the human?
- The least time, which is necessary for the appearance of erythema on a skin
 - The least distance, not causing the damage of epidermis
 - Intensity of ultraviolet radiation in international units
 - Amount of radiation, which is necessary for pigmentation appearance on the skin
 - The most time of radiation which does not initiate burn of the skin
- 44.** What is the mechanism of the selective effect of gamma-radiation on the tumour cells that can be used in medical practice?
- Affection of tissues with high blood supply
 - Affection of tissues with high maintenance of water
 - Activation of the immune system
 - Affection of tissues with high mitotic rate
 - Initiation of the mutations in tumor cells
- 45.** Which mechanism from listed below form the basis of infrared radiation biological effect on an organism?
- Thermal effect
 - Photochemical effect
 - Radiolysis of water
 - Sensitization of organism
 - Desensitization of organism
- 46.** Which mechanism from listed below form the basis of ionizing radiation biological effect on an organism?
- Thermal effect
 - Photochemical effect
 - Radiolysis of water
 - Sensitization of organism
 - Desensitization of organism
- 47.** Which mechanism from listed below form the basis of ultraviolet radiation biological effect on an organism?
- Thermal effect
 - Photochemical effect
 - Radiolysis of water
 - Sensitization of organism
 - Desensitization of organism
- 48.** What does primary effect of ionizing radiation upon the organism consists in?
- water radiolysis
 - lipid peroxidation
 - DNA mutations
 - Cells destruction
 - Intoxication
- 49.** Each tissue of the organism suffers from ionizing radiation, but sensitivity to radiation

(radiosensitivity) is different in different tissues.

What does tissue's radiosensitivity depend on?

- a. content of water in tissues
- b. proliferative activity of cells
- c. specificity of tissue function
- d. intensity of tissue innervation
- e. partial pressure of oxygen in the blood

50. Pathogenetic mechanism that leads to the increased frequency of malignant tumors appearance under effect of ionizing radiation is:

- a. somatic mutations of the cells
- b. mutations of gametes in reproductive organs
- c. depression of immunological control and changes in DNA
- d. activation of lipid peroxidation in the cells
- e. increase amount of carcinogenic substances

51. Each kind of radiant energy can cause both positive and negative effect. How is X-radiation applied in medicine?

- a. for treatment of oncologic diseases
- b. for endogenous probes
- c. for ultrasound diagnosing
- d. for diagnosis of internal disease
- e. for nuclear magnetic resonance investigation

52. A 45-year-old woman has been receiving radiation therapy for breast cancer. Explain the effects of ionizing radiation in eradicating the tumor cells. It is successful because tumor cells:

- a. are rich with water
- b. have high ATP store
- c. have high mitotic rate
- d. have low metabolic activity
- e. have high level of protein synthesis

53. Each kind of radiant energy can cause both positive and negative effect. How is gamma radiation applied in medicine?

- a. for prevention of rickets
- b. for diagnosis of internal diseases
- c. for ultrasound diagnosing
- d. for nuclear magnetic resonance investigation
- e. for tumors treatment

54. Which is the main cause of increased frequency and severity of infectious diseases during radiation sickness development?

- a. decrease of antibodies production
- b. depression of hemopoiesis
- c. depression of cellular immunity
- d. anemia
- e. disturbance of regeneration capability of epithelial tissues

55. Which kind of ionizing radiation is the most dangerous for people due to the highest biological effect?

- a. gamma radiation
- b. β radiation
- c. α radiation
- d. X-radiation

e. electronic radiation

56. Choose the list in which the tissues of the organism are situated due to their radiosensitivity in the decreasing order:

- a. epithelial, hematopoietic, cartilages, bone, muscular, nervous
- b. nervous, hematopoietic, epithelial, cartilages, bone, muscular
- c. bone, muscular, nervous, hematopoietic, epithelial
- d. muscular, hematopoietic, bone, nervous, epithelial, cartilages
- e. hematopoietic, epithelial, cartilages, bone, muscular, nervous

57. The preventive radioprotector was given to the worker of nuclear power station. Which mechanism from listed below is considered to be the main pathophysiological mechanism of radioprotection?

- a. prevention of tissue's hypoxia
- b. activation of oxidation reactions
- c. inhibition of free radicals formation
- d. increasing of tissue blood supply

58. Radioprotector was given to the patient who received a dangerous dose of ionizing radiation. Which mechanism is considered to be the main pathophysiological mechanisms of radioprotection?

- a. prevention of tissue hypoxia
- b. increase of intensity of oxidation reactions
- c. activation of the cell's anti-oxidative system
- d. increase of tissue blood supply
- e. stimulation of the organism's vital functions

59. Which blood count correctly reflects the period of disease manifestation of acute radiation sickness bone marrow form

- a. leukocytosis, lymphocytosis, monocytopenia
- b. lymphocytosis, anemia, thrombocytopenia
- c. erythrocytosis, leukopenia, thrombocytosis
- d. leukopenia, anemia, thrombocytopenia
- e. leukocytosis, lymphopenia, anemia

60. In consequence of accident at nuclear power station radioactive products escape occurred. People, who were in zone of increased radiation got dose about 12-14 Gray. Which form of acute radiation sickness will appear in these people?

- a. bone marrow
- b. intestinal
- c. toxic
- d. hemorrhagic
- e. cerebral

61. Which dose of ionizing radiation causes typical bone marrow form of acute radiation sickness?

- a. less than 0,5 Gray
- b. 1-10 Gray
- c. 10-20 Gray

- d. 20-80 Gray
- e. more than 80 Gray
- 62.** Which dose of ionizing radiation causes intestinal form of acute radiation sickness?
 - a. less than 0,5 Gray
 - b. 1-10 Gray
 - c. 10-20 Gray
 - d. 20-80 Gray
 - e. more than 80 Gray
- 63.** Which dose of ionizing radiation causes toxemia form of acute radiation sickness?
 - a. less than 0,5 Gray
 - b. 1-10 Gray
 - c. 10-20 Gray
 - d. 20-80 Gray
 - e. more than 80 Gray
- 64.** Which dose of ionizing radiation causes cerebral form of acute radiation sickness?
 - a. less than 0,5 Gray
 - b. 1-10 Gray
 - c. 10-20 Gray
 - d. 20-80 Gray
 - e. more than 80 Gray

- 65.** A patient was admitted to hospital with complaints about weakness, headache, increase of temperature, diarrhea which have appeared after a single radiation exposure. Leukocytosis with lymphopenia are found in a blood count. Which stage of radiation sickness does the patient have?
 - a. latent period
 - b. period of primary reactions
 - c. manifestation
 - d. prodromal period
 - e. period of convalescence
- 66.** In the period of illness manifestation the patient had leukopenia, thrombocytopenia, autoinfection, autointoxication, bleeding, and fever. Which form of radiation sickness is this clinical picture characteristic for?
 - a. Bone marrow
 - b. Intestinal
 - c. Toxic
 - d. Cerebral
 - e. Hemorrhagic

Chemical factors influence on human body

- 67.** Choose the most correct definition of an abstinent syndrome:
 - a. complex of psychoneurological disorders after stop of alcohol or toxic substance taking
 - b. complex of somatic, vegetative and psychoneurological disorders after stop alcohol or toxic substance taking
 - c. complex of somatic and vegetative disorders after stop of taking alcohol
 - d. somatic, vegetative and psychoneurological reactions during taking alcohol or toxic substance
 - e. psychoneurological reaction on the alcohol or toxic substance taking
- 68.** Which stage of alcoholic and narcotic dependence is characterized by invincible attraction to the substance (alcohol, drug) consumption without the abstinent syndrome?
 - a. physical dependence syndrome
 - b. tolerance development
 - c. sensitization development
 - d. cumulative effect phenomena
 - e. mental dependence syndrome
- 69.** Which stage of alcoholic and narcotic dependence is characterized by manifestation of vegetative, somatic, psychic and neurological disorders after stopping the use of substance (alcohol, drug)?
 - a. physical dependence syndrome
 - b. mental dependence syndrome
 - c. tolerance development
 - d. sensitization development
 - e. phenomenon of cumulative effect
- 70.** Do endogenous narcotic substances have physiological effect upon the organism?
 - a. yes, they are natural anti-oxidants
 - b. yes, they take part in adaptation processes and motivation behavior
 - c. yes, the usage of large dosages of drugs promote better adaptation of the organism to the environment
 - d. no, there are no endogenous narcotic substances in the organism
 - e. no, endogenous narcotic substances are synthesized only during pathological processes
- 71.** Does endogenous alcohol have physiological effect upon the organism?
 - a. yes, it is natural anti-oxidant
 - b. yes, the usage of large dosages of drugs promotes better adaptation of the organism to the environment
 - c. yes, it takes part in adaptation processes and motivation behaviour
 - d. no, there is no endogenous alcohol in the organism
 - e. no, endogenous alcohol is synthesized only during pathological processes
- 72.** Which main pathologic mechanism causes cellular damage during activation of lipid peroxidation?
 - a. decrease of ATP-formation
 - b. disturbance of RNA-synthesis
 - c. release of pro-inflammatory mediators
 - d. destruction of membranes

- e. damage of MHC proteins
- 73.** Which pathogenic mechanism causes the development of abstinent syndrome during alcoholism?
- sensitization of nervous cells to the alcohol
 - formation of the cells pathological tolerance in the organism
 - appearance of polyorganic functional insufficiency
 - decrease of activity of alcohol dehydrogenase in the liver
 - decrease of endogenous alcohol synthesis
- 74.** The patient developed abstinent syndrome as a result of narcotic usual dose absence. Which pathogenic mechanism causes the development of abstinent syndrome during drugs addiction?
- decrease of endogenous opiates synthesis
 - development of sensorialization of nervous cells towards alcohol
 - formation of pathological tolerance of the cells in the organism
 - appearance of multiple organ functional insufficiency
 - decrease of activity of enzymes that metabolize narcotic
- 75.** Free radicals constantly form in the healthy cell due to the effect of external and internal causes. What is the physiological role of free radicals in cell activity?
- are exclusively pathogenic factors
 - take part in synthesis of biologically active substances
 - take part in processes of tissue respiration
 - take part in processes of cellular detoxification
 - take part in development of inflammation
- 76.** A patient suffering alcoholism revealed disorders in heart, lungs, kidney and liver activity. Which stage of alcoholism is characterized by multiple organ failure?
- stage of psychic dependence
 - stage of physical dependence
 - terminal stage
 - stage of desadaptation
 - stage of initiation
- 77.** Which substance is responsible for the formation of multiple organ failure during alcoholism?
- formaldehyde
 - ethanol
 - methanol
 - acetaldehyde
 - acetylsalicylic acid
- 78.** Which method of pathogenic therapy is the most appropriate to use during acute poisoning?
- desintoxication therapy
 - prescription of diuretics
 - blood transfusion
 - prescription of anticonvulsants
 - prescription of purgatives
- 79.** Free radicals activate lipid peroxidation in the organism and cause cellular damage. Which factor promotes formation of free radicals?
- hypovitaminosis D
 - infra-red radiation
 - lack of oxygen
 - ultraviolet radiation
 - excess of CO₂ (carbon dioxide)
- 80.** Free radicals that form throughout our life have both positive and negative effects. What is the role of antioxidants in the cells?
- increase the formation of free oxygen radicals
 - increase the oxygen consumption in the cell
 - inhibit the formation of free oxygen radicals
 - decrease the oxygen consumption in the cell
 - increase ATP-formation
- 81.** Each cell in the organism has antioxidative systems for protection from free radicals pathogenic effect. Which of the substances from listed below can be related to the class of non-enzyme anti-oxidants?
- catalase
 - superoxide dismutase
 - ceruloplasmin
 - beta-carotene
 - ferritin
- 82.** Which of the substances from listed below belongs to the class of enzyme anti-oxidants?
- lycopene
 - carotin
 - tocopherol
 - ascorbic acid
 - glutathione peroxidase
- 83.** Which of the substances from listed below belongs to the class of enzyme anti-oxidants?
- superoxide dismutase
 - licopene
 - carotin
 - tocopherol
 - ascorbic acid
- 84.** Which type of necrosis develops after alkali application?
- coagulative
 - colliquative
 - liquifactive
 - caseous
 - fat necrosis
- 85.** Coagulation of which substances is the leading mechanism of coagulative necrosis development?
- membranes
 - lipids
 - proteins

- d. DNA
 - e. RNA
- 86.** The effect of toxins upon the organism is determined with:
- a. toxin chemical structure
 - b. dose of toxin
 - c. previous state of organism
 - d. duration of toxic effect
 - e. all the items are true
- 87.** Which of the terms refers to the ability of toxins to cause defects in a developing fetus?
- a. teratogenicity

- b. mutagenicity
 - c. general toxicity
 - d. specific toxicity
 - e. cancerogenicity
- 88.** Choose the substance that causes exogenous intoxication:
- a. scatol
 - b. keton bodies
 - c. phenol
 - d. indole
 - e. methanol

The influence of heredity on human pathology development

- 89.** Hereditary disease – phenylketonuria was found in child in the maternity hospital. Which reason causes the occurrence of hereditary diseases?
- a. changes of chromosomal quantity
 - b. qualitative and quantitative changes of genes
 - c. effect of surrounding environment negative factors
 - d. hereditary pathology of the closest relatives
- 90.** Congenital disease – non-closure of fetal oval foramen was revealed in child in the maternity hospital. Which reason from listed below can cause the occurrence of congenital diseases?
- a. rhesus conflict of mother and fetus
 - b. quantitative changes of genetic information
 - c. effect of teratogenic factors
 - d. congenital pathology of the closest relatives
 - e. qualitative and quantitative changes of genetic information
- 91.** In which period of life the clinical signs of hereditary diseases can appear?
- a. right after birth
 - b. in the period of puberty
 - c. in the middle age
 - d. at any age
 - e. in senile age
- 92.** Hereditary diseases may be connected with disorders of chromosomes and genes structure or quality. Which of the diseases from listed below can be related to chromosomal diseases?
- a. Klinefelter's syndrome
 - b. stomach ulcer
 - c. essential hypertension
 - d. syndactylism
 - e. phenylketonuria
- 93.** Hereditary diseases may be connected with disorders of chromosomes and genes structure or quality. Which of the diseases from listed below can be related to gene diseases?
- a. diabetes mellitus
 - b. haemophilia
 - c. X-trisomy syndrome

- d. Klinefelter's syndrome
 - e. stomach ulcer
- 94.** Which chromosomal disease can be observed both in men and women equally?
- a. Down's syndrome
 - b. XO syndrome
 - c. Klinefelter's syndrome
 - d. X-chromosome trisomy syndrome
 - e. Phenylketonuria
- 95.** Which changes of karyotype are typical for Down's syndrome?
- a. trisomia 21
 - b. X-chromosome trisomia
 - c. trisomia 13
 - d. loss of X-chromosome
 - e. inversion of chromosome of 21st pair
- 96.** Which changes of karyotype are typical for Klinefelter's syndrome?
- a. 44X0
 - b. 44XXY
 - c. 44XXX
 - d. 44Y0
 - e. 44XY
- 97.** The dominant pathological gene linked with X-chromosome was found in woman during chromosomal set mapping. In Which conditions this pathological gene can cause diseases in children depending on sex?
- a. in all children not depending on sex
 - b. only in sons
 - c. in all daughters
 - d. will lead to fetal death in prenatal period
 - e. in 50% of daughters
- 98.** Is hemophilia possible in girls?
- a. no, because women are only bearers of pathological gene
 - b. yes, if father is sick on haemophilia
 - c. no, because pathological gene is inherited only with Y-chromosome
 - d. yes, if 2 X-chromosomes with pathological gene are inherited
 - e. yes, if mother is sick on haemophilia
- 99.** Can congenital pathology be inherited?

- a. yes, in all cases
 - b. no, not in any case
 - c. possible in case of additional effect of specific environmental factor
 - d. possible in case of additional effect of complex of environmental factors
 - e. yes, if mutation is in sex cells
- 100.** Can chromosomal diseases be inherited from parents?
- a. yes, if the disease is not accompanied by pathology of sexual glands
 - b. yes, in all cases
 - c. yes, if both parents are sick
 - d. yes, if the disease is not accompanied by mental deficiency
 - e. no, not in any case
- 101.** One of the most common hereditary disorders is color blindness (daltonism). Define the type of this disorder.
- a. single autosomal dominant gene disorder
 - b. single autosomal recessive gene disorder
 - c. autosomal disorder
 - d. sex chromosome disorder
 - e. single X-linked gene disorder
- 102.** It is known that phenylketonuria is characterized by a lack of phenylalanine

hydroxylase. Which method of its treatment is most commonly used?

- a. elimination of phenylalanine from the diet
- b. injections of phenylalanine hydroxylase
- c. oral administration of phenylalanine hydroxylase
- d. correction of the patient's life style
- e. surgical treatment

103. Diagnosis of hereditary diseases includes detection of Barr bodies in the cells. Which number of Barr bodies will be detected in the person with Turner syndrome?

- a. zero
- b. one
- c. two
- d. three
- e. four

104. Diagnosis of hereditary diseases includes detection of Barr bodies in the cells. Which number of Barr bodies will be detected in the woman with Down's syndrome?

- a. zero
- b. one
- c. two
- d. three
- e. four

Cell injury mechanisms

105. During the investigation of cells from biopsy material chemical analysis of blood in patient with diabetes mellitus the signs of cellular damage described below were found. Which of these signs can be related to morphologic signs of cellular damage?

- a. disturbance of cellular division
 - b. change of cells' color
 - c. increase of permeability of cellular membrane for proteins
 - d. appearance of cytoplasmic enzymes in blood
 - e. increase of suboxidized substances in blood
- 106.** The definition "increased number of the cells in a tissue or organ" refers to...
- a. hypertrophy
 - b. hyperplasia
 - c. hyperactivity
 - d. hypereactivity

107. During the investigation of cells from biopsy material chemical analysis of blood in patient with diabetes mellitus the signs of cellular damage described below were found. Which of these signs can be related to functional signs of cellular damage?

- a. change of cellular organoids quantity
- b. swelling of cells
- c. changed cell color
- d. appearance of cytoplasmic enzymes in blood
- e. accumulation of calcium in the cell

108. Which signs of cellular damage can be related to functional?

- a. damage of nuclear membrane
- b. destruction of structure of mitochondrions
- c. swelling of cell
- d. change of colour
- e. disturbance of cellular division

109. Which is the most typical morphological sign of cell death by apoptosis?

- a. condensation of nucleus and cytoplasm
- b. presence of inflammatory reaction
- c. compensatory increase of DNA-synthesis
- d. swelling of mitochondrions
- e. increase of cell's size

110. Chose the example of specific cell injury from listed below:

- a. myocardial ischemia
- b. intestinal epithelial injury due to bacterial toxins
- c. immune hemolysis of RBC
- d. liver cell injury due to chemicals
- e. skin damage due to mechanical trauma

111. Disturbance of which cell life component is not important to its vital activity?

- a. maintenance of cell membrane integrity
- b. cell mobility
- c. aerobic respiration
- d. protein synthesis
- e. genetic integrity

- 112.** Disturbance of which process is primary observed in hypoxic injury:
- detachment of ribosomes from EPR
 - reduction of intracellular pH
 - oxidative phosphorylation by mitochondria
 - sodium pump activity
 - activation of glycolysis
- 113.** Which factor directly causes the decrease of intracellular pH in the case of hypoxic injury?
- detachment of ribosomes from EPR
 - decreased oxidative phosphorylation by mitochondria
 - failure of sodium pump
 - activation of glycolysis
 - increased membranes permeability
- 114.** Which is calcium role in hypoxic cell injury?
- detachment of ribosomes from EPR
 - disturbance of cells aerobic respiration
 - disturbance of sodium pump
 - activation of glycolysis
 - activation of intracellular enzymes
- 115.** Reperfusion injury is developed mostly due to massive inflow to the cell of:
- calcium
 - sodium
 - potassium
 - aminoacids
 - enzymes
- 116.** Choose the effect which IS NOT directly caused by free radicals:
- lipid peroxidation of membranes
 - nonperoxidative mitochondrial injury
 - disturbance of cells aerobic respiration
 - DNA lesions
 - cross-linking of proteins
- 117.** Which mechanism of cellular adaptation is provided with anti-oxidants action?
- compensation of energy metabolism disturbance
 - protection of cells membranes
 - compensation of water-ion misbalance
 - repair of cell genome
 - lowering of cell's functional activity
- 118.** Which factors determine the type of cell's response to injuring stimuli?
- kind of injuring factor
 - injuring factor severity and time of duration
 - prior state of the cell
 - type of the affected cell
 - all is correct
- 119.** Which process distinguishes irreversible hypoxic injury from reversible one?
- inability to reverse mitochondrial dysfunction
 - damage to plasma membrane sodium pump
 - inability to re-start protein synthesis
 - extremely low pH
 - depletion of ATP store in the cell
- 120.** Which tissue cells are most sensitive to hypoxic injury?
- skeletal muscles
 - smooth muscles
 - myocardial cells
 - brain cells
 - liver cells
- 121.** Give the correct definition of apoptosis. Apoptosis is...
- a process of virus infected cells killing
 - a programmed cell death
 - a death of the cell after injuring factor influence
 - a cell's death as a result of enzymes action
 - an irreversible cell injury
- 122.** People who have had a heart attack may experience additional damage once blood flow has been restored, a phenomenon referred to reperfusion injury. Which blood cells from listed below take active part in reperfusion injury development?
- lymphocytes
 - eosinophils
 - neutrophils
 - erythrocytes
 - thrombocytes
- 123.** Patient was made blood biochemical test in order to confirm hepatitis. Increased level of alanine transaminase and aspartate transaminase was found. It has been defined as a functional sign of hepatic cells injury. Which from the listed may be the reason of it?
- cell's membrane damage
 - damage to plasma membrane sodium pump
 - depletion of ATP store in the cell
 - nonperoxidative mitochondrial injury
 - disturbance of cells aerobic respiration
- 124.** Cells may adapt to external and internal stimuli by undergoing changes in their size, number and type. What happens to other kidney when one is damaged? It undergoes...
- hypertrophy
 - atrophy
 - hyperplasia
 - metaplasia
 - dysplasia
- 125.** Cells may adapt to external and internal stimuli by undergoing changes in their size, number and type. What happens to muscles of extremities that have been encased in plaster casts? The muscles undergo...
- hypertrophy
 - atrophy
 - hyperplasia

d. metaplasia

e. dysplasia

126. A 30-year-old man sustained a fracture of his leg 2 months ago. The leg had been encased in a cast, which was just removed. The patient is amazed at the degree to which the muscles in his leg have shrunk. Which is the reason of it?

a. inadequate nutrition

b. loss of innervation

c. loss of endocrine stimulation

d. decreased workload

e. diminished blood supply

127. Every day, blood cells in our body become senescent and die without producing signs of inflammation, and yet, massive injury or destruction of tissue, such as occurs with a heart attack, produces significant signs of inflammation. Why it happens?

a. due to necrosis of heart muscle

b. due to apoptosis of heart muscle

c. due to atrophy of heart muscle

d. due to swelling of heart muscle

e. due to disturbances in calcium metabolism

Disturbance of immune system function. Immunodeficiency.

128. Which is the main task of immune system during human life-time?

a. protection of the organism from pathogenic effects of surrounding environment

b. providing the genetic homogeneity of the organism

c. increasing of organism resistance to negative factors influence

d. creation of favourable conditions for living activity of the cells

e. antimicrobial activity

129. Which class of immunoglobulins appears first during the immune response to infectious antigens?

a. Ig class A

b. Ig class E

c. Ig class G

d. Ig class D

e. Ig class M

130. Which class of immunoglobulins form the greater part (70 – 80%) of immunoglobulins of normal blood serum?

a. Ig class A

b. Ig class E

c. Ig class G

d. Ig class D

e. Ig class M

131. Which cells are regulating the rate of immunoglobulins synthesis during the secondary immune response?

a. plasmatic cells

b. B-cells

c. NK cells

d. T suppressors

e. T killers

132. Which possible quantity of antigens is B-cell receptor affine to?

a. all known antigens

b. only one antigen

c. group of similar antigens

d. all protein antigens

e. all cellular antigens

133. Which immune reactions do natural killer cells take part in?

a. innate immunity

b. cellular immunity

c. humoral immunity

d. immune tolerance

e. adaptive immunity

134. Which cell use “respiratory burst” with active oxygen radicals formation?

a. monocytes

b. basophils

c. eosinophils

d. natural killers

e. neutrophils

135. Immunoglobulin molecule consists of...

a. 1 heavy and 1 light chains

b. 2 heavy and 2 light chains

c. 1 heavy and 2 light chains

d. 2 heavy and 1 light chains

136. Which cytokine from listed below can provide systemic (endocrine) effect?

a. lymphotoxin

b. alpha interferon

c. gamma interferon

d. interleukin 8

e. interleukin 1

137. Which cells quantity is markedly decreased in Bruton’s disease?

a. pre-B cells

b. plasmatic cells

c. natural killers

d. T helpers

e. T suppressors

138. Preventive vaccination with weakened microorganisms causes the production of antibodies against these microbes. Which cells are considered to be antibody-producing cells of the immune system?

a. T-lymphocytes

b. macrophages

c. NK-cells

d. B-lymphocytes

e. plasmocytes

- 139.** Which of the substances from listed below are antibodies in the organism?
- globulins of the plasma
 - albumins of the plasma
 - buffer systems
 - lipoprotein systems
 - plasma fibrinogen
- 140.** Cellular and humoral factors take part in mechanisms of innate immunity formation. Which of the substances from listed below can be considered a humoral factor of specific immunity?
- complement
 - immunoglobulin M
 - interleukin-1
 - interferon
 - factor of tumor necrosis
- 141.** During the patient examination the signs of primary immunodeficiency were found. Name the site of immune cells formation?
- in thymus
 - in bone marrow
 - in bursa of Fabricius
 - in spleen
 - in lymphatic nodes
- 142.** During the patient examination the high Ig-G amount was found. Where are immunoglobulins synthesized in the human organism?
- in the bone marrow
 - in thymus
 - in lymph nodes
 - in bursa of Fabricius
 - in spleen
- 143.** Blood analysis of patient showed signs of HIV infection (human immunodeficiency virus). Affection of which immune cells is typical for AIDS?
- T-killers
 - T-helpers
 - B-lymphocytes
 - macrophages
 - neutrophils
- 144.** The immunization of population with different vaccines is carried out with preventive purposes. It is followed by formation of primary immune response. Which is the longest term for immune memory remaining after the immunization?
- 1 – 5 years
 - 10 – 20 weeks
 - all life
 - several days
 - till 1 year
- 145.** The immune system gives responses to antigen stimulation by 3 specific allergic reactions, humoral and cellular immunity responses and immunological tolerance. In which situation from listed below can the immunological tolerance develop?
- if to inject excessive dose of antigen
 - if to irradiate the animal before injection of antigen
 - if to inject antigen and cytostatic agent at the same time
 - if to inject antimacrophage antibodies before injecting antigen
 - if to hold desensitization before injection of antigen
- 146.** Cooperative interaction of which immune cells is necessary for effective formation of primary humoral immune response?
- macrophages, T-lymphocytes, B-lymphocytes
 - T-lymphocytes, plasmatic cells, B-lymphocytes
 - macrophages, plasmatic cells, B-lymphocytes
 - mast cells, plasmatic cells, B-lymphocytes
 - B-lymphocytes, macrophages, plasmatic cells
- 147.** Cooperative interaction of Which immune cells is necessary for effective formation of primary cellular immune response?
- T-lymphocytes, plasmatic cells
 - macrophages, T-lymphocytes
 - macrophages, plasmatic cells
 - mast cells, plasmatic cells
 - T-lymphocytes, B-lymphocytes
- 148.** Which is the main distinction of secondary immune response from primary immune response?
- higher level of antibody's amount
 - elongated latent period after antigen administration
 - slower rise of antibody concentration
 - activation of IgE synthesis
 - shortened latent period after antigen administration
- 149.** The main task of immune system is to support the genetic homogeneity of the organism. That is removal of own defective and senescent cells. How do T-lymphocytes destroy own virus-infected cells in the organism?
- by necrobiosis
 - by dystrophy
 - by necrosis
 - by apoptosis
 - by inflammation
- 150.** Which type of immune reaction is absent in the patients with DiGeorge syndrome?
- humoral
 - reaginic

- c. cell-mediated
- d. immunocomplex
- e. cytotoxic

151. Decreased blood level of which substance usually accompanies DiGeorge syndrome development?

- a. sodium
- b. potassium
- c. aminoacids
- d. enzymes
- e. calcium

152. Choose the reason that can NOT cause acquired immunodeficiency development?

- a. measles
- b. flu
- c. hepatitis
- d. diabetes
- e. malnutritions

153. Which drugs from listed below can cause acquired immunodeficiency development

- a. sulfonamides
- b. antibiotics
- c. antipyretics
- d. local anesthetics
- e. enzymes

154. Which is the role of MHC molecules class 1 on the surface of body cells?

- a. to identify self and non-self cells
- b. to identify cells with high mitotic activity
- c. it is a hormone specific receptor
- d. to activate protein's synthesis in the cells
- e. it is a marker of apoptosis

155. It is known that increase in resistance to hypoxia usually is accompanied with the

increased activity of the immune system. Choose the correct definition to the situation when the increased resistance to one factor is accompanied with the increased resistance to other factors:

- a. active resistance
- b. passive resistance
- c. cross resistance
- d. sensitization
- e. reactivity

156. Which substances from listed below can organize immune response and provide the destruction of alien cells?

- a. Ig A
- b. cytokines
- c. opsonins
- d. plasma albumens
- e. plasma globulines

157. The patients with organs transplants usually receive hormone injections in order to prevent transplant rejection. Which hormones from the listed should be prescribed for transplant rejection prevention and why?

- a. mineralocorticoids – to increase inflammatory reaction in transplant
- b. glucocorticoids – to inhibit immune system activity
- c. glucocorticoids – to decrease vessels permeability
- d. mineralocorticoids – to inhibit immune system activity
- e. growth hormone – to enhance anabolic processes in the cells

Disturbance of immune system function. Allergy

158. Which is the common name for allergic reactions that have hereditary predisposition and are observed in the whole families?

- a. reagenic
- b. anaphylactic
- c. cytotoxic
- d. stimulating
- e. atopic

159. Which stage of allergic reactions includes synthesis of specific antibodies by plasmatic cells?

- a. hidden
- b. immunologic
- c. biochemical
- d. stage of clinical manifestation
- e. outcome

160. Which stage of allergic reactions are allergy mediators synthesized at?

- a. hidden
- b. immunologic
- c. sensitization

d. biochemical

e. stage of clinical manifestation

161. Which class of immunoglobulins is called "reagenic antibodies"?

- a. IgA
- b. IgD
- c. IgG
- d. IgE
- e. IgM

162. Which class of immunoglobulins takes part in development of 1 type allergic reactions?

- a. IgA and IgG
- b. IgE
- c. IgG and M
- d. IgE and IgG
- e. IgM and IgA

163. Which type of immunoglobulins take part in development of 3 type allergic reactions?

- a. IgA and IgG
- b. IgG and M
- c. IgE

- d. IgE and IgG
- e. IgM and IgA

164. The patient C developed anaphylactic shock after injection of antitetanus serum. Which cells produce the mediators during the classic variant of anaphylaxis?

- a. T-lymphocytes
- b. neutrophils
- c. mast cells
- d. B-lymphocytes
- e. Eosinophils

165. The patient R. suffers bronchial asthma. The attacks rise in the period of ragweed blossoming. Point out the biologically active substances that play the main pathogenic role in development of atopic allergic reaction.

- a. complement
- b. properdin
- c. interleukine
- d. histamine
- e. interferon

166. The patient A. developed the signs of anaphylactic shock after a wasp sting. The complex antigene - antibody fixates during development of 1st type of allergic reaction...:

- a. in the plasma of blood
- b. on the surface of macrophages
- c. on the membrane of T-lymphocytes that carry receptor IgE (FcE)
- d. on the membrane of mast cells
- e. on the membrane of B-lymphocyte

167. The patient R. was diagnosed an autoimmune hemolytic anemia. The complex antigen - antibody fixates during development of 2nd type of allergic reaction...:

- a. on the mast cells membrane
- b. on the B-lymphocytes membrane
- c. on the surface of macrophages
- d. on the surface of target cells
- e. in the blood plasma

168. The patient B. passed a tuberculin skin test (Mantoux reaction). In 24 hours the red spot formed in the place of injection (d=2 cm). The complex antigene - antibody fixates during development of 4th type of allergic reaction...:

- a. in the blood plasma
- b. on the mast cells membrane
- c. on the surface of macrophages
- d. on the membrane of B-lymphocyte
- e. it doesn't form

169. The same mechanisms of immune system are used by the organism to develop immune and allergic reactions. Which is the main difference of allergic reactions from immune reactions?

- a. amount of antigen
- b. peculiarities of antigen structure

- c. ways of entering the organism by antigen
- d. development of tissue damage
- e. hereditary predisposition

170. The formation of blood circulating immune complexes (antigen – antibody) is typical for allergic reactions of type:

- a. 1st type
- b. 2nd type
- c. 4th type
- d. 5th type
- e. 3rd type

171. In response to antigene stimulation, the immune system is able to produce several; types of immunoglobulins: IgA, IgM, IgG, IgE. Which is a distinguishing feature of IgE?

- a. circulation in the blood
- b. ability to activate the complement
- c. fixation on the receptors of mast cells
- d. fixation on T-killers
- e. ability for binding antigen

172. The patient was given a conduction anesthesia with Novocain before extraction of tooth. After injection edema and hyperemia around the shot region, itch of skin, general weakness, low arterial pressure developed. Define the complication described.

- a. idiosyncrasy
- b. fever
- c. drug dependence
- d. allergy
- e. inflammation

173. Immune complex reactions in the organism proceed with participation of IgM and IgG. Which is the most typical peculiarity of IgM and IgG?

- a. fixation on the receptors of mast cells
- b. fixation on tissue macrophages
- c. fixation on T-killers
- d. ability to interact with antigens
- e. ability to activate the complement

174. Which disease is developing with the 2nd type of allergic reactions?

- a. atopic bronchial asthma
- b. contact dermatitis
- c. para-allergic reactions
- d. autoimmune hemolytic anemia
- e. jaundice of the newborns

175. It's been established that allergic reactions of 2nd type play the main role in erythrocytes hemolysis in the patient with hemolytic anemia. Which mediators cause cytotoxic effect in this type of allergy?

- a. histamine
- b. lymphokines
- c. factor of lymphocytes blast transformation
- d. serotonin
- e. activated components of the complement

176. Allergic reactions of 3rd type are typical for pathogenesis of:

- a. atopic bronchial asthma
- b. glomerulonephritis
- c. contact dermatitis
- d. anaphylactic shock
- e. tuberculin reaction

177. In which condition of relations between reactivity and resistance we can say: reactivity is increased and resistance is decreased?

- a. immunity
- b. immunological tolerance
- c. immune deficit
- d. allergy
- e. immunological memory

178. Type 5 allergic reactions are known as “stimulating reactions”. Choose the example of disease provided with stimulating allergic reactions

- a. hay fever
- b. Arthus reaction
- c. Quincke’s disease
- d. autoimmune thyroiditis
- e. autoimmune hemolytic anemia

179. Which immune cells contribute to tissue injury in immunocomplex allergic reactions (type 3 allergic reactions)?

- a. B –cell
- b. plasmatic cells
- c. T-cells
- d. mast cells
- e. phagocytes

180. Exposure to extremes of temperature (hot and cold) and ionizing radiation in some cases may result in pseudoallergy development. Which is the distinctive feature of pseudoallergy?

- a. absence of immunological stage
- b. absence of biochemical stage
- c. presence in patients with immune deficiency
- d. dependence from the type of allergen
- e. independence from the dose of allergen

181. It is known that many cases of “food allergy” are not real allergy, but pseudoallergy. Which is the distinctive feature of pseudoallergy?

- a. absence of biochemical stage
- b. absence of clinical manifestation
- c. presence in patients with immune deficiency
- d. dependence from the type of allergen
- e. dependence from the dose of allergen

182. Which mechanisms are considered to be general mechanisms of autoimmune pathology?

- a. direct antibody mediated effects
- b. T cell mediated effects
- c. immune complex mediated effects
- d. all of listed

e. none of listed

183. Development of sympathetic ophthalmia (inflammation of a healthy eye after the development of inflammatory process in an injured eye) is considered to be an autoimmune disorder. Which mechanism from listed below initiates autoimmune process?

- a. over expression of MHC 2 class molecules
- b. altering of self-antigens
- c. similarity of antigens
- d. damage of physiological isolation
- e. primary changes of immune system.

184. Prevention of which type allergic reactions can be provided with the hyposensitization (specific immunotherapy)?

- a. 1st type
- b. 2nd type
- c. 3rd type
- d. 4th type
- e. 5th type

185. Patient was injected with Novocaine solution in order to provide local anesthesia during tooth extraction. In 1 minute after injection the patient turned pale and unconscious. ABP – 90/60 mmHg, heart rate – 128 bpm. Name the condition that has developed in the patient:

- a. Acute heart failure
- b. Orthostatic collapse
- c. Anaphylactic shock
- d. Bronchial asthma attack
- e. A. pulmonalis embolism

186. Allergic reactions are characterized by increased sensitivity to various substances. Which substance amount can prove the presence of hyperreactivity state in the patient?

- a. histamine
- b. IgE
- c. IgA
- d. prostoglandins
- e. complement

187. Patient complains of the skin rashes, which appear after cooling the skin (cold water or cold air exposure). After returning from the street in the winter the opened areas of the skin turn red (hyperemia) and itches appear. Which substance from the listed can cause such clinical symptoms?

- a. histamine
- b. IgE
- c. IgM and IgG
- d. prostoglandins
- e. complement

188. A nurse complains of the rashes on the skin of the hands. Her usual work is to do injection of antibiotics and other medicines to the patients. The symptoms of skin irritation

usually disappear after summer vacations. In 7-10 days after working with the solutions of medicines the symptoms of rashes appear again. Which type of allergic reaction is possibly causing her allergic disease?

- a. 1st type
- b. 2nd type
- c. 3rd type
- d. 4th type
- e. 5th type

SUBMODULE 2 “TYPICAL PATHOLOGICAL PROCESSES”

Disturbances of peripheral bloodflow and microcirculation

189. Patient G. has inflammatory infiltration on the right forearm. Skin around inflammatory center is red, hot and painful. What kind of blood circulation disorder does patient have?

- a. venous hyperemia
- b. sludge syndrome
- c. ischemia
- d. arterial hyperemia
- e. embolism

190. What are the main reasons of thrombus formation?

- a. vessels endothelium infiltration, BAS influence, anti-coagulation system activation
- b. coagulation deficiency, platelets activation, hemodilution
- c. anticoagulation system activation, BAS influence, blood vessel injury
- d. hemoconcentration, turbulent blood flow, vessel wall injury
- e. vessel wall injury, coagulation system activation, bloodflow speed lowering

191. Diabetes mellitus patient has venous hyperemia. What signs of this pathologic process does the patient have?

- a. hyperemia, local temperature increase, tissues edema
- b. paleness, local temperature decrease, tissue resistance decrease
- c. cyanosis, local temperature decrease, tissues edema
- d. hyperemia, local temperature increase, tissue volume increase
- e. cyanosis, local temperature increase, tissue volume decrease

192. Patient M. has stenocardia attack in the result of myocardium ischemia after physical load. Choose correct ischemia definition.

- a. disparity between tissues blood supply and requirement
- b. erythrocytes quantity decrease in circulation blood
- c. local vasodilatation under BAS influence
- d. oxygen partial pressure decrease in blood under physical load
- e. inconsistency between blood oxygen capacity and oxygen tissues need

193. Patient 65 years old with diabetes mellitus, diabetic angiopathy diagnosis has respiratory insufficiency, blood spitting, pronounced cyanosis, consciousness losing, and mouth spume. Patient was dead in two minutes. Arteria pulmonalis thrombus embolism was found under cutting. In what blood system region is primary thrombus formation possible?

- a. leg veins
- b. vena portae system
- c. mesenteric arteries
- d. pulmonal veins
- e. leg arteries

194. Skin-diver, 10 minutes after lifting from depth of 15 m, developed such clinical features: pain in articulations and muscles, transitory consciousness losing. Choose correct pathogenic mechanism.

- a. gas mixture poisoning
- b. lung vessels thrombosis
- c. gas embolism
- d. cerebral vessels spasm
- e. respiratory acidosis

195. Patient A., 60 years old, with varicose veins, has cyanosis, decreased skin temperature, single petechiae, pasting. What kind of hemodynamic disorder does the patient have?

- a. compression ischemia
- b. obstructive ischemia
- c. thrombus embolism
- d. respiratory acidosis
- e. venous hyperemia

196. Student X during passing exams couldn't answer the questions correctly. He turned red, felt fever and diffidence. What type of arterial hyperemia student had?

- a. neuroparalytic
- b. neurotonic
- c. metabolic
- d. pathologic
- e. postischemic

197. Patient P., 40 years old, with opened fracture of the hip suddenly developed arteria pulmonalis embolism. Choose the possible kind of embolism.

- a. thrombus-embolus
- b. air

- c. tissue
- d. fat
- e. foreign body

198. What signs are describing arterial hyperemia development?

- a. small gauge arteries constriction
- b. venules dilation
- c. erythrocytes aggregation in capillaries
- d. functioning capillaries quantity increase
- e. new capillaries growth

199. Sportsman had arterial hyperemia features in humeral region after intensive training. What mechanism could lead to working arterial hyperemia development?

- a. neurotonic and metabolic
- b. humoral and metabolic
- c. neurotonic
- d. neuroparalytic
- e. metabolic

200. What are the negative manifestations during arterial hyperemia in organs and tissues?

- a. lymph formation with edema development
- b. ruptures of microcirculation vessels walls
- c. cells and tissues hypertrophy and hyperplasia
- d. immunity depression
- e. cells function activity increase

201. Which factors are especially important in development of phlebothrombosis (vein thrombosis)?

- a. Paradoxical inhibition of blood coagulation Factors X and XIII
- b. Growth of granulation tissue
- c. Activation of plasminogen
- d. Endothelial injury and stasis
- e. Abnormally thick glycocalyx coat and DIC (disseminated intravascular coagulation)

202. Ischemia is characterized with the following signs EXCEPT:

- a. paleness
- b. redness
- c. local hypothermia
- d. pain
- e. slowing of the bloodflow

203. Pain in the leg at walking, cyanosis and edema of calf appeared in a patient with varicosity. His foot is cold. What kind of disturbances of regional blood flow appeared in the patient?

- a. Angiospastic ischemia
- b. Ischemic stasis
- c. Compressive ischemia
- d. Venous (passive) hyperemia
- e. Obstructive ischemia

204. Edema and cyanosis of low extremities appear in a food shop assistant at the end of

workday. What is the main factor of the edema development in the patient?

- a. Dilatation of resistant vessels
- b. Orthostatic increase of venous pressure
- c. Increase of number of functional capillaries
- d. Increase of collateral blood flow
- e. Increase of tissue drainage

205. Redness and increase in volume of affected place of tissue and increase in local temperature were observed in a patient with burn of thigh. Which pathological process do indicated symptoms correspond to?

- a. Arterial hyperemia
- b. Venous hyperemia
- c. Thrombosis
- d. Ischemia
- e. Stasis

206. Patient's arm was put in plaster cast on account of humeral bone fracture. Swelling, cyanosis and decrease of the temperature of the traumatized arm appeared next day. What kind of disturbances of regional blood flow appeared in the patient?

- a. Thrombosis
- b. Venous hyperemia
- c. Ischemia
- d. Embolism
- e. Arterial hyperemia

207. One of the most dangerous points in myocardial infarction pathogenesis is enlargement of the zone of necrosis, dystrophy and ischemia. Increase in myocardial oxygen consumption play important role in development of indicated processes. Which substances contribute to this process?

- a. Chloride ion
- b. Cholesterol
- c. Catecholamines
- d. Acetylcholine
- e. Adenosine

208. After surgical removing of coronary artery occlusion in a patient with ischemic heart disease, secondary injury of myocardium develop (reperfusion syndrome) characterized by necrobiotic changes in the focus of previous ischemia. This complication results from:

- a. Accumulation of hydrogen ions
- b. Deficiency of potassium ions
- c. Deficiency of adenosine triphosphate
- d. Excessive accumulation of calcium ions
- e. Deficiency of creatinephosphate

209. A 57-year-old man complains of heart pain that has developed after prolonged negative emotions. An emergency doctor diagnosed ischemic heart disease manifesting by stenocardia. What kind of ischemia is the most probable?

- a. Compressive
- b. Obliterative
- c. Angiospastic
- d. Obturative

210. The theory exists that atherosclerosis plays an important role in periodontitis development, affecting vessels of gums. What kind of regional blood flow disturbances develops under atherosclerosis of vessels?

- a. Active hyperemia
- b. Passive hyperemia
- c. Embolism
- d. Ischemia
- e. Disorders of lymph outflow

211. Instantaneous death of pilots occurs under depressurization of airplane at the altitude of 19 km. What is the reason of the death?

- a. Multiple gas embolism
- b. Hemorrhage to the brain
- c. Gas embolism of cerebral
- d. Bleeding
- e. Paralysis of respiratory center

212. Gas embolism developed in a diver who was lifted to the surface very fast. It results from fast change:

- a. From increased atmospheric pressure to normal
- b. From normal atmospheric pressure to increased
- c. From normal atmospheric pressure to decreased
- d. From decreased atmospheric pressure to normal

Inflammation

213. Increased sedimentation rate of blood seen in acute inflammation is due to

- a. increased fibrinogen concentration.
- b. increased serum albumin.
- c. decreased serum immunoglobulins
- d. presence of C reactive protein.
- e. increased immunoglobulins

214. Which sign from the given is not a local manifestation of inflammation?

- a. swelling
- b. pain
- c. leukocytosis
- d. heat
- e. redness

215. Which of the given local sign of inflammation is developed due to vascular leakage?

- a. Calor (heat)
- b. Rubor (redness)
- c. Dolor (pain)
- d. Tumor (swelling)
- e. Functio laesa – loss of function

216. Which of the given signs is not defined as systemic sign of inflammation?

- a. peripheral blood leukocytosis
- b. decrease of erythrocytes sedimentation rate
- c. fever
- d. increase of blood proteins level (globulins)
- e. increase of catecholamins and corticosteroids

217. Which event is primary in inflammatory pathogenesis?

- a. disorders of blood circulation
- b. phagocytosis
- c. tissues acidosis development
- d. increased vessels permeability
- e. cells damage

218. Which factor can directly cause secondary alteration?

- a. kinines
- b. lysosomal enzymes
- c. lymphokines
- d. fibrinogen
- e. cytokines

219. Patient B., 32 years old, complaints about dry cough, myalgia, articulations ache, appetite loss, headache. Body temperature is 40 C, blood count: leukocytosis, increased ESR. Diagnosis: influenza. What is primary alteration mechanism under viral infections?

- a. cell genetic program realization violation
- b. cell membranes damage
- c. cell energy supply violation
- d. cell receptors damage
- e. cell lysosome destruction

220. Fusion of lysosomes with the developing phagocytic vacuole before the latter has completely formed leads to:

- a. formation of multinucleated giant cells.
- b. loss of all lysosomal activity.
- c. regurgitation of lysosomal contents and tissue injury.
- d. none of the above
- e. decreased hydrolase activity

221. Which of the statements from listed below is correctly describing metabolic changes in the site of inflammation?

- a. Decreased metabolism level during all inflammatory stages
- b. Increased metabolism level during all inflammatory stages
- c. Increased catabolism in early inflammatory stage
- d. Increased anabolism in early inflammatory stage
- e. Decreased anabolism in final stages of inflammation

- 222.** Patient B., 32 years old, complaints about dry cough, myalgia, articulations ache, appetite loss, headache. Body temperature is 40 C, blood count: leukocytosis, increased erythrocytes sedimentation rate. Which inflammatory mediators can cause these symptoms:
- catecholamines
 - neutrophil's proteins
 - prostaglandins
 - kinins
 - interleukins
- 223.** Arachidonic acids metabolites (prostaglandins, leukotriens) are known as potent mediators of inflammation. Which enzyme will release arachidonic acid from cell membrane lipids.
- Cyclooxygenase
 - Lipoxygenase
 - Adenylate cyclase
 - Phospholipase
 - Myeloperoxidase
- 224.** Which inflammatory mediator is known to be normally sequestered in intracellular granules?
- Histamine
 - Prostaglandin E2
 - Complement
 - Interleukin
 - Bradykinine
- 225.** Which substances released from activated neutrophils and macrophages may contribute to tissue damage during inflammation?
- Free oxygen radicals
 - Platelet activating factors
 - Endothelial growth factors
 - Interleukine 6
 - Gamma interferon
- 226.** What influence results in arterial hyperemia development under inflammation?
- histamine secretion
 - compression of vessels by the exudate
 - vessel wall elasticity decrease
 - endothelium swelling
 - blood viscosity increase
- 227.** The main reason for the rapid onset of vasodilation after tissue injury is
- release of histamine from mast cells.
 - neural reflexes.
 - release of leukotrienes.
 - release of prostaglandins from mast cells.
 - activation of complement
- 228.** The main reason for the rapid onset of arterioles spasm after tissue injury is
- release of histamine from mast cells
 - neural reflex
 - release of leukotrienes
 - release of prostaglandins from mast cells
 - activation of complement
- 229.** Which mechanism is the most important in inflammatory exudate formation?
- prostaglandin's synthesis
 - tissue basophils degranulation
 - lysosomal enzymes release
 - leukocytes migration
 - increased vessels permeability
- 230.** The patient V., has painful bladders, surrounded with hyperemia zone with bright liquid, as a result of sunburn. Which mechanism is the leading one in inflammatory exudation process?
- increased tissue colloid and osmotic pressure
 - prostaglandin's synthesis
 - decreased tissue proteins level
 - increased lysosomal enzymes amount
 - leukocytes migration from vessels
- 231.** Leakage of fluid out of blood vessels during acute inflammation is due to
- increased vascular permeability, hydrostatic and tissue osmotic pressure
 - decreased tissue osmotic pressure
 - increased vascular permeability with decreased osmotic pressure
 - increased hydrostatic pressure and permeability.
 - increased vascular permeability and hydrostatic pressure with decreased tissue osmotic pressure
- 232.** Choose the negative consequence of exudate formation in the inflammation development from the given:
- transport of plasma-derived inflammatory mediators
 - transport of antibodies
 - elimination of toxins and metabolites from the vessels of inflammatory site;
 - localization of the agent which caused inflammation.
 - squeezing of tissues and organs with the exudates
- 233.** Patient G., 32 years old. Diagnosis: acute peritonitis. Muddy yellow liquor with pH 3.0 was got after abdominal cavity puncture. Which cells should be predominately found in inflammatory exudate of the patient with acute inflammation?
- macrophages
 - monocytes
 - lymphocytes
 - neutrophiles
 - eosinophiles
- 234.** Patient P., 45 years old, during last year had pyelonephritis exacerbation three times.

Which leukocytes are predominately found in inflammation center in chronic inflammation?

- a. neutrophils and adipose cells
- b. neutrophils and fibroblasts
- c. adipose cells and lymphocytes
- d. eosinophils and macrophages
- e. monocytes and lymphocytes

235. Choose the sequence of leukocytes migration towards inflammation cite:

- a. monocytes – neutrophils – lymphocytes
- b. neutrophils – monocytes - lymphocytes
- c. lymphocytes – neutrophils - monocytes
- d. neutrophils – lymphocytes - monocytes
- e. lymphocytes – eosinophils - neutrophils

236. During inflammation, leukocytes emigrate from blood vessels by means of

- a. natural holes in vessel walls.
- b. directional active migration.
- c. ruptures in the vessel wall.
- d. random active migration.
- e. passive pressure mediated mechanisms.

237. The three steps involved in movement of leukocytes from blood vessels into the extravascular space during acute inflammation are

- A. adhesion, margination, and chemotaxis.
- B. stasis, margination, and emigration.
- C. margination, emigration, and chemotaxis.
- D. adhesion, margination, and emigration.
- E. emigration, chemotaxis, and phagocytosis.

238. Patient K., 28 years old. Diagnosis: pleuritis. In pleural punctate the quantity of neutrophils is high, some neutrophils include intact microbe cells inside. Define the state of phagocytosis in this case.

- a. phagocytosis activation
- b. phagocytosis inhibition
- c. incomplete phagocytosis
- d. immune phagocytosis

239. What substances can act as opsonins (activate phagocytosis).

- a. specific antibodies and oxygen
- b. leukotrienes and prostaglandins.
- c. fibrinopeptides and C3
- d. prostaglandins and C3b
- e. specific antibodies and C3

240. Monocytes and activated macrophages are

- a. rarely found in chronic inflammation
- b. closely related, in that macrophages can be derived from monocytes
- c. derived from different precursor cells
- d. found only in acute inflammation
- e. equivalent cells

241. The function of the enzymes of the activated macrophage (particularly in the lysosomes) is to:

- a. digest foreign material

b. remain in storage until the next chronic inflammatory event.

- c. synthesize new lysosomes.
- d. process antigen for lymphocytes.
- e. assist in the synthesis of collagen

242. Patient P., complained about fever, breast pain, which increases under deep breathing. In order to definite diagnosis pleural cavity puncture was made and 20 ml of light liquid with 3-5% protein amount was got. Which kind of inflammation does the patient have?

- a. fibrinous
- b. purulent
- c. serous
- d. putrescent
- e. hemorrhagic

243. Patient F., with acute inflammation of appendix was operated in a surgical department. The abdominal cavity contained exudate with dark yellow color. Microscopic analysis revealed big amount of microorganisms, neutrophils, monocytes and purulent bodies. Which kind of inflammation does the patient have?

- a. fibrinous
- b. purulent
- c. serous
- d. putrescent
- e. hemorrhagic

244. Patient K., 28 years old, has quickly healed wound without scar formation after furuncle cutting. Point out cells, which play important role in proliferation process:

- a. neutrophils
- b. eosinophils
- c. fibroblasts
- d. lymphocytes
- e. monocytes

245. What cells secrete intercellular matrix components in a healing wound?

- a. Macrophages
- b. Polymorphonuclear leukocytes
- c. Multinucleated giant cells
- d. Endothelial cells
- e. Fibroblasts

246. The process of new capillary growth in granulation tissue during wound healing is called

- a. recanalization
- b. endothelialization
- c. diapedesis
- d. angiogenesis
- e. hemogenesis

247. Extensive or massive wounds heal by

- a. necrosis of margins
- b. neoplastic transformation
- c. secondary intention

- d. primary intention
- e. ulcer formation

248. Patient K., 28 years old, has quickly healed wound without scar formation after furuncle cutting. How can you name this process?

- a. necrosis of margins
- b. neoplastic transformation
- c. secondary intention
- d. primary intention
- e. ulcer formation

249. The strength of a healed wound depends fundamentally upon...

- a. how many multinucleated giant cells develop in the disrupted tissue
- b. the size of the wound
- c. whether the wound healed by first or second intention
- d. whether granulation tissue formed in the wound
- e. the amount and nature of the collagen produced

250. Scar tissue is...

- a. nonfunctional collagenous and fibrotic tissue
- b. functional tissue that follows wound healing
- c. regenerated tissue formed in the area of injury
- d. fibrinogen which has entrapped phagocytes and neurons

251. The main human defence mechanisms against injury are:

- a. inflammation and wandering phagocytes.
- b. cell proliferation, wandering phagocytes, and inflammation.
- c. cell proliferation and immunity.
- d. wandering phagocytes and immunity.
- e. inflammation and immunity

252. The inflammatory response...

- a. prevents blood from the injured tissue
- b. rises body temperature to prevent spreading of infection
- c. prevents formation of abscesses
- d. minimizes injury and promote healing
- e. has only negative consequences

253. What disease is an example of an autoimmune disease that leads to chronic inflammation?

- a. Herpes pneumonitis
- b. Chronic pyelonephritis
- c. Silicosis
- d. Rheumatoid arthritis
- e. Asbestosis

254. Substances or conditions that typically lead to or cause chronic inflammation include all of the following EXCEPT:

- a. foreign bodies
- b. highly virulent bacteria such as *Staphylococcus aureus*
- c. smoldering infections
- d. factors that lead to autoimmune reactions
- e. inert, inhaled particles

255. Inflammation development was studied after skin septic damage in experiment on rabbits. Which hormones have anti-inflammatory action?

- a. thyroid hormones
- b. catecholamines
- c. mineralocorticoids
- d. glucocorticoids
- e. neurohypophysis hormones

256. Patient S., with rheumatoid arthritis was prescribed glucocorticoids. What is the main mechanism of glucocorticoids anti-inflammatory action?

- a. inhibition of histamine secretion
- b. microcirculation improvement
- c. secondary proliferation decrease
- d. immune system activity depression
- e. tissue acidosis prevention

257. Inflammatory process development was studied in experiment on rats. Inflammation was caused with 0,1% formalin solution subcutaneous injection. Which hormones can be used to strengthen inflammation under modeling?

- a. mineralocorticoids
- b. female sexual hormones
- c. glucocorticoids
- d. male sexual hormones
- e. neurohypophysis hormones

258. Patient S., 56 years old, in postoperative scar region one could find granulation tissue intensive growth. In order to inhibit inflammation proliferative stage the patient was prescribed glucocorticoid treatment. What mechanism of proliferation processes is inhibited by glucocorticoids?

- a. macrophages proliferation activation
- b. fibroblasts proliferation inhibition
- c. collagen resorption stimulation by eosinophils
- d. collagen fibers synthesis increase
- e. collagenases activation

Thermoregulation pathology

- 259.** What primary mechanism onset fever reaction under inflammation?
- C-reactive protein formation in inflammation center
 - increased leukocytes quantity
 - phagocytosis activation
 - humoral immune response activation
 - long secondary alteration
- 260.** Primary bacterial pyrogens are starting fever onset. What bacteria component can be the primary pyrogen?
- Membrane proteins
 - Membrane lipids
 - Lysosomal content
 - Lipopolysaccharides
 - Bacterial cell nucleus
- 261.** Pyrogens are known to be the cause of the fever onset. What from the following may be the source of the secondary pyrogens?
- Bacteria
 - Necrotic tissue
 - Platelets
 - Macrophages
 - Erythrocytes
- 262.** What mechanism of temperature increase is the earliest one in the first stage of fever development?
- tachycardia
 - increase of basal metabolism rate
 - shivering
 - skin vessels constriction
 - sweat secretion decrease
- 263.** Patient I., 24 years old, soldier. Diagnosis: double lobar pneumonia. Temperature was increased up to 37°C . Blood count: anemia, leukopenia with marked granulocytopenia, increased erythrocytes sedimentation rate. Patient worked with myelotoxic poison. What is the cause of fever reaction absence under inflammation?
- hemic hypoxia development
 - inflammatory barrier formation
 - thermoregulation center damage with toxic substance
 - leukopenia with granulocytopenia
 - heat-producing mechanisms violation
- 264.** Patient M., 52 years old with bronchial asthma, was treated with glucocorticoids and fever reaction appeared as a result of postinjective abscess. Patient had subfebrile temperature, which didn't correspond to severity of inflammatory process. Why did patient have low fever reaction?
- inhibited endogen pyrogens production
 - violation of heat loss through lungs
 - inflammatory barrier formation in injection place
 - violation of heat-producing mechanisms
 - thermoregulation center inhibition
- 265.** How can you estimate thermoregulation of the patient with fever 1nd stage?
- Thermoregulation is normal
 - Heat loss is prevailing
 - Heat production is prevailing
 - Heat production is restricted
 - Heat loss is normal
- 266.** How can you estimate thermoregulation of the patient with fever 2nd stage?
- Thermoregulation is normal
 - Heat loss is prevailing
 - Heat production is prevailing
 - Heat production is restricted
 - Heat loss is decreased
- 267.** The patient with acute bronchitis had body temperature yesterday up to 38.5°C week ago and now it decreases up to 37.0° . What mechanism is the main in the 3rd stage of fever?
- increased heat production
 - shivering
 - peripheral vessels dilatation
 - diuresis increase
 - breathing frequency increase
- 268.** In the 3rd fever stage heat loss is prevailing. Heat loss is accompanied by the following processes except:
- radiation
 - evaporation
 - conduction
 - convection
 - fluctuation of metabolism
- 269.** Overload of what functional system may be fatal to the patient who has critical decrease of the temperature in the 3rd fever stage?
- nervous
 - respiratory
 - circulatory
 - endocrine
 - digestive
- 270.** The child with gastroenteritis, 10 years old, had fever reaction with 38°C body temperature; it lasted 1 week and was accompanied with 3 kg weight lost and mouth acetone smell appearance. What mechanism could lead to child's weight lost?
- disturbances in digestion
 - increased contractive thermogenesis
 - pancreatic cells damage
 - lost of appetite under fever
 - lipolysis activation
- 271.** Patient S., 27 years old ill with flu. Body temperature is about $39 - 38^{\circ}\text{C}$. The patient has a

variety of complaints connected with disturbances of many organs and systems functions. Which physiological system doesn't directly take part in fever development, but it is affected due to pathogenic features of the fever?

- a. nervous
- b. respiratory
- c. circulatory
- d. endocrine
- e. digestive

272. At what fever pathogenesis stage do antipyretic drugs (aspirin, paracetamol, indometacin) influence on?

- a. decrease receptors sensitivity
- b. inactivate cyclooxygenase
- c. break temperature increase mechanisms
- d. inhibit phospholipase A2 activity
- e. destruct prostaglandin E

273. Patient D., 27 years old, had body temperature increase up to 38°C during week. He was treated with glucocorticoids for the purpose of temperature decrease. What mechanism of glucocorticoids influence can cause anti-fever effect?

- a. heat producing decrease
- b. phagocytes activity decrease
- c. heat loss increase
- d. thermoregulation center inhibition
- e. primary pyrogenes destruction

274. Patient V., 32 years old, had headache, weakness, extremities pain, stuffy nose, rigor in the morning. Temperature was risen up to 38.2°C. Diagnosis: influenza. What accompanying disease needs the prescription of anti-pyretic drugs?

- a. double pneumonia
- b. heart failure
- c. diabetes mellitus
- d. hypoxia development
- e. increased blood sedimentation rate

275. Patient V., 32 years old, had headache, weakness, extremities pain, stuffy nose, rigor in the morning. Temperature was risen up to 38.2°C. Diagnosis: influenza. The patient has no accompanying diseases. The patient was not prescribed antipyretic drugs. Is it correct? Why?

- a. No. The patient must be prescribed antipyretic drugs.
- b. Yes. Because fever activates immune system
- c. Yes. Because body temperature is relatively low
- d. Yes. Because flu is not treated at all

276. It is known that pyrotherapy can be used in different clinical cases. Which clinical case from the following can NOT be treated with pyrotherapy?

- a. Chronic infectious diseases
- b. Acute infectious diseases
- c. Trauma of bones and muscles
- d. Cancer treatment
- e. Intensification of reparative processes after surgical operations

277. The patient with secondary syphilis was prescribed pyrotherapy in order to increase immune defence against infectious agent. What means are used for this purpose?

- a. hot baths
- b. hot drinks
- c. cauterization of the specific sites of the body
- d. injection of bacterial pyrogen
- e. using of local warming with infrared rays

278. Patient with cardiac valve defect was given hypothermia during operation on open heart in order to nervous tissue hypoxic damage decrease. What hypothermia effect was used?

- a. tissues oxygen need decrease
- b. decrease of heart contraction frequency
- c. arterial pressure decrease
- d. nervous cells activity inhibition
- e. cellular membranes stability increase

279. Experiment was performed for the purpose of alcohol role research in hypothermia mechanisms. 2 rats were put in camera with ice for 3 hours. First rat was given alcohol in the middle dose of intoxication through stomach. First rat hypothermia developed earlier. What thermoregulation mechanism does alcohol lead to violation?

- a. heat irradiation increase
- b. heat-producing decrease
- c. thermoregulation center neurons activity inhibition
- d. retractive thermogenesis inhibition
- e. thermoreceptors sensitivity decrease

280. Fever can be divided into several types due to level of body temperature increase in the temperature standing stage. The patient's temperature is 38.7°C. Which type of fever does this temperature index correspond to?

- a. Subfebrile temperature
- b. Febrile temperature
- c. Pyretic temperature
- d. Hyperpyretic temperature

281. Fever can be divided into several types due to level of body temperature increase in the temperature standing stage. Which type of fever usually accompanies chronic local infections current?

- a. Subfebrile temperature
- b. Febrile temperature
- c. Pyretic temperature
- d. Hyperpyretic temperature

Tissue growth pathology. Tumors

- 282.** The group of individuals most susceptible to the cancer often...
- are anemic
 - are immunodeficient
 - have neurologic dysfunction
 - have chronic diseases
 - have high Ca blood level
- 283.** Carcinogens influence results in the transformation of the proto-oncogenes to oncogenes, which leads to tumor development. What substances synthesis is controlled by the proto-oncogenes?
- innate immunity humoral factors
 - growth factors
 - growth hormones
 - neuropeptides
 - complement proteins
- 284.** Patient K., 55 years old, complaints about weight loss, increased fatigability, dry cough, and bloody phlegm. Anamnesis: prolonged contact with organic toxic substances. Diagnosis: lung tumor. What process underlies mutational cancerogenesis mechanism?
- protooncogenes transformation into oncogenes
 - cell division regulation violation
 - mRNA synthesis violation
 - ATP synthesis violation
 - Ca⁺⁺ insufficient entrance in cell
- 285.** Patient was diagnosed liver tumor. What process underlies epigenetic cancerogenesis mechanism?
- protooncogenes transformation into oncogenes
 - activation of the cell mitosis rate
 - mRNA synthesis violation
 - ATP synthesis violation
 - Ca⁺⁺ insufficient entrance in cell
- 286.** Stomach malignant neoplasm was experimentally modeled on animal, and tumor cells were cultivated for the purpose of biochemical anaplasia research. What changes in glycolysis will be observed after oxygen adding in cell culture?
- anaerobic glycolysis activity increase
 - anaerobic glycolysis activity decrease
 - aerobic glycolysis activity increase
 - no changes after oxygen adding
 - aerobic glycolysis activity decrease
- 287.** Patient K., complaints about weight loss. Diagnosis: mediastinum tumor with intestines metastases. What changes of carbohydrate metabolism are observed in malignant tumor cells?
- positive Paster effect
 - activation of ATP formation
 - aerobic glycolysis activation
 - negative Paster effect
 - glycogen synthesis activation
- 288.** Patient Ch., 60 years old. Diagnosis: liver cancer (hepatoma). Blood analysis: ALT decreased level, embryonic fetoprotein presence. What is the mechanism of fetoprotein appearance in hepatoma patient serum?
- protein metabolism violation in tumor surrounding cells
 - mRNA synthesis violation
 - cell division regulation violation
 - ATP synthesis violation in consequence of tumor intoxication
 - tumor cells protein metabolism violation
- 289.** Patient N., 50 years old, complaints about weight loss, fatigability. Blood analysis: hypoglycemia, hyperinsulinemia. Langerhans islet tumor was found after additional research. Why insulin synthesis is increased in the patient?
- morphology anaplasia
 - biochemical anaplasia
 - functional anaplasia
 - physical and chemical anaplasia
 - immunological anaplasia
- 290.** Patient K., 54 years old. Diagnosis: lung tumor. Biopsy: cells with different shape and size, invasive growth. What type of acid-base balance violation is possible in this case?
- respiratory acidosis
 - metabolic acidosis
 - respiratory alkalosis
 - metabolic alkalosis
 - negative Paster effect
- 291.** Patient K., complaints about weight loss. Diagnosis: mediastinum tumor with intestines metastases. Blood analysis: uncompensated acidosis. What possible mechanism led to acidosis development?
- positive Paster effect in tumor cells
 - CO₂ accumulation in the blood
 - alkaline accumulation in the intestines
 - anaerobic glycolysis in tumor cells
 - buffer systems blocking by tumor toxins
- 292.** Patient T., 59 years old. X-raying: oval dark patch in right lung lower lobe with distinct bounds 3x5 cm in size, which is typical for tumor. What feature is typical for non-cancerous growth?
- metastasizing
 - cancer cachexia
 - germination in surrounding tissue
 - infiltrative growth
 - expansive growth

- 293.** Patient A., 45 years old. Mamma tumor with increased surrounding lymph nodes was found after clinical examination. Biopsy: cancerous growth. What is the main mechanism of infiltrating pattern of cancer growth?
- contact inhibition absence
 - tumor cells ability to amoeboid movement
 - tumor cells adhesion increase
 - growth factors activation in tumor cells
 - lysosomes enzymes activity increase
- 294.** Patient R., 52 years old, complaints about weakness, stomach aches, digestion violation, and weight loss during last 3 months. Pancreas tumor was found with metastases into intestines mesentery under laparotomy. Carbohydrate, protein, lipid metabolisms violation was found. What mechanism could lead to patient's weight waste?
- nutritious substances consumption decrease because of digestion violation
 - plastic and energetic reserves decrease because of metabolism violation
 - tumor absorption of plastic and energetic reserves
 - organism intoxication because of metabolism violation
 - increase of plastic and energetic reserves usage by antitumor protecting system
- 295.** Patient R., 52 years old, complaints about weakness, stomach aches, digestion violation, and weight loss during last 3 months. Pancreas tumor was found with metastases into intestines mesentery under laparotomy. Choose the correct definition of metastasis. Metastasis is...
- an alteration in normal cell growth
 - growth of benign or malignant neoplasms
 - the ability of secondary tumor nodes growth
 - a mutation in normal cells
- 296.** Which of the following is the correct sequence of events during the process of metastasis?
- vascularization, adherence of neoplastic cells, invasion into lymph and vascular system
 - transport, vascularization, adherence of neoplastic cells
 - vascularization, extravasation, transport
 - cell detachment, invasion into lymph and vascular system, migration
- 297.** Worker M. works at factory, where chemical cancerogenes are used, but he doesn't have tumor. What type of represented below phenomenon is referred to anticellular mechanisms of anti-tumor defence?
- tumor cell elimination
 - oncogenes elimination in cell
 - oncogene expression inhibition
 - cancerogenes elimination in cell
 - blastomogene factors inactivation
- 298.** Which from the following mechanisms is supporting antimutational mechanism of anti-tumor defence?
- inactivation of carcinogens by phagocytosis
 - activation of cells anti-oxidative system
 - inactivation of carcinogens by the natural metabolic processes
 - activation of cytotoxic T-lymphocytes
 - elimination or inhibition of oncogenes
- 299.** Patient R., 53 years old. Stomach tumor with metastases in perigastric lymph nodes were found. Distant metastases are absent. Tumor development third stage is determined (T3, N1, M0). What stage of tumor pathogenesis development is in this case?
- promotion
 - tumor progression
 - protooncogene transformation into oncogene
 - oncoproteins formation
 - tumor immune inhibition
- 300.** It is known that proto-oncogenes mutations may result in cancer development. Which substances synthesis is encoded by proto-oncogenes?
- growth factors
 - growth suppressors
 - natural antioxidants
 - apoptosis inhibitors
 - immunoglobulins
- 301.** Cancer development may result from mutational and epigenetic carcinogenesis. Which from the listed factors may initiate epigenetic carcinogenesis?
- ionizing radiation
 - ultraviolet rays
 - formaldehyde
 - chronic tissue injury
 - tobacco smoke
- 302.** Choose the most correct definition for the described process "A pathologic process in which a permanent alteration in a cell's growth controlling mechanism permits its continuous proliferation"
- tumor
 - neoplasia
 - neoplasm
 - cancer
 - proliferation
- 303.** Benign and malignant neoplasms have characteristics both common and unique to for these types of neoplasms. Which from the following characteristics is unique to malignant neoplasm?
- absence of cell division limit
 - irreversible new growth

- c. autonomy
- d. less degree of differentiation
- e. epigenetic carcinogenesis

304. Benign and malignant neoplasms have characteristics both common and unique to for these types of neoplasms. Which from the following characteristics is seen only in benign neoplasms?

- a. anaplasia
- b. metastases
- c. loss of differentiation
- d. autonomy

- e. encapsulation

305. Malignant tumor cells clone was grown in laboratory to investigate the following cellular phenomena: Hayflick limit, contact inhibition and biochemical anaplasia. Which process is regulated by Hayflick limit?

- a. speed of ATP synthesis
- b. speed of DNA synthesis
- c. proto-oncogens activation
- d. maximal number of cell divisions
- e. speed of cell division

Hypoxia

306. Patient L., 47 years old, has pain shock as a result of arm trauma. The patient is in a hard state, humid, pale skin with acrocyanosis, confused consciousness, tachypnoe, tachycardia, AP decreased. What type of hypoxia does this patient have?

- a. hemic
- b. tissue
- c. respiratory
- d. substrate
- e. circulatory

307. A group of tourists went to the mountains travel. On the third day two of them felt symptoms of mountain sickness: increased fatigueability, noise in the ears, palpitations, short breath. Which pathological process was developed in the tourists?

- a. physical overload
- b. normobaric hypoxic hypoxia
- c. hypobaric hypoxic hypoxia
- d. respiratory hypoxia
- e. unknown poisoning

308. Patient E., was put on a strict diet (decreased consumption of carbohydrates) in order to lose weight. In a six days she began to complain of weakness, short breath, impossibility to work normally. What type of hypoxia has developed in this patient?

- a. tissue
- b. respiratory
- c. circulatory
- d. hemic
- e. substrate

309. Patient S., has an alcohol intoxication. He was found pale skin, tachypnoe, and tachycardia. One of alcohol toxic influence mechanisms in organism is Krebs cycle enzymes activity decrease. What type of hypoxia does this patient have?

- a. tissue
- b. respiratory
- c. circulatory
- d. hemic

- e. substrate

310. The cause of man death was hypoxia which was developed as a result of cyanides intoxication. What is a mechanism of cyanide's hystotoxic action?

- a. diminishment of tissues blood supply
- b. inactivate cytochromeoxidase
- c. activates membranes lipids oxidation
- d. damage mitochondria
- e. lead to increased cells oxygen consumption

311. The cause of 20 years old girl death was acute hypoxia which was developed as a result of cyanides intoxication. What stage of O₂ transport was violated?

- a. oxygen transport by hemoglobin
- b. hemoglobin synthesis
- c. oxygen diffusion in lungs
- d. tissue oxygen consumption
- e. alveolar ventilation

312. Patient O., 65 years old, used big doses of sulfanilamide medicines for a long time. Now he has breathlessness, weakness, appetite loss, sleep violation. Methemoglobinemia was found in the blood. What is mechanism of hemoglobin inactivation in erythrocytes under methemoglobin formation?

- a. hemoglobin joining with sulfanilamides
- b. reconstructive enzyme systems inactivation
- c. iron oxidation in hemoglobin
- d. protein damage in hemoglobin
- e. oxidative enzyme systems inactivation

313. Woman has aniline intoxication. She complains of: nausea, retching, headache, tinnitus, midges in the eyes, weakness, drowse. She has cyanosis of skin and mucous membranes, breathlessness, tachycardia. What hypoxia is in this case?

- a. hemic
- b. circulatory
- c. hystotoxic
- d. substrate
- e. hypoxic

314. Patient E., 26 years old has hypoxia, which was developed as a result of larynx edema. The patient is in a hard state, humid, pale skin with acrocyanosis, tachypnoe (increased frequency of breathes), tachycardia, decreased arterial pressure. What symptom of acute hypoxia is the manifestation of organism urgent protective adaptation reactions?

- a. skin pallor
- b. decreased AP
- c. increase of frequency and intensity of breath
- d. acrocyanosis development
- e. increased sweat secretion

315. Patient R., 46 years old, has hypoxia as a result of emetic masses aspiration. The patient is in a hard state, humid, pale skin with acrocyanosis, tachypnoe, tachycardia, decreased arterial pressure. What symptom of acute hypoxia is the manifestation of organism urgent protective adaptation reactions?

- a. skin pallor
- b. decreased AP
- c. acrocyanosis development
- d. tachycardia
- e. increased sweat secretion

316. Patient M., was given hypoxic trainings in normobaric conditions. What urgent protective adaptation reactions can be developed in reply to acute developing hypoxia first séance?

- a. erythropoiesis stimulation
- b. parasympathetic nervous system activation
- c. venous inflow decrease to heart
- d. breath frequency increase
- e. reserve alveoli are included into breath

317. Patient S., 54 years old, has hypoxia, which was developed as a result of emetic masses aspiration. Can erythrocytes quantity be changed in periphery blood in hypoxia first hours?

- a. won't be changed in hypoxia first stages
- b. is decreased as a result of erythrocytes hemolysis
- c. is increased, by means of hemopoiesis increase
- d. is decreased as a result of blood accumulation in depot
- e. is increased, by means of their leaving blood depot

318. Patient M., 35 years old, lives in the mountains. What index of external respiration will be changed in this patient?

- a. increased lungs vital capacity
- b. increased inspiration duration
- c. increased expiration duration
- d. lung breathlessness development
- e. breath frequency increase

319. Patient T., 27 years old, lives in the mountains. He was made heart-vessel system instrumental research. What heart activity change does patient have?

- a. respiratory arrhythmia
- b. heart stroke volume increase
- c. bradycardia
- d. heart minute volume decrease
- e. tachycardia

320. Patient T., 46 years old. Diagnosis: chronic respiratory insufficiency. He was found: acrocyanosis, breathlessness, heart bounds widening, arterial pressure increased, erythrocytes quantity increased, blood clotting, leukocytosis. What symptom of chronic hypoxia is referred to organism prolonged compensatory mechanisms?

- a. blood clotting
- b. increased arterial pressure
- c. increase quantity of erythrocytes
- d. increased respiration frequency
- e. leukocytosis

321. Patient Yu., 40 years old, has acrocyanosis, breathlessness, heart bounds widening, increased arterial pressure, erythrocytes quantity increase, blood clotting, leukocytosis. Diagnosis: pulmonary tuberculosis. Which symptom of chronic hypoxia is the manifestation of organism' prolonged compensatory mechanisms?

- a. neutrophilic leukocytosis
- b. AP increase
- c. respiration frequency increase
- d. heart cavities dilatation and myocardium hypertrophy
- e. blood clotting

322. Increased number of RBC was revealed in people residing in village which is situated in the mountains at the altitude of 3000 m. What is the reason for their increased RBC number?

- a. increased vitamin B12 synthesis
- b. increased blood clotting
- c. changes in spleen function
- d. increased erythropoietin production
- e. increased blood circulating volume

323. A child has been brought to the hospital. He had nitrates poisoning symptoms: cyanosis, dyspnoea and cramps. What is the reason of the symptoms development

- a. methemoglobin formation
- b. oxyhemoglobin formation
- c. reduced hemoglobin formation
- d. carbohemoglobin formation
- e. carboxyhemoglobin formation

324. There are several classifications of hypoxia. One of them is dividing hypoxia on subtypes due to time of appearance and duration

of hypoxia features. Define the type of hypoxia which resulted from cyanide poisoning from the following:

- a. Fulminant
- b. Acute
- c. Subacute
- d. Chronic
- e. Endogenous

325. There are several classifications of hypoxia. One of them is dividing hypoxia on subtypes due to time of appearance and duration of hypoxia features. Define the type of hypoxia which resulted from cardiac arrest from the following:

- a. Fulminant
- b. Acute
- c. Subacute
- d. Chronic
- e. Endogenous

326. Which from the listed hypoxia types is observed more frequently than others?

- a. respiratory
- b. hemic
- c. circulatory
- d. histotoxic
- e. combined

327. Which from the listed hypoxia types is observed in the case of prolonged organism malnutrition or starvation?

- a. hemic

- b. circulatory
- c. histotoxic
- d. substrate
- e. combined

328. It is known that interval hypoxic trainings can increase the working capacity of the body's organs and systems. Which type of hypoxia can be used with this aim?

- a. respiratory
- b. hemic
- c. hypoxic
- d. circulatory
- e. histotoxic

329. Choose the example of circulatory hypoxia from the listed clinical cases:

- a. bronchial asthma attack
- b. anaphylactic shock
- c. starvation
- d. iron deficiency anemia
- e. nitrates poisoning

330. Choose the example of hypoxia caused by hemoglobin inactivation from the listed clinical cases:

- a. bronchial asthma attack
- b. anaphylactic shock
- c. starvation
- d. iron deficiency anemia
- e. nitrates poisoning

Submodule 3. "Metabolism disturbances"

Disturbance of carbohydrate metabolism. Diabetes mellitus.

331. The effects of insulin action listed below can be divided according to the time of their expression. Which is the fastest insulin effect?

- a. anabolism stimulatuiou
- b. hypoglycemic
- c. catabolism inhibition
- d. cellular division stimulation

332. Muscular and adipose tissue form the majority of body weight. They are insulin-dependent tissue. Choose the correct definition: insulin dependent tissues...

- a. consume glucose with the help of insulin
- b. functions are determined by insulin
- c. consume glucose directly from the blood
- d. are affected in type 1 diabetic patients
- e. are affected in type 2 diabetic patients

333. Patient Ts., 35 years old, has glucose-tolerance test violation. Diagnosis: diabetes mellitus. What does this violation testify?

- a. increased glucagon secretion by alpha-cells
- b. insulin secretion inhibition by beta-cells

- c. decreased glucose consumption in insulin-dependent cells
- d. increased tissues insulin-resistance
- e. increased contra-insulin hormones secretion

334. Choose the characteristic feature of type 1 diabetes mellitus

- a. Middle age at onset
- b. Associated obesity
- c. Low plasma levels of endogenous insulin
- d. Insulin resistance
- e. Presence of antibodies to islet cells

335. Patient E., 25 years old. Polydipsia, poliuria, glucosuria, stable hyperglycemia were developed in 2 weeks after viral infection disease. Diagnosis: diabetes mellitus type I. What is the main pathogenic mechanism in this case?

- a. alpha-cells destruction
- b. beta-cells destruction
- c. tissues insulin resistance increase
- d. glucose toxic action
- e. metabolism violation

- 336.** Patient has diabetes mellitus type I. Blood glucose concentration is 18 mmol/l. What is a characteristic feature of this disease?
- absolute insulin insufficiency
 - glucose-tolerance test violation
 - tissues insulin-resistance
 - blood keton bodies high level
 - stable hyperglycemia
- 337.** Patient T., 55 years old, with obesity developed diabetes mellitus type II. What is the main pathogenic factor in this pathology development?
- inherited diathesis
 - obesity
 - old age
 - tissues insulin-resistance
 - viral infection
- 338.** The patient with obesity has diabetes. What is obesity for diabetes?
- complication
 - risk factor
 - outcome
 - stage of development
 - obesity is not connected with diabetes
- 339.** Patient P., 52 years old, has diabetes mellitus type II and obesity. What is the main feature of lipid's usage for energy needs?
- hyperketonemia
 - hyperlipidemia
 - hyperglycemia
 - hypernitrogenemia
 - hyperphagia
- 340.** Patient D., 28 years old, has protein metabolism violation, which is clinically developed as wounds healing violation, decreased. anti-bodies synthesis. Diagnosis: diabetes mellitus type I. What clinical symptom can verify this violation?
- blood proteins concentration decrease
 - hyperproteinemia
 - gluconeogenesis inhibition
 - aminoacidemia
 - α -fetoprotein appearance in blood
- 341.** Patient with diabetes mellitus has hyperglycemia 19 mmol/ l, which is clinically developed as glucosuria, polyuria, polydipsia. What mechanism is responsible for polyuria development?
- hyperphagia
 - hyperlipidemia
 - polydipsia
 - tissues dehydration
 - glucosuria
- 342.** Patient with diabetes mellitus has glucosuria, polyuria, polydipsia. What is the minimal blood glucose level, which is accompanied with glucosuria?
- 8 mmol/ L
 - 10 mmol/ L
 - 12 mmol/ L
 - 14 mmol/ L
 - 16 mmol/ L
- 343.** One of the diabetes mellitus clinical symptoms is hyperphagia. It is developed due to...
- lack of energy in the organism
 - lack of fatty acids in the blood
 - lack of insulin
 - excess of glucose in the blood
 - affection of appetite controlling centers
- 344.** Patient with diabetes mellitus has hyperglycemia 19 mmol/ l, which is clinically developed as glucosuria, polyuria, polydipsia. What mechanism is responsible for polydipsia development?
- low osmotic pressure of blood plasma
 - lack of insulin
 - tissues dehydration
 - glucosuria
 - hyperglycemia
- 345.** Which coma often occurs in the patients with diabetes mellitus type 1 when diet is not balanced with insulin injections?
- hyperglycemic
 - hyperlactatacidemic
 - hyperosmolar
 - ketonemic
 - hypoglycemic
- 346.** Patient R., 46 years old, has diabetic neuropathy. What is the main mechanism in nervous fibers damage under diabetes?
- glucose toxic action
 - ketones toxic action
 - nervous fibers dehydration
 - metabolic acidosis development
 - glucose accumulation in nervous tissue
- 347.** Patient O., 49 years old, has hypoglycemia symptoms. Violation of cerebral cortex neurons and sympathoadrenal system activation are mechanisms of hypoglycemia symptoms development. Which hypoglycemia feature is connected with brain glucose supply violation?
- palpitation
 - increased sweat secretion
 - fatigability
 - muscular trembling
 - hunger
- 348.** Patient with diabetes mellitus type I was done insulin prolonged intravenous infusion in order to decrease glycemia high level. Hypoglycemic coma was developed. Choose the mechanism of hypoglycemia development?

- a. increased glucose excretion from organism by urine
- b. glucagon secretion inhibition
- c. glucose interaction with insulin
- d. tissues glucose increased consumption
- e. inhibition of gluconeogenesis and ketogenesis in liver

349. A patient is ill with diabetes. Glycemia fasting level is 7,5 mmol/L. The level of which blood plasma protein allows to estimate the glycemia rate retrospectively (4-8 weeks before examination)?

- a. fibrinogen
- b. glycosylated hemoglobin
- c. albumin
- d. ceruloplasmin
- e. C-reactive protein

350. A patient was delivered to the hospital by an emergency. Patient is unconscious, the skin dry, face is cyanotic. Heart rate is 132 bpm. There is acetone smell from the mouth. Blood glucose level – 20.1 mmol/L, urine glucose – 3,5 g/L. What is the probable diagnosis?

- a. hypoglycemic coma
- b. acute infectious intoxication
- c. anaphylactic shock
- d. acute heart failure
- e. hyperglycemic coma

351. A patient with diabetes mellitus was delivered to the hospital in coma. It is known that coma is an acute complication of diabetes mellitus. Which diabetic coma development is the most severe life threatening condition?

- a. hypoglycemic
- b. hyperglycemic
- c. hyperlactacidemic
- d. hyperosmolar
- e. ketonemic

352. A patient with type 2 diabetes mellitus is complaining of progressive loss of vision. Which complication development may underlie this process?

- a. diabetic angiopathy
- b. diabetic retinopathy
- c. diabetic neural dystrophy
- d. diabetic neuropathy

353. A patient with constant thirst and increased urination was done oral glucose tolerance test that proved diabetes mellitus diagnosis. Which sign of diabetes is typical only to type 1 diabetes mellitus?

- a. hyperglycemia
- b. hypoglycemia
- c. relative insulin deficiency
- d. obesity
- e. absolute insulin deficiency

354. A patient with type 1 diabetes mellitus manifests disturbances in protein metabolism: high level of aminoacidemia. Which mechanism is responsible to aminoacidemia development? hyperproteinemia

- a. increased proteolysis
- b. decreased aminoacids blood concentration
- c. increased blood osmotic pressure
- d. increased blood onkotic pressure

355. A patient with type 1 diabetes mellitus has disturbances in protein metabolism which clinically manifest as decreased wounds healing. Which mechanism is responsible to low activity of regeneration process in the patient?

- a. decreased blood pH
- b. accumulation of keton substances in the blood
- c. decreased synthesis of proteins
- d. increased synthesis of insulin counterregulatory hormones
- e. increased activity of lipid metabolism

356. The patient is suffering from diabetes mellitus type 1 for a long time lost consciousness after extreme physical loading. He was immediately hospitalized in the endocrinology ward. Clinical observation: superficial breathing, heart rate – 132 bpm, BP - 80/40 mmHg, glycemia level – 1,88 mmol/L. Which diabetic complication has developed in the patient?

- a. hyperglycemic coma
- b. hyperosmolar coma
- c. diabetic neuropathy
- d. hypoglycemic coma
- e. diabetic nephropathy

357. A patient was done fasting blood level test after 12 hours of fasting. Glycemia level is 3,7 mmol/L. Which mechanism is maintaining blood glucose level in the state of zero calorie intake?

- a. activation of glycogenolysis
- b. activation of glycogenesis
- c. activation of glycolysis
- d. inhibition of glycogenesis
- e. inhibition of gluconeogenesis

358. A boy 12 years old in 6 months after a severe viral disease lost 7 kg of weight in spite of increased appetite. Daily diuresis is 3 L. Casual blood glucose level is 12 mmol/L. What is the probable diagnosis for this patient?

- a. type 2 diabetes mellitus
- b. type 1 diabetes mellitus
- c. polyuria
- d. insulin resistance
- e. hyperglycemia

Acid-base balance disorders.

- 359.** At examination of the patient were found: hyperglycemia, ketonuria, polyuria, hyperstenuria and glucosuria. What kind of acid-base balance disturbances occurs in this case?
- Gas acidosis.
 - Non-gas alkalosis
 - Metabolic alkalosis
 - Metabolic acidosis
 - Gas alkalosis
- 360.** Acidosis develops in case of severe diabetes mellitus form. What buffer system components change at first?
- Bicarbonate
 - Phosphate
 - Hemoglobin
 - Oxihemoglobin
 - Protein
- 361.** Prolonged convulsions occur in the patient suffered from epilepsy. Blood count: pH – 7.14, pCO₂ – 45 mmHg, HCO₃⁻ – 14 mmol/l, Na⁺ – 140 mmol/l, Cl⁻ - 98 mmol/l. What kind of acid-base balance disturbances occur in this case?
- Metabolic ketoacidosis
 - Metabolic lactoacidosis
 - Respiratory alkalosis
 - Metabolic alkalosis
 - There are no disorders of acid-base balance
- 362.** Alpinist excitation developed during ascending to mountain. It was replaced with headache, giddiness, breathlessness and after that apnea occurred. What kind of acid-base balance disturbances occurs in this case?
- Non-gas acidosis
 - Excretory acidosis
 - Gas alkalosis
 - Non-gas alkalosis
 - Gas acidosis
- 363.** The patient suffered from chronic glomerulonephritis has increased general sickness, tachycardia with recurrent arrhythmia, confusion and sleepiness. What kind of acid-base balance disturbances accompanies with uremic coma?
- Non-gas excretory acidosis
 - Non-gas excretory alkalosis
 - Gas acidosis
 - Gas alkalosis
 - Respiratory alkalosis
- 364.** Pregnant woman has toxicosis accompanied by vomiting of 24 hours duration. Tetany and dehydration were developed soon. What kind of acid-base balance's shift leads to described changes?
- Gas alkalosis
 - Gas acidosis
 - Non-gas metabolic acidosis
 - Non-gas metabolic alkalosis
 - Non-gas excretory alkalosis
- 365.** The patient suffered from diabetes mellitus was delivered to the hospital because of worsening of his condition. He has general sickness, polyuria, lethargy and sleepiness. Kussmaul respiration, heart arrhythmia and acetone's scent in expired air were noticed in this patient. What kind of acid-base balance's shift described in this case?
- Gas alkalosis
 - Gas acidosis
 - Non-gas metabolic alkalosis
 - Non-gas metabolic acidosis
 - Non-gas excretory alkalosis
- 366.** A group of alpinists undergone blood analysis in mountains at height 3000 meters. Blood count: decrease of HCO₃⁻ to 15 mmol/l (norm is 22-26 mmol/l). What is the mechanism of HCO₃⁻ decreasing in the blood?
- Decrease of reabsorption of bicarbonate in kidneys
 - Hyperventilation
 - Intensification of acidogenesis
 - Hypoventilation
 - Reduction of ammoniogenesis
- 367.** Blood's pH of the patient suffered from diabetes mellitus was increased to 7,3. What component of buffer system was used for diagnose of the acid-base balance disorder?
- Bicarbonate
 - Oxihemoglobin
 - Phosphate
 - Hemoglobin
 - Protein
- 368.** Buffer capacity of blood decreases in worker as a result of exhausting muscle work. What acid substance income to the blood this may be explained?
- α-ketoglutaric acid
 - 3-phosphoglycerate
 - Lactic acid
 - Pyruvate
 - 1,3-biphosphoglycerate
- 369.** Repeated vomiting occurs in patient suffered from pylorostenosis which is accompanied by loss of chloride ions from the organism and development of non-gas alkalosis. What conditions may result from these changes of acid-base balance?
- Hyperchloridemia
 - Hyponatremia
 - Hypokalemia
 - Hypernatremia
 - Hyperphosphatemia

- 370.** 48-years-old patient with diabetes mellitus was delivered to the hospital in severe pre-coma condition. Metabolic acidosis was diagnosed. Patient was treated with complex therapy including intramuscular injections of insulin and intravenous infusion of sodium bicarbonate solution. What is the main possible mechanism of the acid-base balance change?
- Disorders of O₂ using in cells
 - Disorders of buffer systems of blood
 - Decrease of CO₂ removing
 - Excretion of alkali elements with urine
 - Products of incomplete oxidation are forming
- 371.** Patient has disturbances of airways passage at the small and medium bronchi level. What kind of acid-base balance disorder may develop in this patient?
- Respiratory alkalosis
 - Metabolic alkalosis
 - Respiratory acidosis
 - Metabolic acidosis
 - Acid-base balance does not change
- 372.** In patient suffered from diabetes mellitus coma was developed as result of acid-base balance disorders. What kind of acid-base balance disorders were developed in this case?
- Exogenous acidosis
 - Respiratory acidosis
 - Metabolic acidosis
 - Gas alkalosis
 - Non-gas alkalosis
- 373.** A woman has distinct hypersalivation syndrome. She has removed saliva from her mouth with napkin because of hard pain during swallowing. What kind of ABB disorder may develop in this patient in some time?
- Non-gas excretory acidosis
 - Gas alkalosis
 - Metabolic acidosis
 - Non-gas excretory alkalosis
 - Gas acidosis
- 374.** Gas acidosis (hypercapnia) was developed during bronchial asthma attack. What buffer system of blood plays the main role in compensation of this condition?
- Bicarbonate
 - Hemoglobin
 - Phosphate
 - Protein
 - Ammoniogenesis
- 375.** Hyperglycemia, ketonuria, polyuria, hyperstenuria and glucosuria were found during patient's examination. What kind of acid-base balance disorder takes place in this case?
- Metabolic acidosis
 - Gas acidosis
 - Metabolic alkalosis
 - Non-gas alkalosis
 - Gas alkalosis
- 376.** The 65-years-old patient with multiple fractures of ribs was delivered to the hospital. What type of acid-base balance disorder may develop in this case?
- Gas acidosis
 - Gas alkalosis
 - Non-gas acidosis
 - Non-gas alkalosis
 - There are no disorders of acid-base balance
- 377.** A pregnant woman has toxicosis, which is accompanied by prolonged vomiting. Blood count: pH of blood – 7.38, pCO₂ of arterial blood – 46 mmHg, SB – 17 mmol/l, BE – (+ 6 mmol/l). What type of acid-base balance disorder takes place in this case?
- Compensated non-gas alkalosis
 - Decompensated non-gas alkalosis
 - Compensated non-gas acidosis
 - Decompensated non-gas acidosis
 - Compensated gas alkalosis
- 378.** The 58-years-old patient was delivered to the hospital in severe condition. Blood count: pH of blood – 7.33, pCO₂ of arterial blood – 36 mmHg, SB – 17 mmol/l, BE – (+ 6 mmol/l). What type of acid-base balance disorder takes place in this case?
- Compensated non-gas alkalosis
 - Decompensated non-gas alkalosis
 - Compensated non-gas acidosis
 - Decompensated non-gas acidosis
 - Compensated gas alkalosis
- 379.** What is the cause of the gas alkalosis?
- Pulmonary hyperventilation
 - Loss of gastric juice
 - Loss of intestine juice
 - Pulmonary hypoventilation
 - Hyperaldosteronism
- 380.** What kind of ABB disturbances may be observed in the patient with diabetes mellitus?
- Non-gas acidosis
 - Gas acidosis
 - Gas alkalosis
 - Non-gas alkalosis
 - Excretory acidosis
- 381.** It is known that gout is most often causing recurrent acute or chronic arthritis. Which of the following substances level in the blood is the leading pathogenic mechanism of this disease?
- hyperlipidemia
 - hyperproteinemia
 - hyperuricemia
 - hypoproteinemia
 - hypouricemia

Disturbance of lipid and protein metabolism.

- 382.** The precipitation of monosodium urate crystals in specific tissues underlies the clinical manifestation of the gout. Which tissues are primarily affected?
- kidneys
 - cartilages and tendons
 - vessels and connective tissue
 - lungs and bronchi
 - muscles
- 383.** The knowledge about lipoproteins metabolism is very important in lipid metabolism maintenance study. Which from the following substances transport triglycerides and cholesterol from within enterocytes through lymphatics into the circulation?
- chylomicrons
 - high-density lipoprotein
 - very-low-density lipoprotein
 - intermediate-density lipoprotein
 - low-density lipoprotein
- 384.** The knowledge about lipoproteins metabolism is very important in lipid metabolism maintenance study. Which from the following substances are synthesized in the liver, and transport triglycerides and cholesterol to peripheral tissues ?
- chylomicrons
 - high-density lipoprotein
 - very-low-density lipoprotein
 - intermediate-density lipoprotein
 - low-density lipoprotein
- 385.** The knowledge about lipoproteins metabolism is very important in lipid metabolism maintenance study. Which from the following substances are the most cholesterol-rich of all lipoproteins?
- chylomicrons
 - high-density lipoprotein
 - very-low-density lipoprotein
 - intermediate-density lipoprotein
 - low-density lipoprotein
- 386.** The knowledge about lipoproteins metabolism is very important in lipid metabolism maintenance study. Which from the following substances are initially cholesterol-free and that are synthesized in both enterocytes and the liver?
- chylomicrons
 - high-density lipoprotein
 - very-low-density lipoprotein
 - intermediate-density lipoprotein
 - low-density lipoprotein
- 387.** The pathways regulating food intake include interaction between the various substances and nervous centers. Which of the following substances high blood level corresponds to increased body fat amount?
- cholecystokinin
 - ghrelin
 - glucagon
 - leptin
 - insulin
- 388.** Hypersecretion of which hormones may result in specific abdominal obesity?
- glucocorticoids
 - thyroid hormones
 - epinephrine
 - mineralocorticoids
 - parathyroid hormones
- 389.** A man 35 years old is 175 cm tall and weighs 95 kilograms. His body mass index is 31. How would you classify his state of nutrition?
- underweight
 - normal
 - overweight
 - obesity
 - extreme obesity
- 390.** A woman 25 years old is 162 cm tall and weighs 48 kilograms. Her body mass index is 18,3. How would you classify her state of nutrition?
- underweight
 - normal
 - overweight
 - obesity
 - extreme obesity
- 391.** A man 35 years old is 175 cm tall and weighs 76 kilograms. His body mass index is 24,8. How would you classify his state of nutrition?
- underweight
 - normal
 - overweight
 - obesity
 - extreme obesity
- 392.** A woman 25 years old is 162 cm tall and weighs 67 kilograms. Her body mass index is 25,5. How would you classify her state of nutrition?
- underweight
 - normal
 - overweight
 - obesity
 - extreme obesity
- 393.** A patient who was starving for a long time has developed edema on the extremities. Which from the given pathogenic factors plays the leading role in edema development in the case of total starvation?
- low hydrostatic pressure of the blood
 - low osmotic pressure of the blood

- c. high oncotic pressure in the tissues
- d. low oncotic pressure of the blood
- e. high osmotic pressure of the interstitial liquid

394. A patient who was starving for a long time has developed edema on the extremities. Which from the given pathogenic factors plays the leading role in edema development in the case of total starvation?

- a. proteins deficiency
- b. energy deficiency
- c. fatty acids deficiency
- d. vitamins deficiency
- e. minerals deficiency

395. Which tissues usually have a glucose store in a form of glycogen, which can be used for energy needs during the periods of fasting?

- a. brain and heart
- b. kidneys
- c. bone marrow and spleen
- d. liver and muscles
- e. fatty (adipose tissue)

396. Which process is characterizing the terminal stage of starvation which is often fatal to the patient?

- a. increased glycogenolysis
- b. depletion of protein stores
- c. depletion of lipid stores
- d. depletion of glycogen stores
- e. increased gluconeogenesis

397. Which disturbance of acid base balance is typical for starvation process?

- a. gaseous acidosis
- b. metabolic acidosis
- c. metabolic alkalosis
- d. gaseous alkalosis
- e. there are no changes of ABB

398. Why protein-energy undernutrition (cachexia) is often accompanying cancer development?

- a. due to decreased protein intake
- b. due to decreased carbohydrates intake
- c. due to prevalence of anabolism
- d. due to prevalence of catabolism
- e. due to absence of appetite

399. The main index of protein metabolism is nitrogen balance. Choose the condition from the listed below that will be accompanied by positive nitrogen balance

- a. recovering from illness
- b. physical stress
- c. emotional stress
- d. starvation
- e. acute infectious disease

400. The main index of protein metabolism is nitrogen balance. Choose the condition from the

listed below that will be accompanied by negative nitrogen balance

- a. childhood
- b. pregnancy
- c. massive wound healing
- d. acute infectious disease

401. Give the definition to such condition when a person is totally deprived of food and water is available:

- a. total starvation
- b. absolute starvation
- c. complete starvation
- d. incomplete starvation
- e. partial starvation

402. Early starvation stage is characterized with complete depletion of muscles and liver glycogen stores. The time of glycogen stores depletion is usually about...

- a. 1- 10 hours
- b. 6-12 hours
- c. 12-24 hours
- d. 1- 2 days
- e. 2-3 days

403. Which stage of starvation is accompanied with the maximal body weight loss?

- a. early starvation
- b. prolonged
- c. adapted
- d. terminal phase

404. Body's metabolism is changed during starvation. Which substance from the following is the source of energy for the brain in the early starvation stage?

- a. glycogen
- b. glucose
- c. ketone bodies
- d. aminoacids
- e. free fatty acids

405. Body's metabolism is changed during starvation. Which substance from the following is the source of energy for the brain in the prolonged starvation stage?

- a. glycogen
- b. glucose
- c. ketone bodies
- d. aminoacids
- e. free fatty acids

406. The terminal stage of starvation may be fatal for the patient. Which body's index from the following determines the time of terminal phase duration and duration?

- a. blood glucose level
- b. glycogen stores
- c. protein reserves
- d. lipid reserves
- e. ketone bodies blood level

407. Choose the clinical situation in which an abnormally high level of protein will be found in the patient's blood plasma.

- a. intestinal malabsorption
- b. Bruton's disease
- c. liver failure
- d. nephrotic syndrome
- e. cholera

408. Gout is defined as precipitation of sodium urate crystals in the body. What is the most common cause of monosodium urate accumulation in the blood?

- a. increased rate of cell's proliferation
- b. increased rate of cell's death
- c. intake of purine-rich food
- d. overactivity of enzymes responsible for urates synthesis
- e. decreased renal excretion of urates

409. Which typical pathological process primarily develops in the patient with monosodium urate crystals accumulation in the joint?

- a. fever
- b. inflammation
- c. tumor
- d. hypoxia
- e. allergy

410. Choose obesity type which is more often complicated with hyperinsulinemia, diabetes mellitus and hypertension

- a. hyperplastic obesity
- b. hypertrophic obesity
- c. general obesity
- d. abdominal obesity
- e. peripheral obesity

411. Which type of obesity will you suppose in a child 9 years, body weight 52 kg.

- a. hyperplastic obesity
- b. hypertrophic obesity
- c. general obesity
- d. abdominal obesity
- e. peripheral obesity

412. Endocrine mechanisms of obesity determine fat accumulation due to abnormalities in hormones metabolism. Which of the following substance deficiency is responsibly for primary obesity development?

- a. neuropeptide Y
- b. leptin
- c. thyroxine
- d. cortisone
- e. insulin

413. Endocrine mechanisms of obesity determine fat accumulation due to abnormalities in hormones metabolism. Which substance from the listed stimulates appetite and feeding behaviour?

- a. neuropeptide Y
- b. leptin
- c. thyroxine
- d. cortisone
- e. insulin

414. Endocrine mechanisms of obesity determine fat accumulation due to abnormalities in hormones metabolism. Which hormone from the listed determines basal metabolic rate and its deficiency will result in weight gain?

- a. neuropeptide Y
- b. leptin
- c. thyroxine
- d. cortisone
- e. insulin

MODULE 2
SUBMODULE 4 “BLOOD PATHOLOGY”
RBC pathology. ESR and OER changes. Pathology of hemostasis.

- 1.** The following RBC's forms were found in patient's blood smear. Choose the regenerative forms of RBCs

 - a. poikilocytes
 - b. oxyphilic normocytes
 - c. anisocytes
 - d. hypochromic RBCs
 - e. RBCs with Jolly's bodies
- 2.** The following RBC's forms were found in patient's blood smear. Choose the regenerative forms of RBCs

 - a. poikilocytes
 - b. anisocytes
 - c. polychromatic normocytes
 - d. hypochromic RBCs
 - e. RBCs with Jolly's bodies
- 3.** The following RBC's forms were found in patient's blood smear. Choose the regenerative forms of RBCs

 - a. poikilocytes
 - b. anisocytes
 - c. ovalocytes
 - d. reticulocytes
 - e. shistocytes
- 4.** The following degenerative forms of RBC's may be found in patient's blood smear. Which of them means “erythrocytes with shape that differ from normal”?

 - a. hypochromic RBC
 - b. anisocytes
 - c. microcytes
 - d. megalocytes
 - e. poikilocytes
- 5.** The following degenerative forms of RBC's may be found in patient's blood smear. Which of them means “erythrocytes with size that differ from normal”?

 - a. hypochromic RBC
 - b. polychromatic normocytes
 - c. polychromatic RBCs
 - d. poikilocytes
 - e. anisocytes
- 6.** The following degenerative forms of RBC's may be found in patient's blood smear. Which of them means “erythrocyte with low haemoglobin content”?

 - a. hypochromic RBC
 - b. anisocytes
 - c. microcytes
 - d. megalocytes
 - e. RBC with Jolly bodies
- 7.** The following degenerative forms of RBC's may be found in patient's blood smear. Which of them means “extra-large RBC”?

 - a. hypochromic RBC
 - b. anisocyte
 - c. microcyte
 - d. megalocyte
 - e. RBC with Jolly bodies
- 8.** Patient with anemia carried out blood test for estimation of bone marrow's regeneration. Increased quantity of which cells is the evidence of erythropoiesis high rate in bone marrow?

 - a. reticulocytes
 - b. pronormocytes
 - c. erythroblasts
 - d. lymphocytes
 - e. platelets
- 9.** Patient has an increased ESR. Which disease increased ESR is typical for?

 - a. nephritis
 - b. polycythemia
 - c. ascites
 - d. heart failure
 - e. cataract
- 10.** Patient has reduced ESR. Which disease decreased ESR is typical for?

 - a. hepatitis
 - b. polycythemia
 - c. splenomegaly
 - d. anemia
 - e. myocardial infarction
- 11.** Patient with anemia was carried out blood test. Oxyphilic normocytes were found in blood smear. How can you describe the state of bone marrow in this case?

 - a. hyperregeneration
 - b. normal regeneration
 - c. hyporegeneration
 - d. not effective erythropoiesis
 - e. insufficient erythropoiesis
- 12.** Patient has hereditary hemolytic anemia - thalassemia. Which degenerative RBC forms are typical for this disease?

 - a. polychromatophils
 - b. megalocytes
 - c. target-like erythrocytes
 - d. poikilocytes
 - e. anisocytes
- 13.** Patient has acute thrombopenia as a result of acute platelets destruction. Which changes will be in bone marrow after one week?

- a. Absence of megakaryocytes
 - b. Reduce of megakaryocytes number
 - c. Reduce of megakaryoblasts
 - d. Absence of megakaryoblasts
 - e. Increased megakaryocytes number
- 14.** Which change of blood volume will be observed in the patient with infectious diseases accompanied by severe diarrhoea and vomiting?
- a. simple hypovolaemia
 - b. oligocytemic hypovolaemia
 - c. polycytemic hypovolaemia
 - d. oligocytemic hypervolaemia
 - e. polycytemic hypervolaemia
- 15.** Which change of blood volume will be observed in the patient on the second day after acute bloodloss?
- a. simple hypervolaemia
 - b. oligocytemic hypovolaemia
 - c. polycytemic hypovolaemia
 - d. oligocytemic hypervolaemia
 - e. polycytemic hypervolaemia
- 16.** Which change of blood volume will be observed in the patient with chronic kidney's disease accompanied by renal failure?
- a. simple hypovolaemia
 - b. oligocytemic hypovolaemia
 - c. polycytemic hypovolaemia
 - d. oligocytemic hypervolaemia
 - e. polycytemic hypervolaemia
- 17.** Which change of blood volume will be observed in the patient with Vaquez' disease?
- a. simple hypovolaemia
 - b. oligocytemic hypovolaemia
 - c. polycytemic hypovolaemia
 - d. oligocytemic hypervolaemia
 - e. polycytemic hypervolaemia
- 18.** Woman has a premature detachment of placenta and 1st phase of disseminated intravascular coagulation syndrome. Activation of which blood factor leads to this pathology?
- a. tissue thromboplastin
 - b. plasminogen
 - c. fibrinogen
 - d. Hageman's factor
 - e. ions of calcium
- 19.** Megalocytes were found in patient's blood smear. Which RBCs color index is possible in this case?
- a. 1,4
 - b. 1,0
 - c. 0,8
 - d. 0,5
 - e. 0,2
- 20.** Administration of which of the following substances would theoretically correct the abnormal bleeding laboratory tests in a person who is deficient in coagulation factor V?
- a. Activated factor VIII
 - b. Activated factor X
 - c. Fibrinogen
 - d. Plasmin
 - e. Thrombin

RBC pathology. Anemia and erythrocytosis.

- 21.** Which of the following red cell abnormalities is most indicative of hemolysis?
- a. Target cells
 - b. Acanthocytes
 - c. Schistocytes
 - d. Basophilic stippling
 - e. Heinz bodies
- 22.** A single nucleotide change in a codon on chromosome 11 that causes valine to replace glutamic acid at the sixth position of the beta-chain of hemoglobin is associated with:
- a. alpha thalassemia
 - b. glucose-6-phosphate dehydrogenase deficiency
 - c. hereditary spherocytosis
 - d. paroxysmal nocturnal hemoglobinuria
 - e. sickle cell anemia
- 23.** Megaloblasts observed in the blood smear of the patient with B12 folic acid deficiency anemia result from the impaired synthesis of:
- a. DNA
 - b. RNA
 - c. glutathione
 - d. beta-globin chains
 - e. decay-accelerating factor
- 24.** What is the leading pathophysiological mechanism that causes the disturbances of body's functions in anemic patients?
- a. Polycytemic hypervolemia
 - b. Hemic hypoxia
 - c. Circulatory hypoxia
 - d. Oligocytemic hypovolemia
 - e. Hypoxic hypoxia
- 25.** Patient was hospitalized with profound gastric bleeding. Blood count: RBCs 4,8 T/L; HB-140 g/L; RBCs color index 0,88; reticulocytes 0,6%. For which stage of acute posthaemorrhagic anemia such blood count is typical?
- a. reflexive
 - b. hydremic
 - c. marrow's activation
 - d. latent
 - e. final
- 26.** Patient arrived in a hospital with gastric bleeding. Blood count: RBCs 3,3 T/L; HB-110 g/L; RBCs color index 1,0;

reticulocytes 0,8%. Which stage of acute posthaemorrhagic anemia is such blood count typical for?

- a. reflexive
- b. hydremic
- c. marrow's activation
- d. latent
- e. final

27. Patient arrived in a hospital with gastric bleeding. Blood count: RBCs 2.9 T/L; HB-70 g/L; RBCs color index 0,72; reticulocytes 2,5% Which stage of acute posthaemorrhagic anemia is such blood count typical for?

- a. reflexive
- b. hydremia
- c. marrow's activation
- d. latent
- e. final

28. Patient has normochromic anemia in combination with abnormalities of skeleton. Which type of anemia it's typical for?

- a. Iron deficiency
- b. Microspherocytosis
- c. Iron refractory
- d. Folate deficiency
- e. Hypoplastic

29. In patient's blood were found: decreased RBCs number, microspherocytosis. Name the main mechanism of anemia development in this case:

- a. chronic bleeding
- b. G6PD deficiency
- c. inherited RBC membrane defect
- d. bone marrow hypoplasia
- e. B12-folate deficiency

30. Blood count of the patient G.: decreased RBCs number, hyperchromia, RBCs with Jolly's bodies and Kebot's rings. Which type of anemia it's typical for?

- a. Chronic posthaemorrhagic
- b. Acquired hypoplastic
- c. B12-folate deficiency
- d. Hereditary hemolytic
- e. Thalassemia

31. Patient has a sickle-cell anemia. What is pathogenetic mechanism of sickle erythrocytes formation?

- a. Membrane structural defect
- b. Defect of enzymes function
- c. Changes in chromosomes structure
- d. Defect of hemoglobin synthesis
- e. Not effective erythropoiesis

32. Patient has a pernicious anemia. Which substances metabolism is disturbed in the patient with this anemia?

- a. glucose

- b. nucleic acids
- c. amino acid
- d. cholesterol
- e. lipoproteids

33. Patient has hemolytic crisis after reception of sulfonamides. Which type of anemia reveals itself in such manner (hemolysis in response to external influence)?

- a. Hereditary hemolytic
- b. Hypoplastic
- c. Iron refractory
- d. B12-folate deficiency
- e. Chronic posthaemorrhagic

34. It is known that in some patient erythrocytes hemolysis is possible during prolonged high physical activity, which is accompanied by march hemoglobiuria. What is the mechanism of RBC hemolysis in this case?

- a. immune abnormalities
- b. mechanical injury
- c. infectious agents direct toxic effect
- d. non-infectious agents direct toxic effect
- e. reticuloendothelial hyperactivity

35. Increased serum iron is typical for sideroblastic anemia. What is the mechanism of it?

- a. Alimentary iron excess
- b. Increased hemoglobin dissociation
- c. Decreased iron absorption
- d. Increased iron absorption
- e. Defect of iron junction to hemoglobin

36. Patient, 13 years, has RBC membrane enzyme deficiency. What is the leading pathogenetic mechanism of hemolysis at glucose-6-phosphate dehydrogenase deficiency?

- a. energy deficiency
- b. hypoxia
- c. defect of proteins conformation
- d. decreased antioxidant protection
- e. decreased electric potential

37. Patient has trophic ulcers of shin in consequence of iron deficiency anemia. What is the main mechanism of cell injury in case of iron deficiency anemia?

- a. hypoxic
- b. free radical
- c. metabolic
- d. enzymatic
- e. ionic

38. Patient with mild form of sickle cell anemia has no complaints and his blood analysis is normal. Which of the following external influences can cause manifestation of anemia symptoms in this patient?

- a. extreme of cold temperature
- b. extreme low oxygen content in the air

- c. extreme of high temperature
d. extreme of air humidity
e. venomous insects bites
- 39.** Patient, 54 years, is often working with lead at work place. As a result he has hypochromic anemia. Treatment with iron medication gives no results. Iron concentration in blood serum is increased. What is the cause of anemia in this case?
- Defect of iron junction to hemoglobin.
 - Vitamin B12 deficiency
 - Folic acid deficiency
 - Hypoplasia of red bone marrow
 - Protein deficiency
- 40.** Woman has period's disorders, which are accompanied by prolonged bleedings. Blood analysis: hypochromia, decreased reticulocytes number, microcytosis. What is the reason of anemia in this case?
- B12-folate deficiency
 - Erythrocyte's hemolysis
 - Hypoplasia of bone marrow
 - Iron deficiency
 - Methaplasia of bone marrow
- 41.** Woman is pregnant (6 month). She has iron deficiency anemia. What is the mechanism of iron deficiency anemia at pregnancy?
- Defect of iron deposition
 - Iron deficiency in food
 - Defect of iron absorption
 - Increased iron usage
 - Deficiency of inner factor
- 42.** Patient has hypochromic anemia on 5th day after the acute bleeding. What is the main mechanism of hypochromia?
- Defect of iron absorption in the intestines
 - Output of non-matured RBCs from the marrow
 - Increased destruction of RBCs in the spleen
 - Defect of haemoglobin synthesis
 - increased iron output from the organism
- 43.** Patient has anemia in consequence of burn disease. Which factor deficiency is responsible for anemia development?
- myelopoetin
 - vitamin B12
 - catecholamines
 - erythropoetin
 - thrombopoetin
- 44.** Woman at 7th month of pregnancy has acutely developing anemia. RBCs - $2,7 \times 10^6/\mu\text{L}$, HB -110 g/L, RBCs color index -1,2, anisocytosis, poykilocytosis, single megalocytes. Which anemia type is present?
- B12 deficiency
 - Iron deficiency
 - hemolytic
 - posthaemorrhagic
 - talassemia
- 45.** Patient ,3 years has hemoglobinopathia (sickle-cells anemia).In this case glutamine acid in globin beta-chain was changed on:
- serine
 - tyrosine
 - valine
 - phenylalanine
 - arginine
- 46.** Patient has hemolytic jaundice. In blood: microspherocytes 1-6 in field of vision. What is the cause of RBCs hemolysis at such form of jaundice?
- Defect of RBCs enzyme systems
 - Influence of bile acids over erythrocyte's membrane
 - Hereditary defect of RBCs membrane
 - Hereditary defect of hemoglobin structure
 - Influence of bilirubin on the erythrocyte's membrane
- 47.** Woman, 36 years, was treated by sulfonamides on the occasion of respiratory virus infection. Blood count: hyporegenerative normochromic anemia, leukopenia, thrombocytopenia. In bone marrow: decrease number of marrow stem cells. Which type of anemia is described?
- Hemolytic
 - Posthemorrhagic.
 - B12 and folate deficiency
 - Hypoplastic.
 - Iron deficiency.
- 48.** In patient's blood smear: target-like RBCs. Which process directly causes target cells development?
- Hb precipitation inside the RBC
 - external RBC injury
 - defect of RBC membrane
 - increased RBC hemolysis
 - iron accumulation in RBC
- 49.** Patient's complaints are typical for chronic gastritis. In peripheral blood smear megalocytes are found. In bone marrow: megaloblastic erythropoiesis. Which type of anemia?
- Aplastic anemia
 - Hypoplastic anemia
 - B12 deficiency anemia
 - Hemolytic anemia
 - Iron deficiency anemia
- 50.** Patient is carrier of sickle-cell anemia. He has got pneumonia and in few days his

condition was complicated with anemia due to haemolytic crisis. What is the direct cause of hemolytic crisis in this case?

- a. Changes in blood osmotic pressure
- b. Heterozygosis on Hb S
- c. Hereditary defect of Hb synthesis
- d. Hyperoxia in consequence of hyperventilation
- e. Hypoxia in consequence of pneumonia

51. The destruction of RBC may occur by 2 mechanisms: intravascular and extravascular hemolysis. Most hemolysis is extravascular and occurs in phagocytic cells of the spleen, liver, and bone marrow. Choose the case which is characterized by intravascular RBC hemolysis?

- a. defect of RBC membrane
- b. deficiency of RBC enzymes
- c. mechanical injury of RBC
- d. increased spleen activity
- e. pathological haemoglobin synthesis

52. A 12-year-old boy presents in the emergency room with severe chest pain. His mother reports he was doing well until he came down with a respiratory tract infection. Blood count: Erythrocytes $3,4 \cdot 10^{12}/L$,

Hemoglobin 85 g/L, Color index 0,79; Leukocytes $5,6 \cdot 10^9/L$, Platelets $210 \cdot 10^9/L$, Reticulocytes 16%. Blood smear: anizocytosis, poikilocytosis, sickle cells. What is the most likely cause of chest pain in this boy?

- a. chest trauma
- b. chest vessels occlusion with sickle cells

- c. respiratory tract infection
- d. respiratory failure development
- e. myocardial infarction development

53. Baby on artificial feeding (cow's milk) has severe anemia: RBCs $-2 T/L$, Hb - 68 g/L, reticulocytes - 0%. Which type of anemia is this?

- a. B12 deficiency
- b. Physiological hemolytic
- c. Iron deficiency
- d. Talassemia
- e. Sickle-cell

54. The deficiency of vitamin B12 and folic acid causes serious disorders in the human body. What is the direct reason of neurological disorders in the patient with vitamin B12 deficiency?

- a. disturbance of peripheral nerves myelinisation
- b. hemic hypoxia development
- c. vitamin B12 deficiency
- d. increased peripheral nerves sensitivity
- e. imbalance between sympathetic and sympathetic activity

55. Man, 40 years has sickle-cell anemia. Which is the mechanism of RBCs quantity decrease?

- a. Iron deficiency in organism
- b. B12 folate deficiency
- c. Protein deficiency
- d. Extravascular hemolysis of RBC
- e. Intravascular hemolysis of RBC

WBC pathology. Leukocytosis and leukopenia.

56. A person taking an oral sulfonamide is found to have a markedly decreased peripheral blood neutrophil count, but the numbers of platelets and erythrocytes are normal. If the peripheral neutropenia is the result of antineutrophil antibodies being produced in response to taking the sulfonamide, then this patient would be expected to have:

- a. An atrophic spleen
- b. Decreased vitamin B12 levels
- c. Hypoplasia of the bone marrow myeloid series
- d. Hyperplasia of the bone marrow myeloid series
- e. A monoclonal large granular lymphocyte proliferation in the peripheral blood

57. Blood test was carried out in the patient with acute inflammation. Regenerative shift was found in leukocytic formula. Shift of

leukocyte's formula "to the left" is the increased count of young forms of ...:

- a. eosinophils
- b. neutrophils
- c. basophils
- d. lymphocytes
- e. monocytes

58. Blood test was carried out in the patient. What is the absolute leukocytes number?

- a. Number of leukocytes different forms in the unit of blood volume
- b. Number of leukocytes different forms in organism
- c. Correlation among RBCs and leukocytes quantity
- d. Correlation among number of different forms of neutrophilic leukocytes
- e. Proportion between granulocytes and agranulocytes

- 59.** Which of the listed WBC is a degenerative form of leukocyte?
- Eosinophils with red granularity
 - Basophils with blue granularity
 - Neutrophils with Dohle bodies
 - Neutrophils with asurophilic granularity
 - RBCs with pathological inclusions
- 60.** Which of the WBC from listed below is a degenerative form of leukocyte?
- Eosinophils with red granularity
 - Basophils with blue granularity
 - Neutrophils with toxic granularity
 - Neutrophils with asurophilic granularity
 - RBCs with pathological impurities
- 61.** Blood test was carried out in the patient. Choose regenerative form of WBC.
- Young neutrophil
 - Segmented neutrophil
 - Eosinophilic leukocyte
 - Basophilic leukocyte
 - Small lymphocyte
- 62.** Blood test was carried out to the patient. Choose regenerative form of WBC
- lymphocyte
 - monocyte
 - segmented neutrophil
 - polymphocyte
 - eosinophil
- 63.** Blood test was carried out to the patient. Choose regenerative form of WBC
- segmented neutrophil
 - eosinophilic leukocyte
 - promonocyte
 - lymphocyte
 - monocyte
- 64.** Blood test was carried out to the patient. Choose regenerative form of WBC
- segmented neutrophil
 - myelocyte
 - eosinophil
 - basophilic leukocyte
 - small lymphocyte
- 65.** The deficiency of vitamin B12 and folic acid causes serious disorders in the human body. Describe the state of WBC count in the patient with vitamin B12 deficiency:
- normal count
 - absolute leukocytosis
 - absolute lymphocytosis
 - physiological leukopenia
 - absolute neutropenia
- 66.** Patient has neutrophilia with regenerative shift to the left in leukocytic formula on the 1st day after appendectomy. What is the main mechanism of absolute leukocytosis in this case?
- Redistribution of leukocytes in organism
 - Decreased leukocytes destruction
 - Slowing down of leukocytes emigration into the tissues
 - Increased leukopoiesis
 - Activation of immunity
- 67.** In a day after examination leukocytosis without changes in leukocytic formula was revealed in the blood count of a student. Choose the most probable mechanism of relative leukocytosis development in peripheral blood.
- Redistribution of leukocytes in organism
 - Increased leukopoiesis
 - Decreased leukocytes destruction
 - Slowing down of leukocytes emigration into the tissues
 - Rapid leukopoiesis
- 68.** Leukocytosis was found in the patient. Which leukocytosis from listed below is pathological leukocytosis?
- Emotional
 - Distributive
 - Myogenous
 - Neutrophilic
 - In newborns
- 69.** Leukocytosis was found in the patient. Which leukocytosis from listed below is physiological leukocytosis?
- Emotional
 - Eosinophilic
 - Neutrophilic
 - Absolute
 - Relative
- 70.** Leukopenia was found in the patient. What is correct definition for agranulocytosis?
- Increased agranulocytes number
 - Increased granulocytes number
 - Decreased agranulocytes number
 - Increased eosinophils and basophils number
 - Decreased granulocytes number
- 71.** Significant decrease of leukocyte's quantity was found in the patient. Which sign from listed below in a combination with leukopenia is characteristic for agranulocytosis?
- Neutropenia and lymphopenia
 - Neutrophilosis and eosinopenia
 - Neutropenia and eosinopenia
 - Lymphopenia and monocytopenia
 - Without changes of correlation
- 72.** After uncontrolled reception of non-steroid anti-inflammatory drugs fever, vomiting and stool with blood occurred in the patient.

Blood count: leukocytes- 0.9G/L, leukoagglutinines (anti-leukocyte's antibodies). Leukocytic formula: segm. neutrophils - 22, lymphocytes - 68, monocytes - 10. Which blood state this blood count corresponds to?

- a. leukopenia
- b. leukemia
- c. agranulocytosis
- d. normal blood count
- e. decreased platelets amount

73. After uncontrolled reception of non-steroid anti-inflammatory drugs fever, vomiting and stool with blood occurred in the patient.

Blood count: leukocytes- 0.9G/L, leukoagglutinines (anti-leukocyte's antibodies). Leukocytic formula: segm. neutrophils - 22, lymphocytes - 68, monocytes - 10. What is the mechanism of this leukocytes count development?

- a. myelotoxic influence of NSADs
- b. redistribution of WBC
- c. increased spleen activity
- d. idiopathic
- e. autoimmune destruction

74. Relative neutropenia is revealed in the patient with a lasting fever. Which probable mechanism underlies such neutropenia?

- a. Decreased leukocytes production at marrow
- b. Redistribution of leukocytes in the vessels
- c. Decreased leukocytes circulation time in vessels
- d. Rapid leukocytes destruction at spleen
- e. Decreased leukopoetines production at fever

75. Absolute neutropenia was revealed in the patient with splenomegalia. Which probable mechanism underlies such neutropenia?

- a. Redistribution of leukocytes in vessels
- b. Output of immature leukocytes
- c. Decreased marrow's production
- d. Accelerated leukocytes destruction
- e. Decreased leukopoetines production

76. Patient arrived in a hospital for specification of the diagnosis. Blood count: eosinophilia. Which disease from the following can be accompanied by such changes in blood?

- a. hepatitis
- b. lympholeukemia
- c. bronchial asthma
- d. erythrocytosis
- e. anemia

77. Patient arrived to the hospital for specification of the diagnosis. Blood analysis has revealed neutrophilic leukocytosis with the shift of leukocytic formula to the left. Which

disease from the following can be accompanied by such changes in blood?

- a. Allergic dermatitis
- b. Lympholeukemia
- c. Bronchial asthma
- d. Iron deficiency anemia
- e. Myocardial infarction

78. Patient arrived to the hospital for specification of the diagnosis. Blood analysis: neutrophilic leukocytosis with the regenerative shift of leukocytic formula to the left. Which disease from the following can be accompanied by such changes in blood?

- a. Allergic dermatitis
- b. Hemophilia
- c. Lympholeukemia
- d. Glomerulonephritis
- e. Virus hepatitis

79. Patient arrived to the hospital for specification of the diagnosis. Blood analysis: neutrophilic leukocytosis with the hyperregenerative shift of leukocytic formula to the left. Which disease from the following can be accompanied by such changes in blood?

- a. Tuberculosis
- b. Sepsis
- c. Hemophilia
- d. Virus hepatitis
- e. Lymphogenous leukemia

80. Patient arrived to the hospital for specification of the diagnosis. Blood analysis: absolute lymphocytosis. Which disease from the following can be accompanied by such changes in blood?

- a. Myeloleukemia
- b. Allergic dermatitis
- c. Viral hepatitis
- d. Acute sepsis
- e. Hemophilia

81. Patient arrived to the hospital for specification of the diagnosis. Blood analysis: lymphocytosis. Which disease from the following can manifest with such changes in blood count?

- a. Myocardial infarction
- b. Allergic dermatitis
- c. Myeloleukemia
- d. Tuberculosis
- e. Hemophilia

82. The child 6 years old with diarrhoea was treated by his parents with different antibiotics without doctor's control. In a month later the blood count of this child shows decreased WBC count, decreased neutrophils count, increased lymphocytes and monocytes count. What is most probable mechanism of the

given blood count changes development in the child?

- a. autoimmune destruction of neutrophils
- b. redistribution of leukocytes in the vessels
- c. myelotoxic influence of antibiotics
- d. age-specific changes
- e. increased spleen activity

83. Splenectomy was carried out in the patient with abdominal trauma. Blood analysis –leukocytosis without essential changes in leukocytic formula. What is the most probable mechanism of leukocytosis in the patient?

- a. Activation of leukopoiesis
- b. Stimulation of leukocytes exit from bone marrow
- c. Slowing of leukocytes destruction
- d. Decreased WBC migration to the tissues
- e. Physiological leukocytosis

84. The patient with atrophic gastritis had deficiency of vitamin B12. Which change of leukocytic formula is most typical for hypovitaminosis B12?

- a. Lymphocytosis
- b. Monocytosis
- c. Degenerative neutrophils nuclear shift to the left
- d. Degenerative neutrophils nuclear shift to the right
- e. Regenerative neutrophils nuclear shift to the left

85. The patient with tuberculosis was made blood count. Which changes of leukocytic formula are most typical for this pathology?

- a. Neutrophils nuclear shift to the left
- b. Lymphocytosis
- c. Neutrophils nuclear shift to the right
- d. Eosinophilia
- e. Neutrophilia

86. Acute inflammation of upper respiratory ways and eyes manifested with hyperemia and edema of conjunctiva occurs in the woman during grass flowering period. Which type of leukocytosis will be most typical for this case?

- a. Eosinophilia
- b. Basophilia
- c. Neutrophilia
- d. Lymphocytosis
- e. Monocytosis

87. Wheals of urticaria accompanied with leukocytosis appeared at the teenager after eating honey. Which type of leukocytosis is typical in this case?

- a. Basophilic
- b. Eosinophilic
- c. Neutrophilic
- d. Lymphocytosis
- e. Monocytosis

88. Increased leukocytes' number in peripheral blood is revealed in the patient with acute appendicitis. Which type of leukocytosis will be most typical in this case?

- a. Basophilic
- b. Eosinophilic
- c. Neutrophilic
- d. Lymphocytosis
- e. Monocytosis

WBC pathology. Leukemia and leukemoid reaction.

89. It is known that enlargement of liver and spleen is a typical clinical manifestation of leukemia. Why it happens?

- a. due to increased functional activity of these organs
- b. due to leukemic infiltration of these organs
- c. due to acute inflammation of these organs
- d. due to edema of these organs
- e. spleen and liver enlargement is not a specific symptom

90. Patient has high neutrophilia (90G/L) with shift up to promyelocytes and myeloblasts as a result of acute sepsis development. To which type of leukemoid reaction it concerns?

- a. lymphogenous
- b. eosinophilous
- c. erythromyelogenous
- d. agranulocytous

e. myelogenous

91. The patient arrived to hospital with suspicion on leukaemia. Which sign from listed below is diagnostic criterion of leukemia?

- a. Significant increase of leukocytes quantity
- b. Spleen enlargement
- c. Eosinophil-basophil association
- d. Blast cells in peripheral blood
- e. Development of aplastic anemia

92. The patient arrived to hospital with suspicion on leukaemia. Which sign from listed below is diagnostic criterion of leukemia?

- a. Significant increase of leukocytes quantity
- b. Spleen hyperplasia
- c. Suppression of normal hemopoiesis
- d. Eosinophil-basophil association
- e. Development of aplastic anemia

- 93.** The patient arrived to hospital with suspicion on leukemia. Which sign from listed below is diagnostic criterion differentiating acute leukemia from chronic?
- Significant increase of leukocytes quantity
 - Speed of disease development
 - Eosinophil-Basophil association
 - Gumprecht's cells
 - Prevalence of blasts cells in blood
- 94.** The patient arrived to hospital with suspicion on leukemia. Which sign from listed below is diagnostic criterion differentiating acute leukemia from chronic?
- Substantial growth of leukocytes quantity
 - Hiatus leukemicus
 - Speed of disease development
 - Eosinophil-basophil association
 - Gumprecht's cells
- 95.** The patient arrived to hospital with suspicion on leukemia. Which criterion from listed below verifies chronic myelogenous leukemia?
- Gumprecht's cells
 - Speed of disease development
 - Myeloblasts prevalence in blood count
 - Eosinophil-basophil association
 - Lymphoblasts presence in blood
- 96.** The patient arrived to hospital with suspicion on leukemia. Which criterion from listed below verifies chronic lymphogenous leukemia?
- Eosinophil-basophil association
 - Speed of disease development
 - Gumprecht's cells
 - Lymphoblasts presence in blood
 - Myeloblasts prevalence in blood count
- 97.** Patient S, 43 years, has CML, anemia, and decreased platelets number. What anemia from listed below accompanies leukemia?
- Hypoplastic
 - Aplastic
 - Hyperplastic
 - Metaplastic
 - Aneplastic
- 98.** Patient K, 46 years has anemia, decreased platelets number, high leukocytosis with immature Wbc forms presence in blood smear. What is probable diagnosis for him?
- Leukemia
 - Hypoplastic anemia
 - Hemophilia
 - Leukemoid reaction
 - Leukocytosis
- 99.** During clinical examination of the patient with acute myelogenous leukemia enlargement of liver and spleen is found. Blood analysis: anemia, myeloblasts in peripheral blood. What is the basic distinction between acute and chronic myelogenous leukemia?
- Blast cells in peripheral blood
 - Anemia
 - Hiatus leukemicus
 - Pancytopenia
 - Decreased platelets

Situational problems on blood pathology

Patient A, 54 years, 5th day after surgical operation. Blood count: Erythrocytes $3,6 \cdot 10^{12}/L$, Hemoglobin 95 g/L, Color index 0,78; Leukocytes $16 \cdot 10^9/L$, Platelets $450 \cdot 10^9/L$
Leukocytic formula

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
3	1	1	2	8	64	18	3

Blood picture: single anizocytes, poikilocytosis, reticulocytes- 3,8%.

- 100.** Increased quantity of which cells verify activation of haemopoiesis in this patient?
- leukocytes
 - platelets
 - reticulocytes
 - poikilocytes
 - anisocytes
- 101.** Which change of circulating blood volume can be revealed in the given clinical situation?
- Normocytemic hypovolemia
 - Polycytemic hypovolemia
 - Oligocytemic hypervolemia
 - Oligocytemic normovolemia
 - Simple hypovolemia
- 102.** Describe the state of WBCs in the given clinical situation:
- Relative neutrophilic leukocytosis
 - Absolute neutrophilic leukocytosis
 - Absolute lymphopenia
 - Normal count
 - Eosinophil-basophil association

103. Estimate presence of neutrophils nuclear shift and choose the most correct answer:

- a. degenerative shift to the left
- b. regenerative shift to the right
- c. regenerative shift to the left
- d. degenerative shift to the right
- e. no shift

104. What mechanism has caused change of the leukocytes' contents in peripheral blood at the given clinical situation?

- a. Increased leukocytes' production in bone marrow

- b. Redistribution of leukocytes in blood vessels
- c. Decreased leukocytes destruction
- d. Exit of leukocytes from depot
- e. Lazy leukocytes syndrome

105. Which type of anemia is present in the patient?

- a. acute haemolytic
- b. acute posthaemorrhagic
- c. chronic haemolytic
- d. chronic posthemorrhagic
- e. iron deficiency anemia

Woman C., 38 years is in a hard state suffering from acute sepsis. Blood count: Erythrocytes $4.1 \cdot 10^{12}/L$; Hemoglobin 129 g/L; Color index 0,94; Leukocytes $36 \cdot 10^9/L$,

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
3	1	4	7	9	51	20	5

Blood picture: single promyelocytes, toxic grain in neutrophile's cytoplasm, reticulocytes - 0,9%.

106. Toxic grain in neutrophiles cytoplasm verifies:

- a. the presence of inflammation
- b. normal neutrophil
- c. presence of allergy
- d. leukemia
- e. degenerative changes in neutrophil

107. Presence of promyelocytes in blood smear verifies:

- a. normal blood smear
- b. hyperproduction of WBC
- c. hypoproduction of WBC
- d. increased WBC destruction
- e. decreased WBC destruction

108. Which mechanism underlies changes in leukocytic formula?

- a. Activation of immune system
- b. Activation of neutrophils phagocytic activity
- c. Development of autoimmune reaction
- d. Activation of granulocytopoiesis
- e. Tumor hyperplasia of bone marrow

109. Describe the state of WBCs at the given clinical situation:

- a. Relative neutrophilic leukocytosis
- b. Leukemoid reaction
- c. Absolute lymphopenia
- d. Chronic myeloleukemia
- e. Eosinophil-basophil association

Patient D., 54 years, complains about general weakness, headache, giddiness, troubled sleep. Blood count: Erythrocytes $3,8 \cdot 10^{12}/L$, Hemoglobin 68 g/L, Color index 0,54 Leukocytes $6,1 \cdot 10^9/L$,

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
3	1	0	0	6	62	24	4

Blood picture: hypochromic erythrocytes, microcytes, erythrocytes with basophilic granularity, single polychromatophilic normocytes, reticulocytes – 1,8%.

110. What type of anemia is present in the patient?

- a. Acute posthemorrhagic
- b. Chronic hemolytic
- c. Iron deficiency

- d. Acquired hemolytic
- e. Hypoplastic

111. Increased quantity of which cells can verify the activation of haemopoiesis?

- a. leukocytes
- b. platelets
- c. poykilocytes
- d. polychromatophils
- e. anisocytes

112. Picture of WBC in the patient can be characterized as:

- a. normal count

- b. absolute neutrophilic leukocytosis
- c. relative neutrophilic leukocytosis
- d. leukopenia with relative lymphocytosis
- e. eosinophil-basophil association

113. Which substance deficiency may result in such type of anemia?

- a. vitamin B12
- b. folic acid
- c. protein
- d. bilirubin
- e. iron

Patient K., 55 years complains about general weakness, fever, digestion violation, enlarged lymph nodes. Blood count: Erythrocytes $2,8 \cdot 10^{12}/L$, Hemoglobin 84 g/L, Color index 0,9; Erythrocytes sedimentation rate 30 mm/hour Leukocytes $22 \cdot 10^9/L$, Platelets $142 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
1	0	0	0	2	37	58	6

114. Picture of WBC of the patient can be characterised as:

- a. neutrophilic leukocytosis
- b. absolute neutropenia
- c. eosinophilic leukocytosis
- d. relative monocytosis
- e. absolute lymphocytosis

115. Choose the most correct description of neutrophils state in this patient:

- a. absolute neutropenia
- b. normal neutrophils count
- c. relative neutrophilia
- d. absolute neutrophilia
- e. relative neutropenia

116. Estimate the ESR level and explain the mechanism of it:

- a. increased ESR due to anemia
- b. increased ESR due to lymphocytosis

- c. normal ESR
- d. decreased ESR due to fever
- e. decreased ESR due to inflammation

117. What is the mechanism of leukocytes quantity change?

- a. redistribution of leukocytes in organism
- b. decreased leukocytes destruction
- c. slowing down of leukocytes migration to the tissues
- d. activation of lymphopoiesis
- e. exit from depot

118. Changes in leukocytic formula can verify:

- a. sepsis
- b. inflammation
- c. chronic infection
- d. exogenous intoxication
- e. tumour progress

Blood count of the Patient S.: Leukocytes $3,2 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
0	0	0	0	0	26	63	11

119. Picture of WBC in the patient can be characterized as:

- a. absolute neutropenia
- b. absolute lymphocytosis
- c. relative eosinopenia
- d. agranulocytosis
- e. absolute monocytosis

120. Picture of WBC in the patient can be characterized as:

- a. relative lymphocytosis
- b. relative neutropenia
- c. relative eosinopenia
- d. absolute monocytosis
- e. agranulocytosis

121. Choose the most probable reason of such changes in leukocytic formula:

- a. activation of granulocytes production
- b. depression of granulocytes production

- c. activation of lymphocytes production
- d. allergic reaction development
- e. leukemia development

Patient F., 56 years arrived to clinic with stenocardia attack and suspicion of myocardial infarction. Blood count: Erythrocytes $8,5 \cdot 10^{12}/L$ Hemoglobin 170 g/L Color index 0,6 Erythrocytes sedimentation rate 1 mm/hour Leukocytes $23 \cdot 10^9/L$ Platelets $550 \cdot 10^9/L$

Leukocytic formula

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
5	1	1	3	14	55	18	3

Blood picture: hypochromic and polychromatophilic erythrocytes, anizocytosis, poikilocytosis, reticulocytes - 2,1%.

122. Picture of WBC in the patient the most probably can be characterized as:

- a. relative lymphocytosis
- b. relative eosinopenia
- c. absolute monocytosis
- d. absolute neutrophilia
- e. agranulocytosis

123. Estimate presence of neutrophils nuclear shift and choose the most correct answer:

- a. hyperregenerative
- b. degenerative shift to the right
- c. regenerative shift to the right
- d. regenerative shift to the left
- e. degenerative shift to the left

124. What is the reason of the patient's blood count changes?

- a. Bone marrow hyperplasia
- b. Disturbances of blood circulation
- c. Changes of coronary vessels
- d. Stenocardia
- e. Cardiosclerosis

125. Define the state of blood circulating volume in this patient:

- a. Normocytic hypovolemia
- b. Polycytemic hypovolemia
- c. Oligocytemic hypervolemia
- d. Oligocytemic normovolemia
- e. Polycytemic hypervolemia

126. Define the RBC count in this patient:

- a. normal RBC count
- b. iron deficiency anemia
- c. secondary erythrocytosis
- d. myelogenous leukemia
- e. primary erythrocytosis

127. Which from the given changes of blood indices can be the cause of problems with coronary circulation in the patient?

- a. low ESR
- b. low color index
- c. increased blood viscosity
- d. increased WBC quantity
- e. poikilocytosis

Patient K., 55 years, arrived to clinic with complains about general weakness, fever, enlarged spleen and regional lymph nodes. Blood count: Erythrocytes $2,8 \cdot 10^{12}/L$, Hemoglobin 84 g/L, Color index 0,9 Erythrocytes sedimentation rate 30 mm/hour Leukocytes $22 \cdot 10^9/L$, Platelets $142 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
1	0	0		1	22	61	3

Lymphoblasts – 3%, prolymphocytes – 9%, big lymphocytes – 13%, medium lymphocytes – 18%, small lymphocytes – 30%

Blood picture: normochromic erythrocytes, anizocytosis, poikilocytosis, reticulocytes- 0,05%, many "lymphocyte's shadows" (Gumprecht cells)

128. Which of the listed forms of leukemia is present in the patient?

- a. leukemic
- b. subleukemic
- c. aleukemic
- d. leukopenia

e. leukemia is not indicated

129. Estimate ESR level and choose the most correct mechanism that caused this disturbance:

- a. normal ESR
- b. increased albumen-globulin coefficient

- c. decreased albumen-globulin coefficient
 - d. damage of RBCs membrane
 - e. increased blood viscosity
- 130.** Define the state of neutrophils count in this patient:
- a. absolute neutropenia
 - b. normal neutrophils count
 - c. relative neutrophilia
 - d. absolute neutrophilia
 - e. relative neutropenia
- 131.** What is the mechanism of Gumprecht cells appearance in the blood smear?
- a. lymphocytes breakdown during smear preparation
 - b. due to their increased blood count
 - c. due to autoimmune reaction against lymphocytes
 - d. due to increased hemolysis
- 132.** What mechanism is responsible for change in leukocytic formula in the patient?
- a. Activation of the immune system
 - b. Development of allergic reaction
 - c. Development of autoimmune reaction
 - d. Activation of lymphopoiesis
 - e. Endogenous intoxication
- 133.** What is the probable reason of the changes in patient's leukocytic formula?
- a. Metastases of tumor into bone marrow
 - b. Autoimmune inflammation
 - c. Tumor hyperplasia of bone marrow
 - d. Endogenous intoxication
 - e. Allergic reaction
- 134.** What pathology of RBCs from listed below is present in the patient?
- a. aplastic anemia
 - b. chronic posthemorrhagic anemia
 - c. acquired hemolytic anemia
 - d. metaplastic anemia
 - e. iron deficiency anemia
- 135.** What is the most probable mechanism of RBCs quantity change in the patient?
- a. Loss of RBCs
 - b. Violation of hemopoietic regulation
 - c. Intravascular RBCs hemolysis
 - d. Accumulation of RBCs in liver
 - e. Deficiency of plastic and energy substances
- 136.** What pathology of WBCs from listed below is present in the patient?
- a. chronic lymphogenous leukemia
 - b. acute lymphogenous leukemia
 - c. undifferentiated leukemia
 - d. lymphogenous leukemoid reaction
 - e. relative lymphocytosis
- 137.** What importance has presence of Gumprecht's cells in peripheral blood?
- a. testifies about leukemia cells apoptosis development
 - b. it is diagnostic criterion of lymphogenous leukemia
 - c. confirms disturbance of haemopoiesis regulation
 - d. is an attribute of an output of leukemia cells in blood
 - e. testifies to activation of antitumor protection

Patient M., 17 years. Complains of great number of subcutaneous hemorrhages and gums bleedings. Blood count: Erythrocytes $3,6 \cdot 10^{12}/L$, Hemoglobin 100 g/L, Color index 0,83
 Erythrocytes sedimentation rate 50 mm/hour; Leukocytes $6,5 \cdot 10^9/L$, Platelets $60 \cdot 10^9/L$
 Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
0	0	0	0	1	18	12	2

33

Lymphoblasts - 63%, prolymphocytes - 4%

Blood picture: normochromic RBCs, anizocytosis, poikilocytosis, reticulocytes - 0,02%.

- 138.** Which form of leukemia from listed below is present in the patient?
- a. Subleukemic
 - a. Aleukemic
 - b. Leukemic
 - c. Leukopenia
 - d. No leukemia
- 139.** What is the reason of hemorrhagic syndrome manifestation in this patient?
- a. decreased platelets count due to bone marrow metaplasia
 - b. decreased platelets count due to their increased use
 - c. anemia development
 - d. blood vessels pathology
 - e. mechanical trauma of blood vessels
- 140.** Describe WBC state in this patient:
- a. agranulocytosis
 - b. leukemoid reaction
 - c. absolute lymphocytosis
 - d. acute lymphogenous leukemia
 - e. chronic lympholeukemia

- 141.** Estimate regenerative ability of marrow in the patient. Bone marrow is...:
- normregenerative
 - aregenerative
 - hyporegenerative
 - degeneratory
 - hyperregenerative
- 142.** What is the most probable reason of leukocytes' quantity change in the patient?
- leukocyte's quantity is not changed
 - decreased leukocytes destruction
 - slowing down of leukocytes migration to the tissues
 - redistribution of leukocytes in organism
 - tumor development in the bone marrow
- 143.** Choose the most probable reason describing platelets level in the patient :
- decreased marrow's production
 - increased platelets usage

- normal platelets amount
 - autoimmune destruction of platelets
 - platelets deposition in the vessels
- 144.** What mechanism more probably underlies change in leukocytic formula in the patient?
- Activation of immune system of the organism
 - Development of allergic reaction
 - Development of autoimmune reaction
 - Malignant activation of lymphopoiesis
 - Development of immune deficiency
- 145.** What is the most probable mechanism of RBCs quantity change in the patient?
- loss of RBCs
 - disturbance of heamopoietic regulation
 - suppression of erythropoiesis
 - intravascular RBCs hemolysis
 - RBCs deposit

Patient A., 42 years, arrived to clinic with complains about general weakness, fever, severe quinsy, pains in bones and joints. Blood count: Erythrocytes $2,8 \cdot 10^{12}/L$, Hemoglobin 84 g/L, Color index 0,9 Erythrocytes sedimentation rate 50 mm/hour Leukocytes $82 \cdot 10^9/L$, Platelets $142 \cdot 10^9/L$ Leukocytic formula

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
0	0			2	12	10	2

34

Myeloblasts - 70%, promyelocytes - 4%

Blood picture: normochromic RBCs, anizocytosis, poikilocytosis, reticulocytes- 0,04%.

- 146.** What form of leukemia from listed below is present in the patient?
- Aleukemic
 - Subleukemic
 - Leukopenic
 - No leukemia
 - Leukemic
- 147.** Estimate presence of neutrophils nuclear shift and choose the most correct answer:
- regenerative shift to the left
 - degenerative shift to the right
 - hyperregenerative
 - hiatus leukemicus
 - no shift
- 148.** Describe the state of WBCs in the patient:
- acute myelogenous leukemia
 - chronic myeloleukemia
 - undifferentiated leukemia
 - leukemoid reaction
 - neutrophilic leukocytosis
- 149.** Estimate regenerative ability of marrow in the patient. Bone marrow is... :
- hyporegenerative
 - degeneratory

- normregenerative
 - aregenerative
 - hyperregenerative
- 150.** What is the most probable reason of leukocytes quantity change in the patient?
- output of leukocytes from depot
 - decreased leukocytes destruction
 - redistribution of leukocytes in organism
 - disturbance of leukocytes deposit
 - increased leukocytes production
- 151.** What is the reason of severe quinsy development in the patient?
- primary immunodeficiency development
 - secondary immunodeficiency development
 - hyperergic inflammation
 - increased neutrophils count
 - low platelets counts
- 152.** Which pathological process underlies changes in patient's leukocytic formula?
- tumour metastases into a heamopoietic tissue
 - tumour hyperplasia of heamopoietic tissue
 - acute infectious process
 - autoimmune inflammation

- e. development of allergic reaction
- 153.** What is the direct reason of pains in bones and joints in this clinical case?
- osteoporosis
 - leukemic infiltration
 - rheumatism
 - trauma of bones
 - increased blood hemolysis
- 154.** What pathology of RBC from listed below is present in the patient?
- Chronic posthemorrhagic anemia

- Acquired hemolytic anemia
- Metaplastic anemia
- Aplastic anemia
- Iron deficiency anemia

- 155.** What is the most probable mechanism of RBCs quantity change in the patient?
- Loss of RBCs
 - Disturbance of hemopoietic regulation
 - Intravascular hemolysis of RBCs
 - Depression of erythropoiesis
 - RBCs deposit in liver

Patient G., 34 years, complains of weakness, fatigue, sweatness, pains in left subcostal region. Blood count: Erythrocytes $2,9 \cdot 10^{12}/L$, Hemoglobin 120 g/L, Color index 0,85 Erythrocytes sedimentation rate 50 mm/hour

Leukocytes $93 \cdot 10^9/L$, Platelets $190 \cdot 10^9/L$ Leukocytic formula

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
9	4	20	20	13	12	10	5

93

Myeloblasts - 1%, promyelocytes - 6% Blood picture: normochromic RBCs, reticulocytes - 0,1%.

- 156.** Estimate presence of neutrophils nuclear shift and choose the most correct answer:
- regenerative
 - degenerative
 - no shift
 - hyperregenerative
 - hiatus leukemicus
- 157.** Which form of leukemia from listed below is the most probably present in the patient?
- aleukemic
 - subleukemic
 - leukemic
 - leukopenia
 - there is no leukemia
- 158.** What mechanism underlies changes in leukocytic formula in the patient?
- suppression of phagocytes activity of neutrophils
 - activation of granulocytopoiesis
 - development of allergic reaction
 - development of autoimmune reaction
 - development of immune deficiency
- 159.** Describe WBCs state in the patient:
- non-differentiated leukemia
 - acute myeloblastic leukemia
 - leukemoid reaction
 - chronic myeloleukemia
 - neutrophilic leukocytosis
- 160.** Which specific sign from listed below can be found in all the granulocytes of this patient?

- Philadelphia chromosome
- Gumprecht cells
- Jolly bodies
- Kebo rings
- Dohle bodies

- 161.** What is the mechanism of pain in the left subcostal region of the patient?
- spleen inflammation due to infection
 - spleen enlargement due to increased hemolysis
 - increased intraintestinal pressure
 - spleen enlargement due to leukemic infiltration
 - pathology of the kidneys
- 162.** What pathology from listed below does changes in patient's leukocytic formula testify?
- endogenous intoxication
 - acute infectious process
 - autoimmune inflammation
 - disseminated intravascular coagulation syndrome
 - tumour hyperplasia of hemopoietic tissue

- 163.** What is the most probable reason of leukocytes quantity change in the patient?
- decreased leukocytes destruction
 - slowing down of leukocytes emigration to the tissues
 - redistribution of leukocytes in organism
 - increased leukocytes production
 - leukocytes deposit

Patient Tch., 27 years, laboratory assistant of X-ray cabinet. Arrived to clinic with suspicion of acute leukemia. Last month there were complaints about weakness and frequent bleedings. Blood count: Erythrocytes $1,46 \cdot 10^{12}/L$, Hemoglobin 42 g/L, Color index 0,85 Erythrocytes sedimentation rate 23 mm/hour; Leukocytes $3,1 \cdot 10^9/L$, Platelets $97 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
1	0	0	0	2	18	68	11

Blood picture: normochromic RBCs, reticulocytes - 0,01%.

164. Which form of leukemia from listed below is most probably present in the patient?

- leukemic
- aleukemic
- subleukemic
- leukopenia
- no leukemia

165. Picture of WBC in the patient can be characterized as :

- absolute neutropenia
- agranulocytosis
- absolute lymphocytosis
- absolute monocytosis
- relative eosinopenia

166. Suppose the functional state of bone marrow in this patient using the blood count:

- hyperplasia
- normal functional state
- hypoplasia
- metaplasia
- dysplasia

167. Choose the most probable reason of platelets quantity change in the patient:

- autoimmune destruction of platelets
- disturbance of hemopoietic regulation
- increased platelets usage
- decreased marrow's production
- platelets deposit

168. What is the most probable reason of leukocytes quantity change in the patient?

- increased leukocytes destruction
- slowing down of leukocytes migration to the tissues
- decreased leukocytes production
- redistribution of leukocytes in organism
- autoimmune hemolysis

169. Estimate RBC state in the patient:

- metaplastic anemia
- hypoplastic anemia
- chronic posthaemorrhagic anemia
- norm picture of RBC
- iron deficiency anemia

Patient K., 54 year. Last 6 months complains of frequent headaches, caused by high ABP. Blood count: Erythrocytes $6,4 \cdot 10^{12}/L$, Hemoglobin 178 g/L, Color index 0,85 Erythrocytes sedimentation rate 2 mm/hour Leukocytes $14 \cdot 10^9/L$, Platelets $460 \cdot 10^9/L$ Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
6	1	0	2	11	62	16	2

Blood picture: normochromic RBCs, single erythroblasts, pronormocytes, normocytes, reticulocytes - 5,6%. Oxygen blood concentration 95%.

170. Estimate change of ESR and choose the most correct mechanism of change:

- increased viscosity of blood
- increased electrical charge of RBCs
- damage of RBCs membrane
- increased platelets amount
- increased leukocytes amount

171. Estimate regenerative ability of marrow in the patient. Bone marrow is...:

- normregenerative
- hyporegenerative

- hyperregenerative
- aregenerative
- degenerative

172. What is the reason of WBC count change in the patient?

- redistribution of leukocytes
- decreased destruction of WBC
- exit of leukocytes from depot
- increased leukopoietines level
- hyperplasia of WBC in marrow

- 173.** What is the most probable mechanism of RBCs quantity change in the patient?
- excess of plastic and energy substances
 - hypoxic stimulation of hemopoietic tissue
 - decreased blood hemolysis in spleen
 - disturbance of RBCs deposit
 - hyperplasia of RBC in bone marrow
- 174.** Which pathology of WBC from the following is observed in the patient?
- lympholeukemia
 - leukocytosis
 - myeloleukemia
 - leukemoid reaction
 - leukopenia

- 175.** What is the reason of arterial hypertension development in the patient?
- increased blood viscosity
 - spasm of arterioles
 - thrombosis of myocardial vessels
 - increased myocardial needs in oxygen
 - atherosclerosis
- 176.** What pathology from listed below is present in the patient?
- leukemoid reaction
 - myeloleukemia
 - lympholeukemia
 - polycythemia vera
 - neutrophilic leukocytosis

A girl, 4 years old. Three weeks after quinsy become weak and pale. Blood count: Erythrocytes $2,9 \cdot 10^{12}/L$, Hemoglobin 89 g/L, Color index 0,9 Erythrocytes sedimentation rate 50 mm/hour Leukocytes $2,9 \cdot 10^9/L$, Platelets $120 \cdot 10^9/L$ Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
0	0	0	0	1	16	31	2

Blasts cells 50% Morphological and biochemical signs of blasts cells are similar both to lymphoblasts and myeloblasts; reticulocytes - absent

- 177.** Which of the listed forms of leukemia is the most probably present in the patient?
- subleukemic
 - leukemic
 - aleukemic
 - leukopenic
 - no leukemia
- 178.** What pathology of WBC is observed in the patient?
- lympholeukemia
 - myeloleukemia
 - leukemoid reaction
 - relative leukocytosis
 - undifferentiated leukemia
- 179.** Which pathology of RBC from listed below is present in the patient?
- hypoplastic anemia
 - metaplastic anemia
 - chronic posthemorrhagic anemia
 - acquired hemolytic anemia
 - iron deficiency anemia
- 180.** What is the most correct mechanism of WBC changes development in the patient?
- decreased leukocytes destruction
 - increased WBC destruction
 - disturbance of hemopoiesis regulation
 - mutation of marrow stem cells
 - increased leukopoetines level
- 181.** Estimate regenerative ability of marrow in the patient. Bone marrow is...:
- aregenerative
 - normregenerative
 - hyporegenerative
 - hyperregenerative
 - degenerative
- 182.** What is the most probable mechanism of RBCs quantity change in the patient?
- disturbance of hemopoietic regulation
 - intravascular RBCs hemolysis
 - Intracells RBCs hemolysis
 - RBCs deposit
 - deficiency of plastic and energetic substances
- 183.** What cell the most probably is a source of blasts in the patient?
- erythroblast
 - hemopoietic pluripotent cell
 - myeloblasts
 - lymphoblast
 - megacaryoblast

Patient K., 34 years, arrived to clinic with clinical manifestation of gastric bleeding. Blood count: Erythrocytes $3,0 \cdot 10^{12}/L$, Hemoglobin 100 g/L, Color index 1,0; Leukocytes $3,4 \cdot 10^9/L$, Platelets $120 \cdot 10^9/L$ Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
0	0	0	0	1	50	40	9

Blood picture: normochromic RBCs, reticulocytes - 0,7%.

184. Which type of anemia is present in the patient

- a. acquired hemolytic
- b. iron deficiency
- c. hypoplastic
- d. acute posthemorrhagic
- e. chronic posthemorrhagic

185. Explain, what is the cause of platelets amount change in peripheral blood at this clinical situation

- a. increased platelets use
- b. accelerated destruction of platelets
- c. decreased thrombocytopoiesis
- d. deposit of platelets in peripheral vessels
- e. aggregation of platelets in plasma

186. Which stage of acute blood loss was developed in the given clinical situation?

- a. hydremia
- b. marrow's

- c. reflective
- d. prodromal
- e. stop of bleeding

187. What change of blood circulating volume can be revealed in the given clinical situation?

- a. Simple hypovolemia
- b. Polycytemic hypovolemia
- c. Oligocytemic hypovolemia
- d. Oligocytemic hypervolemia
- e. Normocytemic normovolemia

188. Suppose at what time after acute bleeding beginning this blood count of the patient was made?

- a. in a few hours
- b. in 2-4 days
- c. in 5-7 days
- d. in 8-12 days
- e. during acute bleeding

Patient B., 54 years, arrived to clinic with complaints about weakness, shortbreath after minimal physical loading, pain in tongue and fingers. Blood count: Erythrocytes $1,44 \cdot 10^{12}/L$, Hemoglobin 66 g/L, Color index 1,4 Leukocytes $2,8 \cdot 10^9/L$, Platelets $100 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
5	0	0	0	1	43	48	3

Blood picture: expressed anizocytosis, poikilocytosis, megaloblasts, megalocytes, hypersegmented neutrophiles, reticulocytes - 0,1%.

189. What type of anemia is present in the patient?

- a. Chronic posthemorrhagic
- b. Acquired hemolytic
- c. B12 deficiency
- d. Iron deficiency
- e. Hypoplastic

190. Explain, what is the reason of changed platelets amount in peripheral blood at this clinical situation:

- a. increased metabolism
- b. increased destruction
- c. decreased production
- d. deposit in peripheral vessels
- e. aggregation in plasma

191. What is the direct mechanism of pain in tongue and fingers in the patient with the described pathology?

- a. infectious disease
- b. epithelium atrophy
- c. nervous fibres degeneration
- d. non-sufficient blood supply
- e. it is a common symptom for anemia

192. Define the type of erythropiesis in the patient:

- a. normoblastic
- b. metaplastic
- c. megaloblastic
- d. non-effective
- e. fastened

- 193.** Describe WBCs state in the patient.
- relative eosinophilic leukocytosis
 - absolute lymphopenia
 - absolute neutropenia
 - eosinophil-basophil association
 - normal count

- 194.** Estimate presence of neutrophils nuclear shift and choose the most correct answer:
- degenerative shift to the right
 - regenerative shift to the left

- degenerative shift to the left
- regenerative shift to the right
- hyperregenerative shift to the right

- 195.** What pathogenetic mechanism has caused change of the leukocytes contents in peripheral blood at the given clinical situation?
- Destruction due to intoxication
 - Autoimmune hemolysis
 - Lazy leukocytes syndrome
 - Decreased marrow's production
 - Redistribution in blood vessels

Patient W, arrived to clinic in order to define diagnosis. He complains of weakness, dizziness, loss of appetite. Blood count: Erythrocytes $2,7 \cdot 10^{12}/L$, Hemoglobin 81 g/L, Color index 1,0; Leukocytes $7,5 \cdot 10^9/L$, Platelets $230 \cdot 10^9/L$

Leukocytic formula

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
2	0	0	0	4	54	37	3

Blood picture: normochromic RBCs, microspherocytes, reticulocytes - 12%.

- 196.** Which type of anemia is present in the patient?
- Hereditary hemolytic
 - B12 deficiency
 - Chronic posthemorrhagic
 - Iron deficiency
 - Hypoplastic

- 197.** Explain, what is the reason of RBCs haemolysis in peripheral blood at this clinical situation:
- defect of RBC enzyme systems
 - activation of blood destruction in spleen
 - change of haemoglobin structure
 - autoimmune reaction
 - pathology of RBCs membrane

- 198.** Describe WBCs state in the patient.
- Absolute neutropenia
 - Normal state
 - Relative eosinophilic leukocytosis
 - Absolute lymphopenia
 - Eosinophil-basophil association

- 199.** Estimate presence of neutrophils nuclear shift and choose the most correct answer:
- degenerative shift to the right
 - no shift

- regenerative shift to the left
- degenerative shift to the left
- regenerative shift to the right

- 200.** Estimate reticulocytes amount in this patient and explain it:
- normal reticulocytes count
 - high reticulocytes count due to chronic hemolysis
 - high reticulocytes count due to acute hemolysis
 - high reticulocytes count due to bone marrow hyperplasia
 - low reticulocytes count due to problems with digestion

- 201.** Choose the most probable reason of decreased RBC quantity in this patient
- increased hemolysis due to low osmotic resistance of RBC
 - increased hemolysis due to spleen hyperactivity
 - increased hemolysis due to haemolytic poisons
 - RBC quantity is decreased due to bone marrow hypoplasia
 - RBC quantity is decreased due to chronic hemorrhages

Patient X 19 years, arrived to clinic in order to define diagnosis. Blood count: Erythrocytes $5,1 \cdot 10^{12}/L$, Hemoglobin 140 g/L, Color index 0,82; Leukocytes $5,9 \cdot 10^9/L$, Platelets $220 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
3	1	0	0	1	55	37	3

Blood picture: normochromic RBCs, reticulocytes - 0,5%.

- 202.** Describe RBCs state in the patient?
- No pathology
 - B12 deficiency
 - Iron deficiency anemia
 - Hypoplastic anemia
 - Absolute erythrocytosis
- 203.** Describe RBCs state in the patient?
- Absolute erythrocytosis
 - No pathology
 - B12-folate deficiency
 - Iron deficiency anemia
 - Hypoplastic anemia
- 204.** Describe WBCs state in the patient
- Absolute neutropenia
 - Relative eosinophilic leukocytosis
 - Absolute lymphopenia
 - Eosinophil–Basophil association
 - Normal blood

Patient G with chronic respiratory insufficiency. Blood count: Erythrocytes $6,0 \cdot 10^{12}/L$, Hemoglobin 180 g/L, Color index 0,9 Leukocytes $7 \cdot 10^9/L$, Platelets $200 \cdot 10^9/L$

Leukocytic formula:

Eosinophiles	Basophiles	Neutrophiles				Lymphocytes	Monocytes
		myelocytes	juvenile cells	bands cells	segmented cells		
2	1	0	2	8	60	23	4

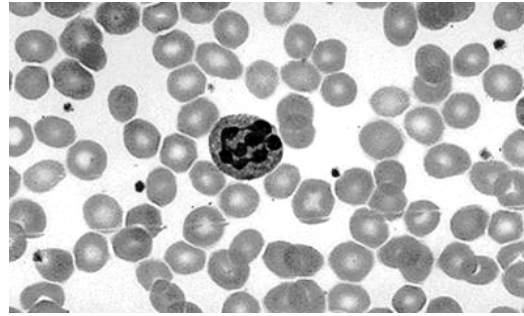
Blood picture: non-expressed anizocytosis, reticulocytes - 3,4%.

- 205.** Describe WBCs state in the patient
- Absolute neutropenia
 - Relative eosinophilic leukocytosis
 - Absolute lymphopenia
 - Eosinophil–basophil association
 - Normal count
 - degenerative shift to the right
 - regenerative shift to the left
 - degenerative shift to the left
 - regenerative shift to the right
 - hyperregenerative shift to the right
- 206.** Which level of erythropoietin can you suppose in the patient?
- high
 - low
 - normal
 - erythropoietin is absent
- 207.** Estimate presence of neutrophils nuclear shift and choose the most correct answer:
- 208.** What is the direct mechanism that causes changes of RBC count in this patient:
- anizocytosis
 - hypoxia
 - respiratory failure
 - anemia
 - erythrocytosis

Images for SUBMODULE 4

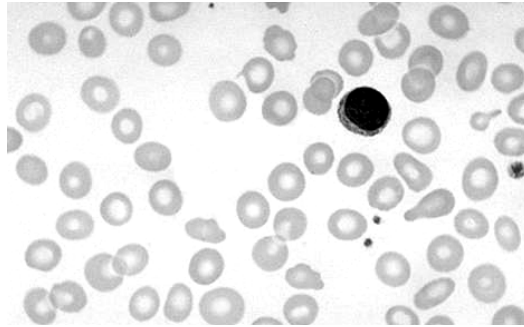
209. (F1) Degenerative form of leukocyte which is present on this slide is usually associated with the following anemia...:

- iron deficiency anemia
- thalassemia
- metaplastic anemia
- B12 deficiency anemia
- syderoblastic anemia



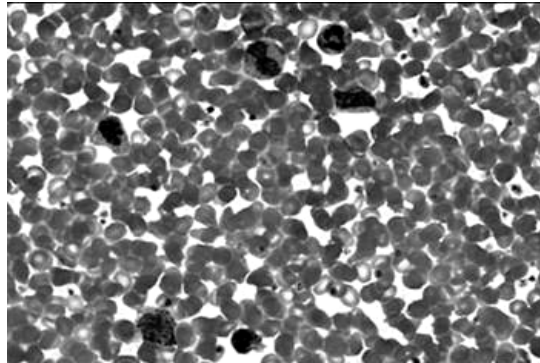
210. (F2) The color index of these erythrocytes differs from normal; you can also see poikilocytosis and anisocytosis. What anemia is presented on this slide?

- iron deficiency anemia
- thalassemia
- sickle cell anemia
- B12 deficiency anemia
- syderoblastic anemia



211. (F3) The amount of blood cells in this slide is enormously increased. Which blood pathology from listed below can be characterized with such blood smear?

- iron deficiency anemia
- neutrophilic leukocytosis
- metaplastic anemia
- polycythemia vera
- lymphogenous leukemia

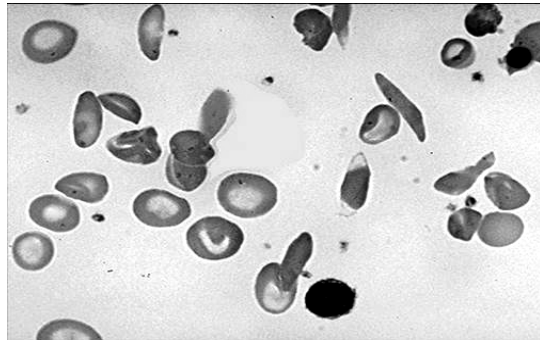


212. (F4) The patients with such type of anemia may be asymptomatic until they experience hypoxia. It is ...

- iron deficiency anemia
- thalassemia
- sickle cell anemia
- B12 deficiency anemia
- syderoblastic anemia

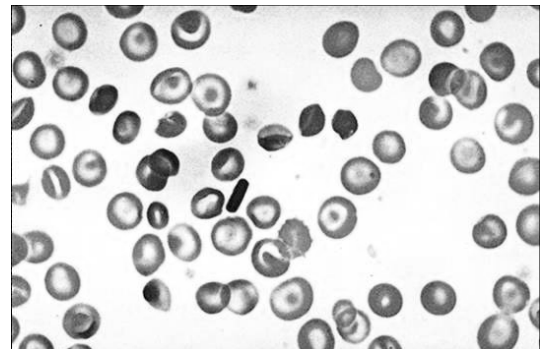
213. (F4) The cells present on this slide are less flexible than normal RBC and may cause occlusion of vessels. Such problem is typical for...

- iron deficiency anemia
- thalassemia
- sickle cell anemia
- B12 deficiency anemia
- syderoblastic anemia



214. (F5) The degenerative forms of RBC, which are present here, are a specific sign of

- iron deficiency anemia
- thalassemia
- sickle cell anemia
- B12 deficiency anemia
- syderoblastic anemia



SUBMODULE 5 "CARDIOVASCULAR AND LUNG PATHOLOGY"

Heart pathology. Arrhythmia, myocarditis.

215. Single ventricle's extrasystoles were found during ECG examination of the patient. P wave was absent before extrasystole. What is the most probable cause of the P wave disappearance in this clinical situation?

- Block of the impulse conduction in atrium
- Occurrence of the refractory period in ventricles
- Block of the impulse in SA-node
- Occurrence of the refractory period in atriums
- Impossibility of the retrograde impulse conduction through the AV-node

216. Multiply extrasystoles manifesting as premature not changed ventricles complexes, with negative P wave and incomplete compensatory pause were found during ECG examination of the patient with diabetes mellitus. What is the probable mechanism of extrasystoles development?

- Re-entry mechanism of electric impulse circulation
- SA-node weakness syndrome
- Forming of the excitation ectopic center in ventricles
- Forming of the excitation ectopic center in atriums
- Presence of the additional conducting ways in the myocardium

217. ECG examination of the patient O. showed that P wave periodically becomes negative and is situated after QRS, interval T-P is increased (the basic rhythm is normal). Which disturbance of the cardiac rhythm was described in this case?

- AV extrasystole from the top part of AV-node
- AV extrasystole from the bottom part of AV-node
- Atrial extrasystole from the bottom part of atrium
- Ventricle extrasystole from the top part of His' bundle
- AV extrasystole from the medium part of AV-node

218. Patient B., 52 years complains of suddenly beginning and suddenly ending attacks of the tachycardia (200 bpm), duration up to 15 minutes. On the ECG: deformation and widening of QRS complex, T wave and ST segment are lower than normal. Which disturbance of the heart rhythm is observed in the given clinical situation?

- Ventricle extrasystolia
- Tachycardia with basic rhythm
- Extrasystolia with basic rhythm
- Paroxysmal tachycardia
- Fibrillation of ventricles

219. Patient begins to feel pauses in the heart rhythm in 2 weeks after quinsy. ECG: decreased wave voltage, periodic loss of PQRST, frequency of heart contractions is 55 bpm. What is the most probable mechanism of the revealed disturbances of the heart function?

- Ischemic damage of SA-node
- Inflammatory damage of SA-node
- Development of respiratory arrhythmia
- Sclerotic changes in SA-node
- Damage of SA-node by toxins

220. In the patient with chronic cholecystitis the jaundice has developed. On the ECG: basic rhythm is normal, frequency of heart contractions is 51 bpm, periodic premature not changed PQRST complexes. What is the most probable mechanism of the heart rhythm disturbances?

- Irritation of vagus receptors by bile acids
- Damaging action of bile acids on the myocardium
- Damaging action of bile acids on SA-node
- Irritating action of bile acids on SA-node
- Irritating action of bile acids on AV-node

221. Patient F., 38 years complains of short breath during physical loading and cough. ECG examination: frequency of heart contractions 90 bpm, P wave is splintered, duration 0,14 sec, QRS complex is not changed. The patient suffers from rheumatism. What is the most probable cause of the heart function disturbance?

- Increased left atrium muscular weight
- Stretching of the left atrium by increased blood volume
- Circulation of excitation in the conducting system of atrium
- Sclerotic changes in conducting system of atrium
- Sclerotic changes in SA-node

222. Patient F., 38 years complains of short breath during physical loading and cough. ECG examination: frequency of heart contractions 90 bpm, P wave is splintered, duration 0,14 sec, QRS complex is not changed. The patient

suffers from rheumatism. Which pathology from the given is presented on the ECG?

- Intra-atrial block
- Left atrium hypertrophy
- Re-entry phenomenon activation in the left atrium
- SA block
- Tonogenic dilatation of the left atrium

223. On the patient's ECG positive P wave arises prematurely, PQ is shortened, ventricle complex is not changed, compensatory pause is absent. Which disturbance of heart rhythm is observed on the ECG?

- Sinus bradycardia
- Ventricle extrasystole
- Sinus tachycardia
- Atrial extrasystole
- AV extrasystole

224. On the ECG deformed QRS complex without P-wave with long pause appears after several normal contractions. After that normal contraction follows. Which disturbance of the heart rhythm is observed in the given clinical situation?

- Sinus extrasystolia
- Intra-atrium block
- AV block
- Ventricle extrasystole
- Atrial extrasystole

225. Diabetic cardiomyopathia manifested with extrasystoles has developed in the patient with the 2nd type of DM. Disturbance of which myocardium function determines extrasystoles pathogenesis?

- Contractility
- Energy supply of a myocardium
- Automatism
- Excitability
- Conductivity

226. Negative P wave, shortened PQ interval, and not changed ventricle complex are revealed on the ECG recording of the patient with diabetes mellitus. Which disturbance of the rhythm is observed in the given clinical situation?

- Sinus extrasystole
- Extrasystole from the atrium
- His' bundle block
- Extrasystole from the bottom part of AV node
- Right ventricle's extrasystole

227. The patient with rheumatic myocarditis periodically feels interruptions in heart's rhythm. Irregular ventricle extrasystoles are revealed on the ECG. Which pathogenic mechanism causes occurrence of compensatory pauses at these extrasystoles?

- Inability of myocardium to percept next impulse
- A delay of excitation in AV node
- Retrograde conduction of excitation to atrium
- Suppression of the SA-node function
- Disturbance of myocardium contractility

228. Absence of the P wave, frequent and chaotic QRS complexes and F-waves are observed on the ECG in the patient with a heart attack. Which disturbance of the rhythm is described?

- Paroxysmal tachycardia
- Fibrillation of the ventricles
- Fibrillation of the atriums
- Ventricle extrasystoles
- Idioventricle rhythm

229. Absence of the P wave, frequent and chaotic QRS complexes and F-waves are observed on the ECG in the patient with a heart attack. Which pathogenic mechanism determines such violations of heart function?

- Re-entry phenomenon activation in the atriums
- Increased heart contractility
- Distension of atriums with blood
- Increased heart contractility
- SA node increased excitability

230. ECG examination: PQ interval is gradually extended and one QRST complex is dropped out every 8 heart contractions. Which kind of arrhythmia is described?

- 3 degree of AV block
- 1 degree of AV block
- 2 degree of AV block
- Synoatrial block
- Intra-atrium block

231. During ECG examination it was found that atriums and ventricles have been contracted in the own rhythm: atriums - 60 contractions per 1 minute, ventricles - 30 contractions per 1 minute. Which disturbance of the heart rhythm was observed in the given clinical situation?

- AV Block of 1 degree
- Plural ventricle's extrasystoles
- Synoatrial block
- AV block of 2 degree
- Full AV block

232. ECG recording was made to the student after examination: the rhythm is normal, TP interval is shortened, ventricle complex is not changed. Which disturbance of the heart rhythm is observed in the given clinical situation?

- Synoatrial block
- Sinus tachycardia

- c. Complete AV block
- d. Block of His' bundle
- e. Sinus bradycardia

233. The function of certain structures was stopped on the isolated heart by its cooling. That resulted first in short-term absence of heart contractions, but then contraction appeared with a rate 2 times slower than initial one. Which structure was cooled?

- a. Sinus node
- b. His bundle
- c. AV node
- d. Purkinje fibers
- e. The branches of His bundle

234. A person after severe cooling was examined in the clinic. The ECG recording

shows different frequency of atriums (70 bpm) and ventricles (35 bpm) contractions. Which arrhythmia is manifested in the patient?

- a. AV block 2 stage
- b. complete AV block
- c. AV block 1 stage
- d. sinus bradycardia
- e. atrial flutter

235. Clinical manifestation of myocarditis includes many symptoms. What is the reason of QRS complexes low voltage on the ECG?

- a. increased excitability of myocardium
- b. decreased excitability of myocardium
- c. increased contractility of myocardium
- d. decreased contractility of myocardium
- e. conduction block development

Heart pathology. Ischemic heart disease, heart failure.

236. In the patient B. acute fall of systolic blood pressure up to 60 mmHg, tachycardia - 140 bpm, short breath and loss of consciousness has developed in 2 days after heart attack. What is the main mechanism of the shock development in this case?

- a. Decrease of the minute blood volume
- b. Increased excitability of myocardium
- c. Decreased volume of circulating blood
- d. Development of paroxysmal tachycardia

tachycardia

- e. Development of anaphylactic reaction

237. Clinical examination of the patient with hypertension: arterial blood pressure is 180/110 mmHg, tachycardia; borders of the heart are enlarged to the left, rales in lungs. Which sign of cardiac failure urgent compensation is observed in the patient?

- a. tachycardia
- b. increased blood pressure
- c. cyanosis
- d. short breath
- e. myogenic dilatation of heart

238. Patient M., 56 years, suffers from mitral valve stenosis. He feels discomfort in the field of heart, short breath, palpitation and fatigue during physical load. On an ECG - signs of the left ventricle hypertrophy. Which changes in myocardium are characteristic for physiological hypertrophy?

- a. Increased energy supply of myocardium
- b. Activation of Starling mechanism in myocardium
- c. Increased electric activity of the conducting system
- d. Lag of skeletal muscles weight growth from the myocardium

- e. Decrease of the lipid peroxidation in myocardium

239. ECG-examination shows signs of the left ventricle pathological hypertrophy in the patient with acquired mitral stenosis. What is the leading pathogenic mechanism of the physiological hypertrophy transformation into pathological?

- a. Increased capillaries number in the myocardium
- b. Increased of the lipid peroxidation
- c. Decrease of blood residual diastolic volume
- d. Disparity between weight growth of skeletal muscles and myocardium
- e. Disparity between the quantity of capillaries, nervous fibers and myocardial cells

240. Ultrasonic examination revealed pathological hypertrophy of the left ventricle in the patient with chronic cardiac failure. Which changes in the hypertrophied heart are observed in the patient?

- a. Increased quantity of the capillaries and the nervous fibers in the myocardium
- b. Activation of the conducting system electric activity
- c. Decrease of blood residual diastolic volume
- d. Decrease of the myocardial cells energy supply
- e. Increased blood circulation minute volume

241. Patient M., 64 years suffers from hyperthyroidism. She complains of the weakness, increased irritability, jugular venous distention, pain in the field of the liver. What is the probable pathogenic connection between the basic disease and cardiac failure development?

- a. Increased myocardium excitability

- b. Functional overload of the heart
- c. Impaired metabolism of myocardium
- d. Damage of the heart cells enzymes
- e. Development of the portal hypertension

242. Ultrasonic examination revealed dilatation of the heart chambers in the patient with hypertonic disease. Which sign can prove tonogenic dilatation development?

- a. Dilatation of the heart chambers with increase of stroke volume.
- b. Dilatation of the chambers without change of stroke volume
- c. Dilatation of the chambers with decrease of stroke volume
- d. Dilatation of all the heart borders
- e. Enlarging of the heart borders to the left

243. Tonogenic dilatation of the left ventricle is revealed at the sportsman during planned examination. Which haemodynamic parameter characterizes tonogenic dilatation of the heart chambers?

- a. Increased stroke volume
- b. Decrease of stroke volume
- c. The stroke volume does not change.
- d. Decreased force of contraction
- e. Increased residual diastolic volume

244. Myogenic dilatation of the left ventricle was revealed in the patient with chronic cardiac failure during clinical examination. Which haemodynamic parameter characterizes myogenic dilatation of the heart chambers?

- a. Decrease of stroke volume
- b. Increased heart contractility
- c. Activation of Starling's mechanism
- d. Increased stroke volume of heart
- e. Decrease of heart automatism

245. The patient with chronic pneumonia complains of fatigue, cyanosis and edema of the extremities, pain in the liver. Which pathology from the given may cause such clinical symptoms?

- a. Chronic right ventricle failure
- b. Chronic left ventricle failure
- c. Liver cirrhosis
- d. Myocardial infarction
- e. Stenocardia

246. The patient with varicose veins after intensive physical work suddenly felt acute pain in the chest, difficulty in breathing. He quickly became cyanotic, jugular veins were distended. The embolism of pulmonary artery was suggested in the patient. Which heart pathology from the given may accompany this pathological state?

- a. Chronic right ventricle failure
- b. Chronic left ventricle failure
- c. Acute right ventricle failure
- d. Acute left ventricle failure
- e. Myocardial infarction

247. Patient is suffering from chronic renal failure for a long period. His BP is constantly elevated to 160/110 mmHg. He also complains of increased fatigue, short breath is manifested even in the period of rest. Which heart pathology from the given may accompany this pathological state?

- a. Chronic right ventricle failure
- b. Chronic left ventricle failure
- c. Acute right ventricle failure
- d. Acute left ventricle failure
- e. Myocardial infarction

248. Patient with hypertonic disease during physical or emotional loading had felt short breath and tachycardia. In a year after that pains in the right subcostal region and edema of the legs appeared. What is the probable mechanism that causes occurrence of new symptoms in the patient?

- a. Functional overload of the heart
- b. Ischemic damage of the myocardial cells
- c. Disturbance of heart energy supply
- d. Damage of the myocardial cells enzymes
- e. Disturbance of the neurohumoral heart activity regulation

249. Decompensation of heart function has developed in the patient with chronic cardiac failure after viral infection. Which haemodynamic index proves the development of decompensation?

- a. Decrease of minute blood circulating volume
- b. Tachycardia
- c. Decrease of blood circulating volume
- d. Decrease of the central venous pressure
- e. Bradycardia

250. Examination of the heart haemodynamic parameters was provided in the patient with chronic cardiac failure. Which parameter from listed below can prove development of the heart decompensation?

- a. Myogenic dilatation of the heart
- b. Development of a tachycardia
- c. Tonogenic dilatation of the heart
- d. Decrease of blood circulating volume
- e. Increased central venous pressure

251. Rales appeared in lungs and short breath developed in the patient with myocardial infarction in 2 days after heart attack. Which

pathological process could develop in the patient's heart?

- a. Acute left ventricle failure
- b. Acute right ventricle failure
- c. Metabolic syndrome X
- d. Reperfusion damage of myocardium
- e. AV block

252. Physiological hypertrophy of myocardium is often developing in the sportsmen. What are the most characteristic signs of the physiological hypertrophy?

- a. Increased speed of myocardial contractility
- b. Prevalence of anaerobic glycolysis in the myocardium
- c. Increased volume of right ventricle muscular fibers
- d. Increased volume of muscular fibers of all heart chambers
- e. Increased volume of left ventricle muscular fibers

253. The patient complains of the intensive burning pain located behind the sternum irradiating to the left hand after intensive physical work. Condition of the patient was normalized in 15 minutes of rest. What is the probable mechanism of stenocardia development in the patient?

- a. Increased catecholamines' level in the blood
- b. Atherosclerosis of the coronary vessels
- c. Intravascular aggregation of blood cells
- d. Thrombosis of the coronary vessels
- e. Functional overload of the heart

254. Patient suffers from stenosis of a.pulmonalis. Cyanosis, enlargement of the liver, jugular veins distention, edema of the legs has appeared in the patient recently. On the ECG – signs of right ventricle's failure. What is the leading pathogenic mechanism of the given symptoms development?

- a. Decreased speed of contract process in a myocardium
- b. Increased venous pressure in the systemic circulation
- c. Disturbance of diastolic fillings of atrium
- d. Dilatation of heart chambers
- e. Disturbance of the heart conducting system electric activity

255. Patient spent his summer holidays in mountains. Acute cardiac failure with acute short breath, dry cough, and tachycardia has developed during climbing on the height about 2000 m. What is the probable cause of the cardiac failure development at this patient?

- a. High concentration of adrenaline
- b. Calcium channels block
- c. Acute hypoxia
- d. Decompression syndrome
- e. Arterial hypertension

256. Patient with chronic exudative pericarditis in the anamnesis was delivered to resuscitation unit. Examination: BP - 60/30, heart rate-95 bpm, pale and cold skin. Acute left ventricle failure was diagnosed in the patient. What was the probable cause of its development?

- a. Decrease of preloading on heart
- b. Increased postloading at heart
- c. Impairment of heart neurohumoral regulation
- d. Development of orthostatic collapse
- e. Compression of heart by exudate

257. Which enzyme's increased blood level can prove diagnosis of myocardial infarction at first 2-4 hours of its development?

- a. Aldolase
- b. Lipoproteinlipase (LPL)
- c. Alanine aminotransferase (ALT)
- d. Creatin phosphokinase (CPhK)
- e. Acetylcholinesterase

258. Patient suffers from hypertension for 7 years. Last year during physical and emotional loading she feels short breath, palpitation and fatigue. Lately her condition has worsened: pain in the right subcostal region, edema on the legs had been appeared. What is the most probable cause of the given symptoms development at this patient?

- a. Ischemic damage of myocardial cells
- b. Increased preload on the heart
- c. Disturbance of the heart neurohumoral regulation
- d. Activation of lipid peroxidation
- e. Increased afterload heart

259. Hypertrophy of left ventricle has developed in the patient who suffers from hypertonic disease. Which pathogenic mechanism causes increased volume of the myocardium during hypertrophy?

- a. Increased volume of the myocardial cells
- b. Increased quantity of the myocardial cells
- c. Growth of the connecting tissue in the myocardium
- d. Delay of water in interstitial tissue of the myocardium
- e. Accumulation of the lipids in the myocardial cells

260. Ischemic heart disease causes feeling of pain in the patient chest. Which of the named

events is the direct reason of pains in the patient with angina pectoris?

- a. coronary vessels spasm
- b. left ventricle failure
- c. myocardial ischemia
- d. local disturbance of contractility
- e. increased diastolic pressure in the left ventricle

261. Heart failure development is accompanied with different metabolism changes. Which correlation of sodium and potassium blood content is typical for heart failure?

- a. increased Na and decreased K
- b. normal Na and decreased K
- c. normal Na and normal K
- d. increased Na and increased K
- e. decreased Na and decreased K

262. Many heart diseases are manifested with excessive fatigue of the patient. What is the direct reason of excessive fatigue in the patients with different cardiac diseases?

- a. myocardial ischemia
- b. decreased cardiac output
- c. increased AP
- d. myocardial necrosis
- e. myocardial inflammation

263. Hypertensive disease in the patient 48 years old was complicated with heart failure. Define the type of cardiac failure in this case.

- a. myocardial cardiac failure
- b. overload cardiac failure
- c. haemodynamic heart failure
- d. mixed heart failure

264. The patient with aortic valve stenosis has developed cardiac failure. Define the direct reason of cardiac failure in this case.

- a. myocardial affection
- b. increased pressure load
- c. increased volume load
- d. low cardiac output
- e. low arterial pressure

265. The patient with mitral valve insufficiency has developed cardiac failure. Define the direct reason of cardiac failure in this case.

- a. myocardial affection
- b. increased pressure load
- c. increased volume load
- d. low cardiac output
- e. low arterial pressure

266. Ischemic heart disease is defined as acute or chronic form of cardiac disability which results from imbalance between the myocardial supply and its demands in oxygenated blood. Which of the listed conditions results in low myocardial oxygen supply?

- a. exercises

- b. lungs diseases
- c. pregnancy
- d. increased basal metabolic rate
- e. hypertrophy of cardiac muscle

267. Ischemic heart disease is defined as acute or chronic form of cardiac disability which results from imbalance between the myocardial supply and its demands in oxygenated blood. Which of the listed conditions results in high myocardial demands in oxygenated blood?

- a. atherosclerosis of coronary arteries
- b. severe anemia
- c. CO poisoning
- d. lung disease
- e. pregnancy

268. Angina pectoris is chest pain due to ischemia of the heart muscle. Which of the following conditions can cause angina pectoris attack?

- a. physical exertion
- b. changes in emotional state
- c. heavy meals
- d. cold weather
- e. all of the mentioned are true

269. A patient with acute myocardial infarction presents in the emergency department. He is given aspirin, morphine, and oxygen. Blood tests reveal elevated levels of creatin kinase and troponin. Explain why oxygen is needed for patient's treatment in this case?

- a. to treat hemic hypoxia
- b. to treat circulatory hypoxia
- c. to improve heart contractility
- d. to improve metabolism in myocardial cells
- e. to prevent myocardial ischemia

270. A 40-year-old man presents in the emergency department complaining of substernal chest pain that is also felt in his left shoulder. The diagnosis is "acute myocardial infarction". He is given aspirin, morphine, and oxygen. Why aspirin is given to the patient?

- a. to treat circulatory hypoxia
- b. to improve heart contractility
- c. to improve metabolism in myocardial cells
- d. to prevent myocardial ischemia
- e. to prevent thrombi formation

271. A 40-year-old man presents in the emergency department complaining of substernal chest pain that is also felt in his left shoulder. Heart rate - 98 bpm. Body temperature - 37,5 C. Blood tests reveal elevated levels of creatin kinase and troponin. Why body temperature is increased in the patient?

- a. due to aseptic inflammation

- b. due to increased basal metabolic rate
- c. due to increased heart rate

- d. due to elevated levels of creatin kinase and troponin
- e. due to emotional stress

Blood vessels pathology. Arterial hypertension and hypotension. Atherosclerosis.

272. Patient P. suffers from atherosclerosis, IHD, stenocardia. Increased level of the lipids in blood plasma was revealed during laboratory examination. Which class of the plasma's lipids plays the leading role in the pathogenesis of atherosclerosis?

- a. chylomicrones
- b. very low density lipoproteins
- c. alpha-lipoproteins
- d. high density lipoproteins
- e. complexes of fat acids with albumens

273. Blood pressure was increased up to 140/110 mmHg at surgeon C. after long operation ending. Which changes of humoral regulation can increase arterial pressure in this case?

- a. Activation of aldosteron formation
- b. Activation of rennin-angiotensin system
- c. Activation of sympathetic-adrenal system
- d. Activation of kallikrein-kinin system
- e. Inhibition of sympathetic-adrenal system

274. Patient suffers from atherosclerotic damage of coronal vessels which causes attacks of a stenocardia. Which substance can promote development of the atherosclerosis?

- a. Fibers
- b. Glucose
- c. Triglycerides
- d. Cholesterol
- e. Phospholipids

275. Patient complains of headache, bad appetite, blunt pain in a loin. Heart rate – 70 bpm, BP – 190/100 mmHg. Patient complains of the often urination, mainly at night. Blood count: Hb-96 g/l, erythrocytes-3.0 T/l. Urine analysis: protein- 3.0 g/l, leukocytes 1-3, erythrocytes 10-15. ECG examination: signs of the left ventricle hypertrophy. Which kind of the arterial hypertension is observed in the given clinical situation?

- a. Endocrine - caused by Kushing disease
- b. Cerebroischemic - caused by disturbance of brain blood circulation
- c. Endocrine - caused by feochromocytoma
- d. Primary arterial hypertension
- e. Renal - caused by glomerulonephritis

276. Patient complains of headache attacks accompanied with palpitation, feeling of fear, increased arterial pressure up to 260/160 mmHg. Between attacks blood pressure is in the borders of 180/90 mmHg. Examination: heart rate 120 bpm, BP – 250/140 mmHg. ECG – single extrasystoles. Glucose's level in the blood - 10.5 mmol/l. Urine analysis - without pathology. What kind of arterial hypertension is observed in the given clinical situation?

- a. Secondary endocrine
- b. Cerebroischemic
- c. Essential
- d. Primary arterial hypertension
- e. Renal hypertension

277. The complications of uncontrolled hypertension include all of the following EXCEPT:

- a. cerebrovascular accidents
- b. anemia
- c. renal injury
- d. cardiac hypertrophy

278. Primary hypertension

- a. is essentially idiopathic
- b. can be caused by renal disease
- c. can be caused by hormone imbalance
- d. results from arterial coarctation
- e. all above is correct

279. Two types of hypertension are known: primary or essential and secondary which occurs as a result of other diseases. Which parameter is typical for the patient with primary hypertension?

- a. Increased TPVR
- b. Decreased TPVR
- c. Increased heart stroke volume
- d. Decreased heart stroke volume
- e. Increased minute blood volume

280. A female patient 18-year-old complains of general weakness, fatigueability, depressed mood. She has asthenic type of constitution. ABP -90/60 mmHg, heart rate 68 bpm. Primary neurocirculatory arterial hypotension was diagnosed. What is the main factor of AP decreasing in the patient?

- a. Decrease of blood minute volume
- b. Decrease of cardiac output
- c. Decrease of resistant vessels tension
- d. Hypovolemia
- e. Deposition of the blood in the veins of

systemic circulation

281. While climbing upstairs on the 5-th floor the patient has got an increased arterial blood pressure. The cause is the increase of:

- a. Minute volume of blood
- b. The number of functioning capillaries
- c. Ion content in blood plasma
- d. Viscosity of the blood
- e. Circulating blood volume

282. One of the most dangerous events in myocardial necrosis development is the further increase of the necrosis zone. The important role in it belongs to the increase of the oxygen consumption by myocardium. Which substance contributes to this process?

- a. Chlorine ion
- b. Cholesterol
- c. Catecholamine
- d. Acetylcholine
- e. Adenosine

283. Renal hypertension is known to be the most frequent cause of secondary hypertension. Name the main reason leading to AP increase in the case of secondary renal hypertension.

- a. increased glomerular filtration rate
- b. decreased glomerular filtration rate
- c. chronic glomerulonephritis
- d. renal vessels atherosclerosis
- e. activation of aldosterone synthesis

284. A patient with chronic kidney's disease has high AP. What is the main factor causing the increase of AP in this patient?

- a. Excess of angiotensin II
- b. Excess of antidiuretic hormone
- c. Increase of heart output
- d. Increased activity of sympathetic nervous system
- e. Excess of catecholamines

285. Which substance secretion is primarily increased in the patients with secondary renal hypertension?

- a. angiotensin
- b. aldosterone
- c. rennin
- d. glucocorticoids
- e. bradykinin

286. The kidneys play an important role in vessels tone regulation. Which substance secreted by the kidneys can cause direct vessels dilation?

- a. angiotensin
- b. aldosterone
- c. rennin
- d. glucocorticoids
- e. bradykinin

287. It is known that essential hypertension is asymptomatic until the complications occur.

Which of the listed complications can occur as a result of arterial hypertension?

- a. circulatory hypoxia
- b. hemic hypoxia
- c. myocardial hypertrophy
- d. increased urine formation
- e. decreased urine formation

288. Clinical manifestation of arterial hypotension includes variety of symptoms. Which of the listed complications can occur as a result of arterial hypotension?

- a. overload heart failure
- b. myocardial hypertrophy
- c. brain stroke
- d. ischemic heart disease
- e. circulatory hypoxia

289. Measuring of BP is an important diagnostic criterion in the diagnosing pathology of blood vessels tonus. Which index of BP can indicate the presence of arterial hypertension in middle aged person?

- a. 125/75 mm Hg
- b. 135/85 mm Hg
- c. 120/89 mm Hg
- d. 90/60 mm Hg
- e. 160/95 mm Hg

290. Measuring of BP is an important diagnostic criterion in the diagnosing pathology of blood vessels tonus. Which index of BP can indicate the presence of arterial hypotension in middle aged person?

- a. 115/80 mm Hg
- b. 100/60 mm Hg
- c. 90/55 mm Hg
- d. 108/70 mm Hg
- e. 160/95 mm Hg

291. The atherosclerotic plaque formation is the main event in atherosclerosis pathogenesis. Which of the listed blood cells take active part in atherosclerotic plaque formation?

- a. erythrocytes
- b. monocytes
- c. leukocytes
- d. basophils
- e. eosinophils

292. The atherosclerotic plaque formation is the main event in atherosclerosis pathogenesis. Accumulation of which substance inside the cells found in the atherosclerotic plaque transforms them into the "foam cells"?

- a. glucose
- b. proteins
- c. chilomicrones
- d. low density lipoproteins
- e. calcium

293. Atherosclerosis is known to be a multifactorial disease. Choose the negative risk

factor of atherosclerosis (which decreases the risk of disease development) from the following:

- a. hypertension
- b. diabetes mellitus
- c. high levels of high density lipoproteins
- d. high levels of low density lipoproteins
- e. excess of alcohol consumption

294. The prognosis of atherosclerosis is determined by the state of atherosclerotic plaque. Which complication of atherosclerotic plaque development can lead to acute myocardial infarction?

- a. plaque rupture
- b. plaque calcinations
- c. inflammation of the vessel wall
- d. coronary vessels spasm
- e. sludge phenomena

295. Two types of hypertension are known: primary or essential and secondary which occurs

as a result of other diseases. Choose the reason of secondary arterial hypertension development from the following:

- a. sodium retention
- b. arteriosclerosis
- c. hereditary predisposition
- d. decreased cardiac contractility
- e. increased heart preload

296. Many factors can contribute to atherosclerotic plaque formation. Which of the under mentioned conditions are important in atherosclerotic plaque formation:

- a. hereditary predisposition
- b. vessel wall injury
- c. increased blood cholesterol
- d. adhesion and aggregation of platelets
- e. all of the mentioned are true

Lungs pathology. Respiratory failure, shortbreath.

297. In the patient who suffers from cardiac failure with typical signs of brain hypoxia short breath has developed. Pathogenesis of which short breath is explained by decreased excitability of the respiratory center due to hypoxia?

- a. Periodic breath
- b. Expiratory short breath
- c. Inspiratory short breath
- d. Frequent and deep breath
- e. Mixed short breath

298. Patient who suffers from stomach ulcer complains of the weakness, nausea, dizziness, noise in ears. Clinical examination: the expressed short breath and pallor of the skin. In subcostal region – there is a moderate pain. BP - 100/70 mmHg. Heart rate – 95 bpm. What is the cause of the short breath development in the patient?

- a. Decreased O₂ in blood
- b. Increased CO₂ in blood
- c. Decreased pH of blood
- d. Increased pH of blood
- e. Decreased CO₂ in blood

299. Patient who suffers from bronchial asthma complains of frequent attacks. During the attack breath becomes difficult and is accompanied by cough. What is the leading mechanism that defines character of the short breath during bronchial asthma?

- a. Increased lungs tissue density
- b. Braking of the respiratory center's expiratory neurons
- c. Excitation of the respiratory center's inspiratory neurons
- d. Difficulty of exhalation

- e. Difficulty of inhalation

300. The ambulance surgeon was called to the patient with expiratory short breath. Which disease can be accompanied by such disturbance of the breathing?

- a. Lung's fever
- b. Exudative pleurisy
- c. Bronchial asthma
- d. Tuberculosis of lungs
- e. Stenocardia

301. Patient suffers from restrictive respiratory failure. Which pathology from listed below can be the cause of such type of the failure?

- a. Compression of bronchial ways by a tumor
- b. Rib fractures
- c. Bronchospasm
- d. Lungs emphysema
- e. Bronchitis

302. Breath becomes complicated during exhalation in the patient who suffers from bronchial asthma. What is the leading mechanism which determines the character of the short breath in bronchial asthma?

- a. Decrease of lungs tissue elasticity
- b. Inhibition of the respiratory center
- c. Excitation of the respiratory center
- d. Passivity of the exhalation
- e. Decrease of the alveolar receptors sensitivity

303. Emphysema was found in the patient during X-ray examination. Which pathogenic mechanism determines expiratory short breath at this pathology?

- a. Increased lungs tissue elasticity

- b. Inhibition the respiratory center
- c. Excitation of the respiratory center
- d. Decreased sensitivity of alveolus's receptors

e. Violation of bronchi flexibility

304. Patient with signs of stenotic breath was delivered to the center of extreme medicine. What is the cause of patient's breath changes?

a. Narrowing of the upper respiratory ways

b. Decrease of lungs tissue elasticity

c. Occurrence of inflammatory process in lungs

d. Development of pneumothorax

e. Spasm of the bronchioles

305. Patient had attack of the bronchial asthma accompanied with changes of respiratory movements frequency and change of the breath during exhalation. What kind of the short breath is often observed at this pathology?

a. Stenotic breath

b. Frequent and superficial breath

c. Inspiratory short breath

d. Expiratory short breath

e. The mixed short breath

306. Noisy breath is observed in the comatose patient. Characteristics: after a deep inhalation follows amplified exhalation with participation of the expiratory muscles and long pause. What is the name of this breath type?

a. Kussmaul breath

b. Bioth breath

c. Cheyne-Stokes breath

d. Agonal breath

e. Stenotic breath

307. Patient who suffers from diabetes during 10 years was delivered to the hospital in a heavy condition. His condition was acutely worsened for 2nd day at the hospital – coma with noisy deep breath had been developed. Characteristics of the breath: after a deep inhalation follows amplified exhalation with participation of the expiratory muscles and long pause. Which form of the breath disturbance is observed in the patient?

a. Kussmaul breath

b. Stenotic breath

c. Tachipnoe

d. Cheyne-Stokes breath

e. Bioth breath

308. The patient with asbestosis in 5 years has developed chronic respiratory failure due to the gases diffusion through alveolar membrane disturbance. Which concentrations of oxygen and carbon dioxide in patient's blood can you suppose?

a. hypoxia and normocapnia

b. hypoxia and hypercapnia

c. hypoxia and hypocapnia

d. normoxia and normocapnia

e. normoxia and hypercapnia

309. Acute respiratory failure has developed in the patient who suffers from bronchial asthma. What is the basic pathogenic mechanism of the given pathology development?

a. Restrictive disturbances of lungs ventilation

b. Obstructive disturbances of lungs ventilation

c. Disturbances of lungs blood supply

d. Disturbances of surfactant's system in lungs

e. Disturbances of oxygen diffusion through membranes

310. In the patient with a craniocerebral trauma breath is characterized by the respiratory movements increasing on depth and then decreasing with short pause. Which type of the periodic breath is observed in the task?

a. Bioth breath

b. Kussmaul breath

c. Cheyne-Stokes breath

d. Gasping-breath

e. Apnoe

311. Acute respiratory failure was developed in the patient with multiply rib's fractures. Which pathogenic mechanism explains the development of complications in this case?

a. Restrictive disturbance of alveolar ventilation

b. Obstructive disturbance of alveolar ventilation

c. Disturbance of blood perfusion in lungs capillaries

d. Disregulatory disturbance of alveolar ventilation

e. Disturbance of gases diffusion through membranes

312. Patient who suffers from lungs tuberculosis for 10 years complains of the cough with bloody phlegm, weakness, short breath. Which reason from listed below caused respiration insufficiency in this case?

a. decrease of functioning alveoles' quantity

b. disturbances of respiratory center functions

c. disturbances of airways passage

d. decrease of thorax flexibility

e. disturbance of thorax muscles function

313. It is known that there are cardiogenic and non-cardiogenic types of pulmonary edema.

Which from the listed conditions will not be accompanied by pulmonary edema,

- a. Right sided heart failure
- b. Left sided heart failure
- c. Acute respiratory distress syndrome
- d. Excessive intravenous infusion of physiological solution
- e. Acute pneumonia

314. A 54-year-old man sustains third degree burns in a house fire. His respiratory rate is 30/min, arterial O₂ saturation is 50%. The most likely cause of his low oxygen saturation is

- a. Airway obstruction from smoke inhalation
- b. Carbon monoxide poisoning
- c. Pulmonary edema
- d. Fever

315. Patient was admitted to cardiological ward in a severe state with the diagnosis “myocardial infarction of the left ventricle posterior wall, starting pulmonary edema”. Which mechanism causes the development of pulmonary edema in the patient?

- a. Pulmonary arterial hypertension
- b. Left ventricular failure
- c. Pulmonary venous hypertension
- d. Hypoxemia
- e. Decrease of alveolo-capillary diffusion of oxygen

316. Pulmonary edema developed in a patient with hypertonic crisis. Which factor determines pulmonary edema in this clinical case?

- a. Increase of arterial pressure
- b. Increased permeability of the pulmonary vessels
- c. Increased hydrostatic pressure in pulmonary vessels
- d. Increased resistance of pulmonary vessels
- e. Decreased oncotic pressure of blood plasma

317. A 3 year old child developed asphyxia after inhalation of a hard candy. The breathing is

regular - 20 per minute, expiratory short breath, heart rate – 40 bpm, BP 70/50 mmHg. Define the stage of asphyxia in the patient:

- a. 1 stage of asphyxia
- b. 2 stage of asphyxia
- c. 3 stage of asphyxia
- d. 4 stage of asphyxia

318. A patient with respiratory failure was examined in order to measure spiogram and lungs volumes. The following indices were obtained after examination: total lungs capacity and residual volume are increased, forced expiratory volume and forced vital capacity are decreased. Define the mechanism of respiratory failure development in this case:

- a. restrictive disturbances
- b. obstructive disturbances
- c. diffusion disturbances
- d. perfusion disturbances
- e. regulation disturbances

319. A patient with respiratory failure was examined in order to measure spiogram and lungs volumes. The following indices were obtained after examination: total lungs capacity, forced vital capacity and residual volume are decreased, forced expiratory volume is increased. Define the mechanism of respiratory failure development in this case:

- a. restrictive disturbances
- b. obstructive disturbances
- c. diffusion disturbances
- d. perfusion disturbances
- e. regulation disturbances

320. A 3 year old child developed asphyxia after inhalation of a hard candy. The frequency of breathing is 56 per minute, inspiratory short breath, heart rate – 135 bpm, BP 140/100 mmHg. Define the stage of asphyxia in the patient:

- a. 1 stage of asphyxia
- b. 2 stage of asphyxia
- c. 3 stage of asphyxia
- d. 4 stage of asphyxia

Images for SUBMODULE 5

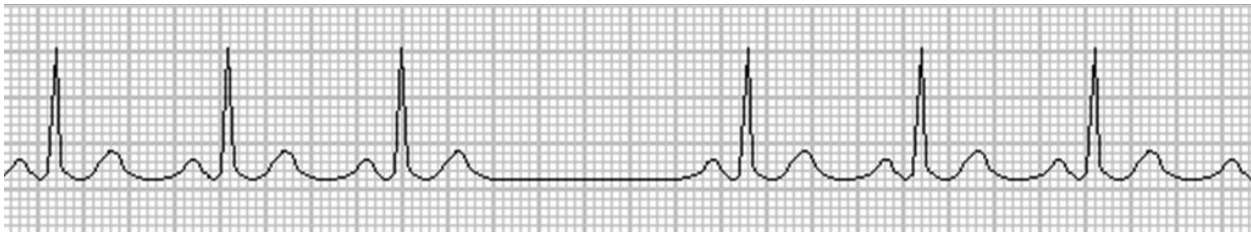


321. Disturbance of which heart function reflects arrhythmia in the submitted recording of the ECG?

- a. Excitability
- b. Automatism
- c. Conductivity
- d. Contractility
- e. Tonicity

322. Which arrhythmia type is present on the ECG?

- a. Sinus tachycardia
- b. Sinus bradycardia
- c. Sinus extrasystole
- d. Paroxysmal atrial tachycardia
- e. Pulsus alternans

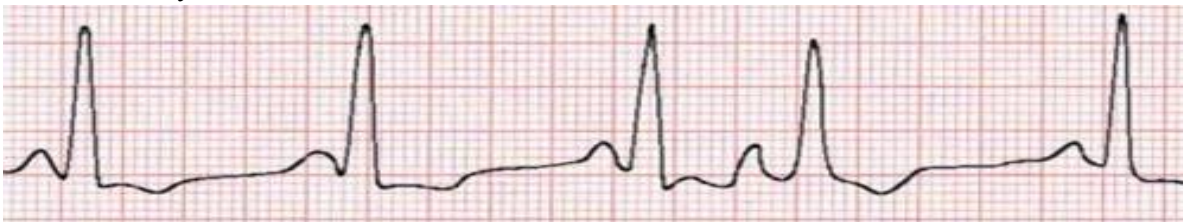


323. Disturbance of which heart function arrhythmia in the submitted recording of the ECG reflects?

- a. Excitability
- b. Automatism
- c. Conductivity
- d. Contractility
- e. Tonicity

324. Which disturbance of heart rhythm is on the submitted recording of the ECG?

- a. SA block
- b. Atrial extrasystolia
- c. Idioventricle extrasystolia
- d. AV block
- e. Block of HIS bundle.



325. Disturbance of which heart function is manifested in arrhythmia on the submitted ECG recording?

- a. Excitability
- b. Automatism
- c. Conductivity
- d. Contractility
- e. Tonicity

326. Which disturbance of heart rhythm is on the submitted ECG recording?

- a. Sinus extrasystole
- b. Premature junctional contraction
- c. Premature ventricular contraction
- d. Sinus arrhythmia
- e. Sinus block



327. Disturbance of which heart function is manifested in arrhythmia on the submitted ECG recording?

- Excitability
- Automatism
- Conductivity
- Contractility
- Tonicity

328. Which disturbance of heart rhythm is on the submitted ECG recording?

- Sinus extrasystole
- Premature junctional contraction
- Premature ventricular contraction
- Sinus arrhythmia
- Sinus block

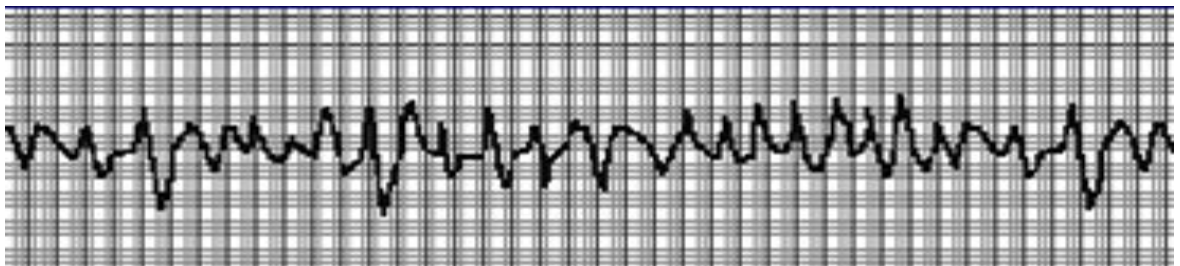


329. Disturbance of which heart function is manifested in arrhythmia on the submitted ECG recording?

- Excitability
- Automatism
- Conductivity
- Contractility
- Tonicity

330. Which heart rhythm disturbance is present on the submitted ECG recording?

- Atrial fibrillation
- Atrial extrasystolia
- Ventricular fibrillation
- Ventricular tachycardia
- Full AV block.

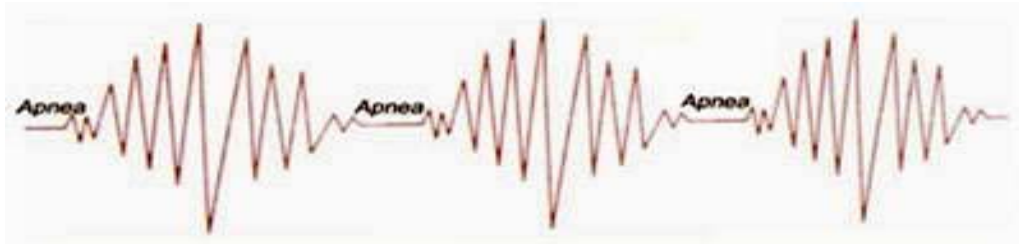


331. Disturbance of what function of heart reflects arrhythmia in the submitted ECG recording?

- Excitability
- Automatism
- Conductivity
- Contractility
- Tonicity

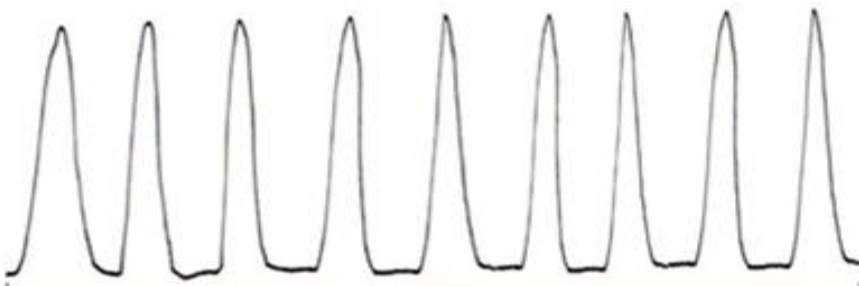
332. Which disturbance of heart rhythm is present on the submitted ECG recording?

- Atrial fibrillation
- Atrial extrasystolia
- Ventricular fibrillation
- Ventricular tachycardia
- Full AV block.



333. Which respiratory pathology from the listed is present on the submitted record of patient's respiratory movements?

- a. Cheyne-Stokes breathing
- b. Kussmaul breathing
- c. Biorth breathing
- d. Agonal breathing
- e. Gaspig breathing



334. Which respiratory pathology from the listed is present on the submitted record of patient's respiratory movements?

- a. Cheyne-Stokes breathing
- b. Kussmaul breathing
- c. Biorth breathing
- d. Agonal breathing
- e. Gaspig breathing

SUBMODULE 6 “PATHOLOGY OF GIT, KIDNEYS, ENDOCRINE AND NERVOUS SYSTEM”

Pathology of gastro-intestinal tract.

- 337.** Signs of the food poisoning are observed at patient. Chemical analysis of the food's rests has shown presence of nitrites. What is the most specific mechanism of the nitrites poisoning?
- Blocking enzymes of the respiratory circuit
 - Toxic damage of the respiratory center
 - Disturbance of the myocardium contractive functions
 - Damage of the digestive mucous tunic
 - Inactivation of the hemoglobin in erythrocytes
- 338.** Signs of steatorrhea and avitaminosis of fat-soluble vitamins are observed in the patient. What enzyme's deficiency is most frequently reason of fats digestion disturbances in the gastrointestinal tract and increase of neutral fat's quantity in the faeces?
- Pancreatic lipase
 - Gastric lipase
 - Intestinal lipase
 - Hepatic lipase
 - Enterokinase
- 339.** Patient with duodenal ulcer complains of stable weight loss. Examination: atrophy of the intestine's membrane, in faeces –increased amount of not digested food. What is the most probable mechanism of the patient's exhaustion in the given clinical situation?
- Disturbance of digestion in a stomach
 - Disturbance of nutrients absorption
 - Increased proteins catabolism
 - Disturbance of digestion in the large intestine
 - Insufficient receipt of plastic substances
- 340.** Patient E. with pneumonia was treated with antibiotics last two weeks. Now he complains about rumble in the stomach, frequent diarrhea with a specific smell. What is the probable mechanism of these disturbances?
- Toxic action of antibiotics on the mucous membrane
 - Development of cytotoxic immune reaction
 - Development of intestines' dysbacteriosis
 - Action of bacterial toxins on the mucous membrane
 - Hereditary defect of mucous membrane's enzymes
- 341.** Increased production of glucocorticoids is revealed in the patient. She complains of pain in subcostal region, heartburn. Hyperacidity was found during fractional sounding of the stomach. What is the probable mechanism of such hyperacid state development?
- Stimulation of the pepsin secretion only
 - Stimulation of the hydrochloric acid secretion only
 - Stimulation of the parietal cells proliferation
 - Stimulation of the pepsin and hydrochloric acid secretion
 - Stimulation of main cells proliferation
- 342.** Patient who suffers from rheumatic polyarthritis was treated by aspirin and prednisolon for a long time. Now he complains of pain in the stomach, nausea, flatulence. Gastroscopia examination- erosion (0.5cm x 0.5 cm) of the stomach's mucosa was found. What is the most probable cause of defect formation?
- Development of cytotoxic immune reaction
 - Development of the dysbacteriosis
 - Age changes of the mucous membrane
 - Ulcer action of the Helicobacter pylori
 - Treatment with NSAIDs
- 343.** Patient L. who professionally contacting with lead, complains of weakness, dryness of the skin, increased frailness of nails. Blood count: hypoglycemia, hypochromic anemia. Examination: atrophic changes of the small intestine's mucosa. What is the name of this phenomenon?
- Malabsorption syndrome
 - Disturbance of stomach digestion
 - Formation of a stomach tumor
 - Development of leukemia
 - Insufficient exogenous receipt of nutrients
- 344.** At the child of 5 years swelling of the stomach, spastic pain and diarrhea are happened after milk taking. What enzyme's lack causes these symptoms?
- glucose-metabolizing enzymes
 - lactose-metabolizing enzymes
 - maltose- metabolizing enzymes
 - saccharose- metabolizing enzymes
 - fructose- metabolizing enzymes

345. In the child of 2 years swelling of the stomach, spastic pain and diarrhea are frequently happened in 1-4 hours after taking products with sugar. What enzyme's lack causes these symptoms?

- a. lactose-metabolizing enzymes
- b. glucose-metabolizing enzymes
- c. maltose- metabolizing enzymes
- d. saccharose- metabolizing enzymes
- e. fructose- metabolizing enzymes

346. Patient 50 years old complains of bad appetite, weight loss, weakness, pain in the field of the stomach and eructation. Laboratory examination: Hb 90 g/l, erythrocytes 2,0T/l, erythrocyte color index 1,4; gastric secretion 0,4 l, pH gastric juice - 7,0. B₁₂-deficiency anemia was diagnosed. What substance's deficiency is the cause of anemia in this patient?

- a. pepsin
- b. renin
- c. secretin
- d. intrinsic factor
- e. hydrochloric acid

347. In the patient with chronic cholecystitis light-colored feces and drops of the neutral fat in feces are found. What is the most probable cause of these disturbances?

- a. Decrease of intestinal juice secretion
- b. Increased acidity of gastric juice
- c. Activation of absorption in intestines
- d. Increased secretion of pancreatic juice
- e. Decrease of bile entry into intestines

348. De-nol and metronidazole are prescribed for the man of 42 years who suffers from duodenal and stomach ulcer. Therapy appeared effective. What is the mechanism of these medicines' high efficiency?

- a. Depression of Helicobacter pylori
- b. Decrease of the intestines pathogenic flora influence
- c. Improvement of microcirculation
- d. Stimulation of duodenum mucosa's resistance
- e. Stimulation of prostaglandins' synthesis

349. Which factor from the given is the most potentially lethal for the patient with intestinal obstruction?

- a. bowel distension
- b. loss of fluid
- c. electrolyte disorders
- d. absolute constipation
- e. production of endotoxins by anaerobes

350. Which substance from the listed is not playing role in the development of intestinal autointoxication?

- a. ethanol

- b. hydrogen sulphide
- c. skatole
- d. indole
- e. phenol

351. Patient was treated by aspirin and prednisolon for a long time. Now he complains of pain in the stomach, nausea, flatulence. Gastroscoopia found erosion of the stomach's mucosa. What is the most probable cause of defect formation?

- a. Increased bloodflow in the stomach
- b. Enhanced mucus secretion
- c. Decreased HCl secretion
- d. Increased HCl secretion
- e. Decreased secretion of bicarbonates

352. Prostaglandins play an important role in protecting the gastrointestinal mucosa from injury. Which from the named effects IS NOT caused by prostoglandins?

- a. increased bloodflow in stomach
- b. decreased bloodflow in stomach
- c. increased bicarbonate ion secretion
- d. enhanced mucus production

353. What is the result of Helocobacter pylori action on the mucosal layer of stomach and duodenum?

- a. increase pepsin secretion
- b. increase HCl secretion
- c. increase bicarbonate secretion
- d. increase bicarbonate secretion
- e. decrease bloodflow in the stomach

354. Which pathological process underlies the mechanism of chronic gastritis type A development?

- a. decrease of HCl secretion
- b. decrease of prostoglandins formation
- c. production of autoantibodies to parietal cells
- d. production of autoantibodies to epithelial cells
- e. production of autoantibodies to gastrin-producing cells

355. Which pathological process underlies the mechanism of chronic gastritis type C development?

- a. production of autoantibodies to parietal cells
- b. reflux of duodenal contents and bile into the stomach
- c. Helycobacter pylori infection
- d. environmental influences
- e. decreased parietal cells function

356. Gastric intubation was done to the patient with stomach discomfort. The following results were obtained: volume of fasting secretion 47 ml, general acidity of basal secretion 50, pepsin content in stimulated secretion 45 . Describe the state of gastric secretion in the patient.

- a. neutral acidity
- b. increased acidity
- c. normal acidity
- d. decreased acidity
- e. alkaline reaction of acidity

357. Gastric intubation was done to the patient with stomach discomfort. The following results were obtained: volume of fasting secretion 69 ml, general acidity of basal secretion 74, pepsin content in stimulated secretion 49 . Describe the state of gastric secretion in the patient.

- a. neutral acidity
- b. increased acidity
- c. normal acidity
- d. decreased acidity
- e. alkaline reaction of acidity

358. Gastric intubation was done to the patient with stomach discomfort. The following results were obtained: volume of fasting secretion 10 ml, general acidity of basal secretion 0 units, pepsin content in stimulated secretion 7 units . Describe the state of gastric secretion in the patient.

- a. neutral acidity
- b. increased acidity
- c. normal acidity
- d. decreased acidity
- e. alkaline reaction of acidity

359. A 54-year-old male alcoholic presents with the sudden onset of severe, constant epigastric pain that radiates to his midback. Further evaluation finds fever, steatorrhea, and discoloration around his flank and umbilicus. Laboratory tests find elevated serum levels of amylase and lipase. What is the most likely cause of these findings?

- a. acute appendicitis
- b. acute cholangitis
- c. acute cholecystitis
- d. acute diverticulitis
- e. acute pancreatitis

Liver pathology.

360. Patient G. was delivered into resuscitation department with poisoning. His condition is heavy, patient unconscious, has weak pulse about 40 bpm, BP 75/40 mmHg. Examination - Bioth type periodic breath. Blood count: decreased protein's level (16 g/l), conjugated bilirubin - 155 mkmol/l. Urine analysis: high amount of ammonia and conjugated bilirubin. What is the basic pathogenic mechanism of the patient's state?

- a. Cardiac shock
- b. Hepatic failure
- c. Respiratory failure
- d. Cardiac failure
- e. Renal failure

361. In the patient with a jaundice it is revealed: increased non-conjugated bilirubin plasma level, conjugated bilirubin level within the limits of norm, in faeces - the high maintenance of stercobilin, in urine increased level of urobilin. What is the reason of such changes?

- a. Damage of hepatocytes
- b. Lack of enzymes
- c. Erythrocytes increased hemolysis
- d. Disturbance of bile outflow
- e. Functional failure of hepatocytes

362. The jaundice was marked in the newborn from 3rd to 10th day of a life. The general condition is satisfactory. A maximum level of bilirubin in blood during this period - 102 mkmol/l, 8,2 mkmol/l due to conjugated bilirubin. What condition development is most probable at this baby?

- a. Fetal hepatitis
- b. Hemolytic illness of newborns
- c. Hereditary hemolytic microspherocytic anemia
- d. Physiological jaundice
- e. Atresia of bile vessels

363. The teenager 12 years old, complains of periodically appearing weakness, dizziness, pains in left subcostal region. Skin and mucous membranes are icteric. A tower skull and liver and spleen enlargement are observed. In blood: erythrocytes - 2,7 T/l, Hb - 88 g/l, leukocytes - 5,6 G/l, ESR - 15 mm/hour. What most probable bilirubin level change can be observed in this patient?

- a. Increased non-conjugated and conjugated bilirubin
- b. Increased conjugated bilirubin
- c. Decreased free bilirubin
- d. Decreased the connected bilirubin
- e. Increased non-conjugated bilirubin

364. Patient D., 38 years. During 5 years suffers from chronic cholecystitis. 2 day ago after disturbances in a feed the pain in the right subcostal region has appeared. For 3 day icteric coloring of skin and sclera's had appeared. In blood: 35 mkmol/l of non-conjugated bilirubin and 147 mkmol/l of conjugated bilirubin. Urine is dark colored, faeces colorless. What caused dark coloring of urine in this case?

- Increased conjugated bilirubin
- Increased non-conjugated bilirubin
- Increase if urobilin
- Presence of bile acids
- Decrease of stercobilin allocation with faeces

365. Patient A., 12 years, complain about nausea, vomiting, a skin itch. He was ill 8 days ago. Clinical examination: scleras and skin are icteric, the liver and a spleen are enlarged. Bilirubin plasma level- 76 mkmol/l (non-conjugated - 20,5 mkmol/l). At urine are present conjugated bilirubin and urobilin. Faeces-colorless. What is the possible reason of a skin itch at the given type of jaundice?

- Increased blood cholesterol level
- Increased blood conjugated bilirubin level
- Increased blood non-conjugated bilirubin level
- Increased blood bile acids level
- Increased blood erythrocytes disintegration products level

366. Patient E., 39 years. Disease has developed acutely, after cooling. Acute weakness, short breath, short-term loss of consciousness, moderate icteric skin and scleras have suddenly appeared. Laboratory data: non-conjugated bilirubin of plasma- 70 mkmol/l. Urine and faeces contains increased quantity of urobilin and stercobilin. Bilirubin in urine is not defined. What is the most probable mechanism of short breath development and loss of consciousness in the patient?

- Toxic action of conjugated bilirubin on CNS
- Toxic action of bile acids on CNS
- Toxic action of microorganisms on CNS
- Toxic action of urobilinogen on CNS
- Toxic action of non-conjugated bilirubin on CNS

367. Patient H., 46 years, complain about appetite absence, nausea, pains in the right subcostal region, that are increased after fat food, icteric scleras, dark color of urine. In plasma of blood: non-conjugated bilirubin - 50 mkmol/l and conjugated bilirubin - 71,8

mkmol/l. In urine conjugated bilirubin and urobilin in a plenty is defined. Explain absence of non-conjugated bilirubin in urine?

- Impossibility of its filtration in primary urine
- Increased inactivation of it by macrophages
- Decreased conjugation of it in hepatoocytes
- Conjugation of bilirubin with blood albumens
- Conjugation of bilirubin with immune complexes

368. In a ward there is a patient with an attack of a chronic cholecystitis. He complains of itch and the yellowness of skin, plural small pointed hemorrhages. At laboratory research it is revealed expressed steatorrhea, decreased parameters of blood coagulation. What is pathogenic connection between steatorrhea and development of hemorrhages:

- Disturbance of vit A absorption
- Disturbance of vit K absorption
- Disturbance of vit C absorption
- Disturbance of vit B12 absorption
- Disturbance of vit B6 absorption

369. Patient C., is treated in the clinic with diagnosis chronic hepatitis complicated by liver cirrhosis. The patient is weak, complaints about appetite loss and waste of weight. His skin is dry and pale with yellow tint and small hemorrhages. His belly is enlarged because of ascites. Subcutaneous veins are enlarged and well seen on the skin of belly. Concentration of proteins in the blood is lower than normal. What pathological condition has developed in the patient?

- Inflammation of mesenteries vessels
- DIC-syndrome (phase of hypocoagulation)
- Portal hypertension syndrome
- Hemophilia
- Cholemia syndrome

370. At patient P., 25 years, the diagnosis of a chronic hepatitis is established. The patient complains of loss of weight (10 kg during 2 months), pallor of a skin with a yellow shade, small pointed haemorrhages on a skin, gum bleeding. Disturbance of which liver function results in skin haemorrhages and gum bleeding?

- Chromogenic
- Synthesis of glycogen
- Detoxification
- Synthesis of albumens
- Deposition of substances

371. Patient T., 47 years, develops quickly increasing jaundice. Blood contains 82 mkmol/l

conjugated bilirubin. In urine – great amount of bilirubin, faeces are non-colored. What type of a jaundice is present at this patient?

- Parenchymatous (hepatic) jaundice (cholestatic stage)
- Acquired hemolytic (prehepatic) jaundice
- Parenchymatous (hepatic) jaundice (necrotic stage)
- Mechanical (posthepatic) jaundice
- Hereditary hemolytic jaundice

372. Patient K. arrived to clinic with complaints about general weakness, pain in left subcostal region. Icteric skin had appeared in her from the childhood. Three months ago jaundice has strengthened and pains in liver region appeared. Blood analysis showed increased level of non-conjugated bilirubin, urine and faeces are darkly colored. What type of jaundice is present in this patient?

- Parenchymatous (hepatic) jaundice (cholestatic stage)
- Acquired hemolytic (prehepatic) jaundice
- Parenchymatous (hepatic) jaundice (necrotic stage)
- Mechanical (posthepatic) jaundice
- Hereditary hemolytic jaundice

373. In the patient with jaundice irritability, a headache, insomnia is marked. Objectively: heart rate - 54 bpm, BP - 90/60 mmHg, blood coagulation is decreased. What substance increased level leads to described symptoms?

- Bile acids
- Bilirubin
- Cholesterol
- Bile pigments
- Fat acids

374. In the patient with acholia low heart rate (60 bpm) was found during clinical examination. What bile component can cause this phenomenon?

- Bile acids
- Cholesterol
- Bile pigments
- Fat acids
- Bilirubin

375. Patient D., 22 years, complains of fever, general weakness and jaundice. The doctor diagnosed viral hepatitis. What blood analysis is necessary for proving hepatic cells acute damage?

- Conjugated and non-conjugated bilirubin
- Activity of aminotransferase enzymes
- Concentration of urobilin
- Cholesterol and bile acids

e. Proteins fractions

376. Patient with yellowish discoloration of the skin was examined by the physician. The signs of cholemia were found during examination. Which type of jaundice is usually accompanied by cholestasis and cholemia syndrome?

- prehepatic
- intrahepatic
- mechanical
- neonatal
- hemolytic

377. It is known that jaundice may manifest with the changes in urine and feces coloring. Which pigment will give the dark color of urine in the case of posthepatic jaundice?

- conjugated bilirubin
- non-conjugated bilirubin
- urobilin
- stercobilin
- hemoglobin

378. It is known that jaundice may manifest with the changes in urine and feces coloring. Which pigment will give the dark color of urine in the case of prehepatic jaundice?

- conjugated bilirubin
- non-conjugated bilirubin
- urobilin
- urobilinogen
- hemoglobin

379. Mechanical jaundice usually results from biliary obstruction is accompanied by acholia and cholemia. Choose the consequence of acholia in the patient from the following:

- increased motility of intestines
- increased absorption of A, D E , K vitamins
- increased absorption of B1, B2, C vitamins
- intestinal autointoxication
- inhibition of proteins putrefaction in intestines

380. Hepatic failure is a serious disorder because liver functions of detoxication, proteins synthesis and others are impaired. The patient with liver failure is usually prescribed a strict diet. Excessive intake of which nutrients may worsen hepatic failure and may lead to hepatic encephalopathy?

- carbohydrates
- lipids
- proteins
- water
- sodium chloride

381. Jaundice is not a disease itself; it is a syndrome of liver affection. Jaundice may accompany many of liver diseases. Which type

of jaundice may be accompanied with the appearance of hepatic enzymes (transaminase) in the peripheral blood?

- a. hemolytic
- b. intrahepatic
- c. neonatal
- d. enzymopathic
- e. mechanical

382. Hepatic encephalopathy refers to the totality of central nervous system manifestations of liver failure. Which substance is directly causing CNS disorders which occur in the course of hepatic failure?

- a. ammonia
- b. urea
- c. conjugated bilirubin
- d. non-conjugated bilirubin
- e. bile acids

383. Portal hypertension is classified into pre-hepatic, intra-hepatic and post hepatic forms due to the level of venous obstruction. Choose the reason of posthepatic portal hypertension from the following:

- a. liver cirrhosis
- b. portal vein thrombosis
- c. hypovolemia
- d. left-sided heart failure
- e. right-sided heart failure

384. It is known that portal hypertension may be complicated with ascites. Choose the

factor which IS NOT taking part in this case of ascites development:

- a. obstruction of venous flow through the liver
- b. salt and water retention by the kidney
- c. increased salt intake
- d. decreased blood colloidal pressure
- e. impaired synthesis of albumens in the liver

385. Mechanical jaundice usually results from biliary obstruction is accompanied by acholia and cholemia. Explain the mechanism of bradycardia which occurs in the patient with cholemia. It happens due to...

- a. influence of bile acids on SA node
- b. activation of sympathetic activity
- c. His bundle branch block
- d. re-entry phenomenon
- e. influence of bilirubin on SA node

386. A 62-year-old male with hepatic failure secondary to cirrhosis develops a pungent odor in his breath (fedor hepaticus). He is also noted to have marked ascites, gynecomastia, asterixis, and palmar erythema. His serum ammonia levels are found to be elevated. This patient's gynecomastia is the result of

- a. Decreased synthesis of albumin
- b. Defective metabolism of the urea cycle
- c. Deranged bilirubin metabolism
- d. Impaired estrogen metabolism
- e. The formation of mercaptans in the gut

Kidneys pathology.

387. Patient R. urine analysis: urine specific gravity 1,034-1,050; daily diuresis 3,8 L. Characterize daily diuresis at the patient.

- a. Oliguria
- b. Hypostenuria
- c. Disuria
- d. Polyuria
- e. Normal diuresis

388. Patient R., urine analysis: color - light yellow, transparent, acid reaction, traces of protein. Urine microscopy: single epithelium cells, leukocytes - 0-2, erythrocytes - 0-1 in the field of vision. Name the cause of protein presence in urine:

- a. Damage of glomerular capillaries basal membrane
- b. Normal processes of a filtration
- c. Damage of tubules
- d. Excessive consumption of proteins with food

389. Patient S., urine analysis: color - light yellow, transparent, acid reaction, traces of protein, glucose-10 g/L. Presence of glucosuria probably testifies about:

- a. Increased glucose concentration in blood
- b. Normal function of kidneys
- c. Disturbance of glomerular capillaries basal membrane permeability
- d. Increased filtration ability of kidneys
- e. Secretion of glucose in renal tubules

390. Patient T., urine analysis: specific gravity 1,034-1,050; daily diuresis 3,8 L. At the analysis of urine it is revealed: protein - traces, glucose - 10 g/L. Nitrogen of blood - 15,2 mmole/L. Name the cause of specific gravity increase:

- a. Presence of protein traces in urine
- b. Change of daily diuresis
- c. Increased filtration ability of kidneys
- d. Presence of glucose in urine
- e. Increased residual nitrogen in blood

391. Patient U. urine analysis: specific gravity 1,003-1,010; daily diuresis 6,8 L. Urine is of yellow color, transparent, subacidic reaction, protein is absent, glucose is absent. What is the reason of decreased urine specific gravity in the given clinical situation?

- a. Increased filtration ability of kidneys

- b. Increased daily diuresis
- c. The increased consumption of water
- d. Absence of protein and glucose in urine
- e. Decreased kidney's reabsorbing ability

392. Patient K., 23 years. A month after flu began to complain of constant thirst, often and abundant urination, insomnia. Urine analysis: urine specific gravity 1,003-1,010; daily diuresis 6,200 L, pathological components of urine are not revealed. What is the most probable mechanism that had led to poliuria at the patient?

- a. Increased glomerular capillaries basal membrane permeability
- b. Decreased vasopressin secretion
- c. Increased daily consumption of water
- d. Injury of kidneys tubules
- e. Inflammation of urinary bladder

393. Patient M., 16 years, was delivered to the hospital in the hard shock condition. ABP - 80/60 mmHg. Daily diuresis 60-80 ml. Urine analysis: protein - 0,66 g/L, specific gravity 1,029. Estimate patient's diuresis:

- a. polyuria
- b. oliguria
- c. disuria
- d. anuria
- e. hypostenuria

394. Patient M., 16 years, was delivered to the hospital in the extremely shock condition after car accident. There are plural fractures of both legs. ABP - 80/60 mmHg. Daily diuresis 60-80 ml. What is the mechanism of decreased diuresis at this patient?

- a. decreased hydrostatic pressure in capillaries of glomerules
- b. increased colloid-osmotic pressure in capillaries of glomerules
- c. increased pressure of primary urine in Bowman's capsule
- d. increased concentration of vasopressin in blood
- e. traumatic violation of urinary bladder innervation

395. Patient M., 16 years, delivered in the hospital in the shock condition. ABP - 80/60 mmHg. Daily diuresis 60-80 ml. Urine analysis: protein - 0,66 g/L, urine specific gravity 1,029. Residual blood nitrogen - 120 mmol/L; blood urea - 35 mmol/L. What is the mechanism of azotemia in the patient?

- a. decreased glomerular filtration rate in kidneys
- b. violation of urea secretion in kidneys
- c. violation of protein metabolism in liver
- d. increased catabolism of proteins in the damaged tissues

- e. increased reabsorption in kidneys

396. Patient M., 16 years, with craniocerebral trauma was delivered to the hospital in the shock condition. ABP - 80/60 mmHg. Excretes 60-80 ml of urine for a day. In urine: protein - 0,66 g/L, urine specific gravity 1,029. What is the most possible cause of development of proteinuria at patient?

- a. ischemic affection of kidneys
- b. traumatic affection of kidneys
- c. inflammatory affection of kidneys
- d. inflammatory affection of urinary bladder
- e. traumatic affection of urinary bladder

397. In the analysis of urine of patient K., 3 years, is glycosuria, diurnal excretion of glucose with urine is 1,2 g, degree of glycosuria is the same in day and night portions of urine; glucose of blood - 3 mmol/L, glycemic line at sugar loading or injection of insulin is normal. What is the cause of glycosuria at patient?

- a. excess of glucose in blood concentration
- b. increased filtration of glucose in kidneys
- c. deficiency of enzyme glucose transport systems in the tubules
- d. high income of glucose with food
- e. violation of glucose consumption by tissues

398. Patient K., 3 years, complaints about quick fatiguability, constant hunger, high thirst. There are no objective changes in the internal organs. Urine analysis: urine specific gravity 1,020 - 1,038 at daily diuresis 3,0 l. Diurnal excretion of glucose with urine is 1,2 g. What pathogenetic mechanism caused changes of diurnal diuresis at patient?

- a. increased hydrostatic pressure in capillaries of glomerules
- b. decreased colloid-osmotic pressure in capillaries of glomerules
- c. decreased hydrostatic pressure in Bowman capsule
- d. increased osmotic pressure of urine
- e. decreased secretion of vasopressin in blood

399. Patient A., 38 years, at 3-d year of disease of systemic lupus erythematosus it is revealed diffuse affection of kidneys, with massive edema, expressed proteinuria. What has caused the development of proteinuria at a patient?

- a. inflammatory affection of kidneys
- b. ischemic affection of kidneys
- c. autoimmune affection of kidneys

d. inflammatory affection of urinary bladder

e. inflammatory affection of urinary tracts

400. Patient A., 38 years, at 3-d year of disease of systemic lupus erythematosus revealed diffuse affection of kidneys, with massive edema, expressed proteinuria, hyperlipidemia, disproteinemia. Which mechanism of proteinuria development is the most possible at the patient?

a. violation of proteins reabsorption in tubules

b. diffuse kidneys parenchyma destruction

c. increased concentration of proteins in the urinary tracts

d. increased permeability of Bowman's capsule basal membrane

e. excess of blood proteins amount

401. Patient A., 38 years, at 3-d year of disease of systemic lupus erythematosus revealed diffuse affection of kidneys, with massive edema, expressed proteinuria, hyperlipidemia, disproteinemia. Suppose the possible changes in blood protein content in this patient. There will be ...

a. increased concentration of albumins in blood

b. decreased concentration of proteins in blood

c. increased concentration of globulins in blood

d. decreased concentration of albumins in blood

e. decreased concentration of globulins blood

402. Patient N., 36 years, is on inpatient treatment in nephrological department. Urine analysis: specific gravity -1,004-1,015, diurnal diuresis 2600 ml. What do indexes of urine specific gravity indicate?

a. isohyposthenuria

b. hypersthenuria

c. hyposthenuria

d. dysuria

e. polyuria

403. Patient N., 36 years. Analysis of urine: urine is stramineous in colour, limpid, acid reaction, protein 0,8 g/L, glucose is absent. In urinal sediment: single epithelial cells, leukocytes - 1-5, RBC - 2-3 in field of vision, fresh and modified; hyaline casts - single in field of vision. What index from pathological components of urine testifies about the violation of filtration function of kidneys at a patient?

a. protein

b. fresh RBC

c. cylinders

d. leukocytes

e. pH of urine

404. Patient H., 36 years, in urine - 0,8 g/L of protein, in urinal sediment - single epithelium and hyaline cylinders, leukocytes - 1-5, fresh and modified RBC - 2-3 in field of vision. Urine analysis: specific gravity 1,004-1,015, diurnal diuresis 2600 ml. What index from the given can suggest about the violation of kidneys ability to concentrate the urine?

a. polyuria

b. proteinuria

c. cylinderuria

d. microhematuria

e. pH of urine

405. Patient N., 36 years. Analysis of urine: urine is stramineous in colour, limpid, acid reaction, protein 0,8 g/L, glucose is absent. Urine analysis: specific gravity 1,004-1,015, diurnal diuresis 2600 ml. In blood: urea- 5,1 mmol/L, creatinine- 70 micromol/L. Affection of which part of kidneys caused the violation of kidneys ability to concentrate the urine?

a. kidney parenchyma

b. basal membrane of Bowman capsule

c. tubular part of nephron

d. collective tubules

e. glomerular part of nephron

406. Patient A., 27 years, delivered in the hospital with the profuse gastric bleeding in severe condition. ABP - 80/60 mmHg. Patient excretes 60 - 80 ml of urine for a day with urine specific gravity 1,028-1,036. How can you describe diurnal diuresis at patient in this clinical situation?

a. pollakiuria

b. anuria

c. oliguria

d. dysuria

e. hyposthenuria

407. Patient A., 24 years, delivered in the hospital with the profuse gastric bleeding in severe condition. ABP - 80/60 mmHg. Patient excretes 60 - 80 ml of urine for a day with urine specific gravity 1,028-1,036. Residual nitrogen of blood - 62 mmol/L, urea of blood - 36 mmol/L, creatinine of plasma - 260 micromole/L. What pathogenetic mechanism caused changes of diurnal diuresis at a patient?

a. increased osmotic pressure of urine

b. high level of residual nitrogen in blood

c. increased colloid-osmotic pressure in capillaries of glomerules

d. decreased hydrostatic pressure in capillaries of glomerules

e. increased hydrostatic pressure in Bowman capsule

408. Patient A., 27 years, delivered in the hospital with the profuse gastric bleeding in severe condition. ABP - 80/60 mmHg. Patient excretes 60 - 80 ml of urine for a day with urine specific gravity 1,028-1,036. Residual nitrogen of blood - 62 mmol/L, urea of blood - 36 mmol/L, creatinine of plasma - 260 μ mol/L. What pathogenetic mechanism caused the increased products of nitrogenous metabolism in blood of patient?

- violation of urea excretion in kidneys
- violation of protein metabolism in liver
- decreased amount of functioning nephrons
- decreased filtration function of kidneys
- increased reabsorbing function of kidneys

409. Patient A., 27 years, delivered in the hospital with the profuse gastric bleeding in severe condition. ABP - 80/60 mmHg. Daily diuresis 60 - 80 ml, urine specific gravity 1,028-1,036. Residual nitrogen of blood - 62 mmol/L, urea of blood - 36 mmol/L, creatinine of plasma - 260 μ mol/L. Define kidney's pathology?

- acute renal failure
- chronic renal failure
- nephritic syndrome
- nephrotic syndrome
- hematuria

410. Patient R., 39 years, was delivered to nephrological department in precoma condition. The patient is ill with glomerulonephritis for 8 years. Complaints about increased fatigue, apathy, pain in muscles and joints, skin itching, ammonia smell from mouth. Clinical examination: edema of legs and face, enlarged liver. ABP - 190/120 mmHg. Residual nitrogen of blood - 148 mmol/L. Glomerular filtration rate - 12,0 ml/min. Urine analysis: specific gravity 1,003 - 1,005, daily diuresis - 360 ml. What syndrome of kidneys affection is the reason of the patient's severe condition?

- nephritic
- nephrotic
- hypertensive
- chronic renal failure
- acute renal failure

411. Patient R., 39 years, was delivered to nephrological department in precoma condition. The patient is ill with glomerulonephritis for 8 years. Complaints about increased fatigue, apathy, pain in muscles and joints, skin itching, ammonia smell from mouth. Clinical examination: edema of legs and face, enlarged liver. ABP - 190/120 mmHg. Residual nitrogen

of blood - 148 mmol/L. Glomerular filtration rate - 12,0 ml/min. Urine analysis: urine specific gravity 1,003 - 1,005, daily diuresis - 360 ml. Characterize the concentrating ability of the kidney's according to the indices of urine specific gravity:

- hyposthenuria
- proteinuria
- hypersthenuria
- dysuria
- polyuria

412. Patient R., 39 years, was delivered to nephrological department in precoma condition. The patient is ill with glomerulonephritis for 8 years. Complaints about increased fatigue, apathy, pain in muscles and joints, skin itching, ammonia smell from mouth. Clinical examination: edema of legs and face, enlarged liver. ABP - 190/120 mmHg. Residual nitrogen of blood - 148 mmol/L. Glomerular filtration rate - 12,0 ml/min. Urine analysis: specific gravity 1,003 - 1,005, daily diuresis - 360 ml. What is the initial mechanism that has caused the increase of ABP in the patient?

- increased secretion of glucocorticoids
- increased secretion of aldosterone
- increased secretion of catecholamines
- increased secretion of renin
- increased concentration of angiotensin in blood

413. Patient R., 39 years, delivered in nephrological department in precoma condition as a result of chronic renal failure. Residual nitrogen of blood - 148 mmol/L. Glomerular filtration rate - 12,0 ml/min. What chemical substance is not related to the waste products of protein metabolism?

- urea
- ketone bodies
- phenols
- creatinine
- ammonia

414. Patient V., 19 years, complains of general asthenia, headaches, decreased appetite, thirst, frequent quinsies in anamnesis. Blood analysis: low RBC. Urea of blood - 10,7 mmol/L. ABP - 130/90 mmHg. Daily diuresis - 2600 ml. Urine specific gravity - 1,009 - 1,018, the amount of protein in the urine - 0,2 g/L. In urine sediment: single epithelial cells, leukocytes - 1-2 in field of vision, single RBC and hyaline cylinders. Glomerular filtration rate - 50 ml per minute. Name the pathology of kidneys.

- acute nephritic syndrome
- nephritic syndrome
- chronic renal failure

- d. acute renal insufficiency
- e. hypertensive syndrome

415. Patient V., 10 years, complains of general asthenia, headaches, decreased appetite, thirst, frequent quinsies in anamnesis. Clinical examination revealed lag in physical development, pale and dry skins. Blood analysis: RBC – 2,5*10¹²/L. Urea of blood - 10,7 mmol/L. ABP - 130/90 mmHg. Daily diuresis - 2600 ml. Urine specific gravity – 1,009 - 1,018, the amount of protein in the urine - 0,2 g/L. In urine sediment: single epithelial cells, leukocytes – 1-2 in field of vision, single RBC and hyaline cylinders. What pathogenetic mechanism caused the development of anaemia in the patient?

- a. decreased iron absorption
- b. intravascular hemolysis of RBC
- c. decreased erythropoietin synthesis
- d. loss of RBC with urine
- e. toxic influence of urea on the red marrow

416. Patient V., 40 years, complains of general asthenia, headaches, decreased appetite, thirst, frequent quinsies in anamnesis. Urea of blood - 10,7 mmol/L. ABP - 130/90 mmHg. Daily diuresis - 2600 ml. Urine specific gravity – 1,009 - 1,018, the amount of protein in the urine - 0,2 g/L. In urine sediment: single epithelial cells, leukocytes – 1-2 in field of vision, single RBC and hyaline cylinders. What pathogenetic mechanism caused the increased concentration of urea in the blood of patient?

- a. decreased urea excretion in tubules
- b. decreased urea filtration in kidneys
- c. increased urea synthesis in organism
- d. increased urea reabsorption in tubules
- e. predominance of night diuresis

417. What is the most likely cause of the combination of generalized edema, hypoalbuminemia, hypercholesterolemia, marked proteinuria, and fatty casts and oval fat bodies in the urine?

- a. Nephritic syndrome
- b. Nephrotic syndrome
- c. Acute renal failure
- d. Renal tubular defect
- e. Urinary tract infection

418. Immunological mechanisms are participating in pathogenesis of different diseases. Which kidney disease from the given is caused by immunologic mechanisms?

- a. urinary stones
- b. glomerulonephritis
- c. pyelonephritis
- d. polycystic kidney
- e. kidney tumor

419. In the patients with kidney diseases pathological components may be found in the urine. Which finding in urine analysis from the given reflects the disturbance of glomerular filtration?

- a. isosthenuria
- b. leached RBC
- c. aminoaciduria
- d. glucosuria
- e. decreased secretion of H⁺ ions

420. Quantitative changes of diuresis are frequently accompanying kidney pathology. Which mechanism from the given can result in polyuria?

- a. decrease of systolic BP lower than 60 mmHg
- b. dehydration due to diarrhea
- c. decreased vasopressin secretion
- d. increased colloid and osmotic blood pressure
- e. decreased number of functioning nephrons

421. Kidney pathology sometimes is divided to glomerular and tubular pathology. Which finding in urine analysis from the given reflects the disturbed function of renal tubules?

- a. azotemia
- b. oliguria
- c. poorly –selective proteinuria
- d. leached RBC in urine
- e. polyuria

422. Acute renal failure is a severe life-threatening condition. Choose pre-renal mechanism of acute renal failure development from the given:

- a. acute glomerulonephritis
- b. thrombosis of renal vessels
- c. acute pyelonephritis
- d. cardiogenic shock
- e. strictures of lower urinary ways

423. Acute renal failure is a rapid loss of renal function due to damage to the kidneys. Choose intra-renal mechanism of acute renal failure development from the given:

- a. cardiogenic shock
- b. disturbance in urine outflow
- c. acute glomerulonephritis
- d. dehydration due to fluid loss
- e. crush syndrome

424. Acute renal failure is a rapid loss of renal function due to damage to the kidneys. Choose post-renal mechanism of acute renal failure development from the given:

- a. tumor of urine bladder
- b. acute glomerulonephritis
- c. thrombosis of renal vessels
- d. acute pyelonephritis

- e. decreased ABP
- 425.** Protein can be found in the urine because of glomerular and tubular reasons. Which pathology from the given can cause tubular type of proteinuria?
- a. acute glomerulonephritis
 - b. chronic glomerulonephritis
 - c. pyelonephritis
 - d. diabetic nephropathy
 - e. systemic collagenous diseases
- 426.** Immune mechanisms are taking part in pathogenesis of kidney diseases. Decreased content of which blood component can prove immune mechanism of acute glomerulonephritis pathogenesis?

- a. complement
 - b. Ig A
 - c. Ig M
 - d. Ig G
 - e. albumin
- 427.** Index of which laboratory finding can help you to differentiate between nephritic and nephrotic syndromes of kidney affection?
- a. edema
 - b. hypertension
 - c. oliguria
 - d. proteinuria
 - e. leukocyturia

Pathology of endocrine system. Stress.

- 428.** Patient L. 30 years, in 3 months after childbirth gained weight - 7 kg per month and her attention was drawn by unusual location of fat: in the neck and face. X-ray examination revealed increased size of Turkish saddle. The patient has high blood glucose level, glucose is also present in the urine. What endocrine pathology can be suggested?
- a. Diabetes mellitus 1st type
 - b. Diabetes mellitus 2nd type
 - c. Cushing's disease
 - d. Cushing's syndrome
 - e. Diabetes insipidus
- 429.** Patient L. 30 years, in 3 months after childbirth gained weight - 7 kg per month and her attention was drawn by unusual location of fat: in the neck and face. X-ray examination revealed increased size of Turkish saddle. The patient has high blood glucose level, glucose is also present in the urine. What is the reason of the patient's increased body weight?
- a. Hypersecretion of glucocorticoids
 - b. Increased food consumption
 - c. Hypersecretion of insulin
 - d. Development of diabetes mellitus
 - e. Postpartum obesity
- 430.** Patient L. 30 years, in 3 months after childbirth gained weight - 7 kg per month and her attention was drawn by unusual location of fat: in the neck and face. X-ray examination revealed increased size of Turkish saddle. ABP – 150/85 mmHg. The patient has high blood glucose level; glucose is also present in the urine. Secondary diabetes mellitus is diagnosed. What is the mechanism of ABP increase?
- a. Development of hyperglycemia because of decreased insulin secretion
 - b. Increased amount of blood volume because of vasopressin hypersecretion

- c. Increased secretion of catecholamines by adrenal medulla
 - d. Increased secretion of renin because of kidneys ischemia
 - e. High blood levels of cortizol and aldosterone
- 431.** Patient L. 30 years, in 3 months after childbirth gained weight - 7 kg per month and her attention was drawn by unusual location of fat: in the neck and face. X-ray examination revealed increased size of Turkish saddle. ABP – 150/85 mmHg. The patient has high blood glucose level, diabetic type of sugar line at glucose tolerance test; glucose is also present in the urine. What causes change of glucose tolerance test?
- a. increased glycogenolysis in liver under glucocorticoids influence
 - b. increased gluconeogenesis in liver under glucocorticoids influence
 - c. inhibition of insulin secretion by beta-cells under glucocorticoids influence
 - d. decreased sensitivity of muscle and adipose tissue to insulin under glucocorticoids influence
 - e. increased glycogenolysis in muscles under glucocorticoids influence
- 432.** Patient L. 30 years, in 3 months after childbirth gained weight - 7 kg per month and her attention was drawn by unusual location of fat: in the neck and face. X-ray examination revealed increased size of Turkish saddle. ABP – 150/85 mmHg. The patient has high blood glucose level; glucose is also present in the urine. What hormones blood level should be researched in order to more accurate diagnosing?
- a. Cortizol and insulin
 - b. Insulin and glucagon
 - c. GH and insulinsimilar growth factor I

- d. renin and angiotensin II
- e. ACTH and cortisol

433. Patient D., 35 years, complaints about general asthenia, drowsiness, apathy, headache, pains in back, hands and legs, violation of menstrual cycle, increased body weight. At examination: “moon” face, truncal obesity, purple striae on the skin of abdomen, thin extremities and fingers. Why the patient has thin extremities together with truncal obesity?

- a. increased catabolism of protein in muscles
- b. development of insulin resistance in muscles
- c. development of “buffalo hump”
- d. violation of proteins absorption in GIT
- e. development of aminoaciduria

434. Boy, 14 years, of proportionally build figure, growth 104 cm, secondary sex signs are not expressed. Gap in growth and physical development was noticed when he was 4 years old. About what endocrine pathology should you think?

- a. Cushing's disease
- b. hypothyroidism
- c. diabetes insipidus
- d. hypophysial nanism
- e. hypophysial cachexia

435. Boy, 14 years, of proportionally build figure, growth 104 cm, second sex signs are not expressed. Gap in growth and physical development was noticed when he was 4 years old. Hyposecretion of which hormone can cause the development of this pathology?

- a. vasopressin
- b. gonadotropins
- c. ACTH
- d. glucocorticoids
- e. growth hormone

436. Mother of a boy of 14 years complains of gap in growth and physical development since he was 4 years old. Boy is of proportionally build figure, growth 104 cm, secondary sex signs are not expressed. What has caused the gap in growth?

- a. Decreased GH concentration in blood
- b. Violation of synthesis of insulin-like growth factor I
- c. Increased secretion of somatostatin
- d. Decreased affinity of cell receptors to GH
- e. Decreased concentration of gonadotropins in blood

437. Patient V., 46 years, during 2 years complains of headache, numbness in hands, asthenia, pain in joints, thirst. Clinical examination: non-proportionally increased

hands, feet, nose, ears. Blood analysis - hyperglycemia, violation of glucose tolerance test, high cholesterol level. What endocrine pathology should you suggest?

- a. hypophysial gigantism
- b. diabetes insipidus
- c. Cushing's disease
- d. acromegaly
- e. diabetes mellitus 1 type

438. Patient V., 46 years, during 2 years complains of headache, numbness in hands, asthenia, pain in joints, thirst. He has noticed that he needed buy shoes and gloves of bigger size three times. Blood analysis - hyperglycemia, violation of glucose tolerance test, high cholesterol level. What is the main reason of this pathology development?

- a. hypersecretion of growth hormone
- b. hypersecretion of anterior pituitary hormones
- c. hypersecretion of insulin
- d. hyposecretion of insulin
- e. hypersecretion of glucocorticoids

439. Patient V., 46 years, during 2 years complains of headache, numbness in hands, asthenia, pain in joints, thirst. He has noticed that he needed buy shoes and gloves of bigger size three times. Blood analysis - hyperglycemia, violation of glucose tolerance test, high cholesterol level. What is the reason of non-proportional increase of single parts of a body of a patient?

- a. increased sensitivity of bones's tissue to GH
- b. development of age-specific osteodystrophy
- c. increased sensitivity of separate tissues to insulin
- d. development of chronic inflammation of cartilages and joints
- e. cartilage tissue proliferation under influence of GH

440. Patient V., 46 years, during 2 years complains of headache, numbness in hands, asthenia, pain in joints, thirst. He has noticed that he needed buy shoes and gloves of bigger size three times. Blood analysis - hyperglycemia, violation of glucose tolerance test, high cholesterol level. What causes the development of peripheral neuropathy at patient, that is manifested by numbness of extremities?

- a. compression of peripheral nerves by proliferating cartilaginous tissue
- b. hyperglycemia, that leads to diabetic neuropathy
- c. ischemic injury of extremities' tissues

- d. microcirculation block in the region of peripheral nerve tissue
- e. violation of blood supply of extremities because of atherosclerosis

441. Patient K., 35 years, 2 months ago had a flu with the expressed intoxication. Now he complains of constant thirst, decreased appetite, headache, irritability. He drinks about 6 L of water per a day. Daily diuresis is increased, urine is discoloured, without pathologic components, urine specific gravity - 1,005. About what endocrine pathology should you think?

- a. Cushing's disease
- b. hypothyroidism
- c. hyperthyroidism
- d. diabetes mellitus of 1 type
- e. diabetes insipidus

442. Patient K., 35 years, 2 months ago had flu with the expressed intoxication. Now he complains of constant thirst, decreased appetite, headache, irritability. He drinks about 6 L of water per a day. Daily diuresis is increased, urine is discoloured, without pathologic components, urine specific gravity - 1,005. Pathology of what endocrine gland can you suggest?

- a. posterior pituitary
- b. anterior pituitary
- c. adenohypophysis
- d. adrenal glands
- e. thyroid gland

443. A 20-year-old man complains of excessive thirst and abundant urination (up to 10 L for 24 hours). Urine specific gravity -1005. Blood glucose concentration is normal, glucose is absent in the urine. What is the reason of polyuria development?

- a. increased blood glucose concentration
- b. decreased blood oncotic pressure
- c. decreased sensitivity of epithelium of renal tubules to influence of ADH
- d. increased osmotic pressure of urine
- e. decreased concentration of vasopressin on blood

444. A 20-year-old man complains of excessive thirst and abundant urination (up to 10 L for 24 hours). Urine specific gravity -1005. Blood glucose concentration is normal, glucose is absent in the urine. What is the reason of low urine specific gravity?

- a. Excess of water intake
- b. Decreased electrolytes concentration in blood
- c. Violation of water reabsorption in kidneys
- d. Increased filtration pressure in kidneys

- e. Decreased oncotic pressure of plasma

445. A 34-year-old woman complains of increased irritability, perspiration, weakness, loss of body weight, tremor of the limbs, increased heart rate and exophthalmia. Clinical examination: body temperature 37,5°C, heart rate 122 bpm, thyroid gland is increased in size. What endocrine pathology can be suggested?

- a. hypothyroidism
- b. hyperthyroidism
- c. diabetes insipidus
- d. Cushing's basophilism
- e. diabetes mellitus type 1

446. A 34-year-old woman complains of increased irritability, perspiration, weakness, loss of body weight, tremor of the limbs, increased heart rate and exophthalmia. Clinical examination: body temperature 37,5°C, heart rate 122 bpm, thyroid gland is increased in size. Choose the level of hormones typical for this endocrine disorder?

- a. high TSH, T3 and T4
- b. high TSH, low T3 and T4
- c. low TSH, high T3, low T4
- d. low TSH and T3, high T4
- e. low TSH, high T3 and T4

447. Patient K., 47 years, is delivered with complaints about increased nervous excitability, violation of sleep, palpitation, sudden attacks of muscle weakness, hyperhidrosis. Clinical examination: exophthalmia, skin is humid and hot; there is tremor of hands, increased reflexes. Temperature of body is 37,5 C, heart rate is 150 bpm. ECG revealed the signs of sinus tachycardia. What is the mechanism of sinus tachycardia development?

- a. Stimulation of myocardial adrenoceptors under influence of T3 and T4
- b. Stimulation of myocardial adrenoceptors under influence of catecholamines
- c. Decreased tone of n.vagus under influence of T3 and T4
- d. Increased tone of sympathetic innervation of heart under influence of catecholamines
- e. Increased level of catecholamines under influence of T3 and T4

448. Patient M., 49 years, in 1 year after surgical treatment of thyrotoxicosis presents with weight gain, subjective memory loss, dry skin, and cold intolerance. On examination, she is found to have a goiter, body temperature is 35,2 C. What endocrine pathology should you suggest?

- a. diabetes insipidus

- b. Cushing's disease
- c. hypophysial cachexia
- d. Addison's disease
- e. myxedema

449. Patient S., 59 years, complains of weakness, weight gain despite a loss of appetite and cold intolerance. Clinical examination: dry and rough skin, husky voice, puffy look of the face, diffuse edema, body temperature – 34.7 C, ABP 110/70 mmHg. What is the reason of edema development in the following clinical situation?

- a. Accumulation of mucopolysaccharides in tissues
- b. Development of regional lymphostasis
- c. Decreased synthesis of albumins in liver
- d. Increased water retention due to kidneys affection
- e. Increased penetration of capillaries

450. Patient S., 59 years, complains of weakness, weight gain despite a loss of appetite and cold intolerance. Clinical examination: dry and rough skin, husky voice, puffy look of the face, diffuse edema, body temperature – 34.7 C, ABP 110/70 mmHg, heart rate 60 bpm. What is the reason of low body temperature?

- a. violation of glucocorticoids synthesis
- b. anterior pituitary affection
- c. posterior pituitary affection
- d. decrease of basal metabolic rate
- e. decrease of ABP

451. Patient S., 32 years, complains of asthenia, fatiguability, decreased capacity for work, increased body weight, violation of menstrual cycle. Heart rate 65 bpm, ABP 105/60 mmHg. Thyroid gland is evenly enlarged, dense, and painless. Diagnosis: Hashimoto's thyroiditis. Name the main reason of thyroid gland enlargement in this pathology.

- a. Autoimmune inflammation
- b. Hormone-producing tumour development
- c. Sclerotic processes in thyroid gland
- d. Regional lymphadenitis
- e. Iodine deficiency

452. A woman with primary hyperparathyroidism has periodically repeated attacks of renal colic. Ultrasound examination shows presence of small stones in her kidneys. Name the cause of stones formations.

- a. Hypercholesterolemia
- b. Hyperuricemia
- c. Hyperkalemia
- d. Hyperphosphatemia
- e. Hypercalcemia

453. Patient F. ill with goiter for a long period of time was operated. The attacks of convulsions appeared in the patient after subtotal resection of thyroid gland. What hormone deficiency may cause this complication?

- a. Growth hormone
- b. T3
- c. T4
- d. Parathyroid hormone
- e. Calcitonin

454. Patient S., 32 years, complains about asthenia, fatiguability, decreased capacity for work, increased body weight, violation of menstrual cycle. Heart rate 65 bpm, ABP 105/60 mmHg. Thyroid gland is evenly enlarged, dense, painless. The same disease of thyroid gland was diagnosed in her mother and sister. What changes of concentration of biologically active substances will be revealed in the patient's blood?

- a. increased concentration of T3
- b. decreased concentration of iodine
- c. decreased concentration of TSH
- d. decreased concentration of TRH
- e. anti-thyroid antibodies

455. Patient S., 32 years, complains about asthenia, fatiguability, decreased capacity for work, increased body weight, violation of menstrual cycle. Heart rate 65 bpm, ABP 105/60 mmHg. Thyroid gland is evenly enlarged, dense, painless. The same disease of thyroid gland was diagnosed in her mother and sister. What is the reason of decreased ABP?

- a. Decreased metabolism in myocardium because of lack of thyroid hormones
- b. Increased tone of parasympathetic nervous system
- c. Decreased metabolism of proteins because of glucocorticoids hyposecretion
- d. Violation of ABB due to hypoaldosteronism
- e. Decreased secretion of catecholamines

456. Patient S., 32 years, complains about asthenia, fatiguability, decreased capacity for work, increased body weight, violation of menstrual cycle. Heart rate 65 bpm, ABP 105/60 mmHg. Thyroid gland is evenly enlarged, dense, painless. The same disease of thyroid gland was diagnosed in her mother and sister. What caused the violation of menstrual cycle and infertility in the patient?

- a. Early beginning of climax
- b. Violation of secretion of gonadotropic hormones
- c. Violation of secretion of gonadotropin-releasing hormone
- d. Autoimmune affection of ovaries

- e. Violation of thyroid hormones secretion

457. Patient N., 51 years, has been ill with tuberculosis for 10 years. He is abusing alcohol. He complains about irritability, quick fatiguability, muscle asthenia, decreased body weight, orthostatic faints. Objectively: hyperpigmentation of skin, ABP 90/60 mmHg. Laboratory data: glucose of blood 2,2 mmol/L, K - 6,1 mmol/L; Na - 110 mmol/L. About what pathology should you think?

- a. Diabetes insipidus
- b. Addison's disease
- c. Hypophysical cachexia
- d. Hypothyroidism
- e. Alcoholic affection of liver

458. Patient N., 51 years, for the past 10 years is ill with miliary pulmonary tuberculosis. His latest complaints were irritability, quick fatiguability, muscle asthenia, decreased body weight, orthostatic faints. Nutrition is decreased, hyperpigmentation of skin in natural wrinkles, ABP 90/60 mmHg. Laboratory data: glucose of blood 2,2 mmol/L, K - 6,1 mmol/L; Na - 110 mmol/L. What has caused the development of the disease at this patient?

- a. Alcoholic affection of liver
- b. Metastases or undiagnosed tumour
- c. Chronic alcoholic intoxication
- d. Tuberculous affection of adrenal glands
- e. Autoimmune affection of liver

459. Patient N., 51 years, for the past 10 years is ill with miliary pulmonary tuberculosis. His latest complaints were irritability, quick fatiguability, muscle asthenia, decreased body weight, orthostatic faints. Nutrition is decreased, hyperpigmentation of skin in natural wrinkles, ABP 90/60 mmHg. Laboratory data: glucose of blood 2,2 mmol/L, K - 6,1 mmol/L; Na - 110 mmol/L. The causes of muscle weakness development are the following factors EXCEPT:

- a. hypoglycemia
- b. decreased muscular mass
- c. decreased secretion of ACTH
- d. violation of electrolyte balance
- e. deficit of aldosterone

460. Patient N., 51 years, for the past 10 years is ill with miliary pulmonary tuberculosis. His latest complaints were irritability, quick fatiguability, muscle asthenia, decreased body weight, orthostatic faints. Nutrition is decreased, hyperpigmentation of skin in natural wrinkles, ABP 90/60 mmHg. Laboratory data: glucose of blood 2,2 mmol/L, K - 6,1 mmol/L; Na - 110 mmol/L. What is the reason of ABP decrease in the patient?

- a. decreased synthesis of glucocorticoids
- b. hypovolemia
- c. affection of brain vasomotor center
- d. asthenia
- e. alcohol abuse

461. Patient F., 26 years, complains about muscle asthenia, headaches, thirst, night urination, convulsions of muscles of extremities and feeling of crawling, pain in the heart region. ABP 190/110 mmHg. Borders of heart are widened to the left. Examination of the eye grounds has revealed spasm of arterioles and expanded venules. Blood analysis: low renin activity, K - 2,9 mmol/L, Na - 165 mmol/L. About what endocrine pathology should you think?

- a. diabetes insipidus
- b. Addison's disease
- c. Graves' disease
- d. pheochromocytoma
- e. Konn's disease

462. Patient F., 26 years, complains about muscle asthenia, headaches, thirst, night urination, convulsions of muscles of extremities and feeling of crawling, pain in the heart region. ABP 190/110 mmHg. Borders of heart are widened to the left. Examination of the eye grounds has revealed spasm of arterioles and expanded venules. Blood analysis: low renin activity, K - 2,9 mmol/L, Na - 165 mmol/L. What is the reason of the disease caused the development of this disease?

- a. autoimmune affection of kidneys
- b. ischemic disease of heart
- c. affection of pancreatic islets
- d. tumour of adrenal medulla
- e. tumour of adrenal cortex

463. Patient F., 26 years, complains about muscle asthenia, headaches, thirst, night urination, convulsions of muscles of extremities and feeling of crawling, pain in the heart region. ABP 190/110 mmHg. Borders of heart are widened to the left. Examination of the eye grounds has revealed spasm of arterioles and expanded venules. Blood analysis: low renin activity, K - 2,9 mmol/L, Na - 165 mmol/L. How can you explain the increase of ABP together with decreased activity of renin in the patient's plasma?

- a. hypernatremia
- b. hypokalemia
- c. hypertension
- d. polydipsia
- e. spasm of arteriole

464. Patient F., 26 years, complains about muscle asthenia, headaches, thirst, night urination, convulsions of muscles of extremities

and feeling of crawling, pain in the heart region. ABP 190/110 mmHg. Borders of heart are widened to the left. Examination of the eye grounds has revealed spasm of arterioles and expanded venules. Blood analysis: low renin activity, K - 2,9 mmol/L, Na - 165 mmol/L. What is the reason of ABP increase in the patient?

- hypersecretion of catecholamines
- hyperactivation of angiotensin-converting enzyme
- increased formation of angiotensin II
- increased Na ions concentration
- hypersecretion of aldosterone

465. Patient F., 26 years, complains about muscle asthenia, headaches, thirst, night urination, convulsions of muscles of extremities and feeling of crawling, pain in the heart region. ABP 190/110 mmHg. Borders of heart are widened to the left. Blood analysis: low renin activity, K - 2,9 mmol/L, Na - 165 mmol/L. What is the reason of unnormal concentration of Na in the patient's blood?

- violation of its filtration in kidneys
- decreased reabsorption in kidneys because of aldosterone deficiency
- increased reabsorption in kidneys due to excess of aldosterone
- increased Na intake with food
- increased reabsorption in kidneys due to aldosterone deficiency

466. Patient V, 19 years, is delivered to the hospital with syndrome of acute stomach. She has troublesome pains in stomach without clear localisation for 1 year. Pains are not connected with food consumption and are accompanied by tachycardia, headache. ABP 250/110 mmHg, after palpation of kidneys ABP increased to 300/130 mmHg. Intravenous introduction of phentolamine caused the normalisation of ABP. Concentration of glucose in blood 7,5 mmol/L, Na - 135 mmol/L. About what endocrine pathology should you think?

- acute adrenal failure
- Cushing's syndrome
- tumour of adrenal medulla
- hypothyroidism
- Conn's disease

467. Patient V, 19 years, is delivered to the hospital with syndrome of acute stomach. She has troublesome pains in stomach without clear localisation for 1 year. Pains are not connected with food consumption and are accompanied by tachycardia, headache. ABP 250/110 mmHg, after palpation of kidneys ABP increased to 300/130 mmHg. Intravenous introduction of phentolamine caused the normalisation of ABP.

Concentration of glucose in blood 7,5 mmol/L, Na - 135 mmol/L. Name the pathology.

- pheochromocytoma
- perforated stomach ulcer
- hypertension stroke
- myocardial infarction
- acute appendicitis

468. Patient V, 19 years, is delivered to the hospital with syndrome of acute stomach. She has troublesome pains in stomach without clear localisation for 1 year. Pains are not connected with food consumption and are accompanied by tachycardia, headache. ABP 250/110 mmHg, after palpation of kidneys ABP increased to 300/130 mmHg. Intravenous introduction of phentolamine caused the normalisation of ABP. Concentration of glucose in blood 7,5 mmol/L, Na - 135 mmol/L. What diagnostic test should be done for more accurate diagnosis?

- scanning of thyroid gland
- electrocardiogram
- tomography of hypophysis
- angiography of brain vessels
- tomography of adrenals

469. Patient V, 19 years, is delivered to the hospital with syndrome of acute stomach. She has troublesome pains in stomach without clear localisation for 1 year. Pains are not connected with food consumption and are accompanied by tachycardia, headache. ABP 250/110 mmHg, after palpation of kidneys ABP increased to 300/130 mmHg. Intravenous introduction of phentolamine caused the normalisation of ABP. Concentration of glucose in blood 7,5 mmol/L, Na - 135 mmol/L. What is the reason of the increased ABP in the patient?

- hypersecretion of renin
- hypersecretion of aldosterone
- hypersecretion of glucocorticoids
- hypersecretion of catecholamines
- hypernatremia

470. Patient V, 19 years, is delivered to the hospital with syndrome of acute stomach. She has troublesome pains in stomach without clear localisation for 1 year. Pains are not connected with food consumption and are accompanied by tachycardia, headache. ABP 250/110 mmHg, after palpation of kidneys ABP increased to 300/130 mmHg. Concentration of glucose in blood 7,5 mmol/L, Na - 135 mmol/L. What caused the increase of blood glucose in the patient?

- hyopsecretion of insulin
- hypersecretion of glucocorticoids
- hypersecretion of glucagon
- hypersecretion of somatotropin
- hypersecretion of catecholamines

471. Patient N., 52 years is ill with severe type of bronchial asthma. On prescription by a doctor had a hormone therapy for a long time, in the last month - 30 mg of prednisolon per day. Following an advice of her relatives she began to use herbal pills instead of drug therapy. On the second day condition suddenly worsened: expressed weakness, pains in stomach, liquid stool, attacks of asthma; ABP 90/50 mmHg. What is the main pathogenetic mechanism of this condition development?

- a. Decreased synthesis of endogenous glucocorticoids
- b. Increased bronchospasm because of long use of glucocorticoids
- c. Development of gastric bleeding because of long use of glucocorticoids
- d. Development of acute cardiac insufficiency due to glucocorticoid therapy
- e. Violation of glomerular filtration rate due to decreased ABP

472. Patient N., 52 years is ill with severe type of bronchial asthma. Doctor had prescribed hormonal therapy for a long time, in the last month - 30 mg of prednisolon per day. What complications can result from the long-term therapy with glucocorticoids?

- a. peptic ulcer
- b. Cushing's disease
- c. primary immunodeficiency
- d. arterial hypotension
- e. acute adrenal failure

473. Patient N., 52 years is ill with severe type of bronchial asthma. Doctor had prescribed hormonal therapy for a long time, in the last month - 30 mg of prednisolon per day. Why was the glucocorticoid therapy prescribed to a patient?

- a. For increased antitoxic effect of basic therapy
- b. For antibacterial effect of basic therapy
- c. For stimulation of immunity
- d. For immunosuppression
- e. For stimulation of endogenous steroids secretion

474. Patient N., 52 years is ill with severe type of bronchial asthma. Doctor had prescribed hormonal therapy for a long time, in the last month - 30 mg of prednisolon per day. Which changes in blood picture may appear due to long-term use of glucocorticoids?

- a. anaemia
- b. eosinopenia
- c. lymphocytosis
- d. pancytopenia
- e. agranulocytosis

475. Why a patient, who was prescribed prednisolon for rheumatoid arthritis treatment for a long time should avoid contacts with infectious patients?

- a. Because of secondary immunodeficiency development
- b. Because of arthritis exacerbation risk
- c. Because of thromboembolic complications risk
- d. Because of lymphocytosis development
- e. Because of interferon blockade

476. Conn's syndrome was diagnosed in a patient who complained of muscular weakness, increased urination in the night and increased ABP. What correlation between the given blood parameters is typical for this syndrome?

- a. High rennin, high aldosterone, high potassium level
- b. Low rennin, high aldosterone, high potassium level
- c. Low rennin, high aldosterone, low potassium level
- d. Low rennin, low aldosterone, low potassium level
- e. High rennin, low aldosterone, high potassium level

477. A female patient aged 44 complains of general malaise, rapidly increased body weight, growth of hair on the face, amenorrhea, ABP - 165/100 mm Hg. What kind of endocrine disorder can lead to obesity in this case?

- a. Hypercortizolism
- b. Hypofunction of adrenal glands
- c. Hyperparathyroidism
- d. Hypergonadism
- e. Hyperaldosteronism

478. Arterial hypotension, muscular weakness and periodic convulsions appeared in the patient who suffers from cirrhosis with ascites. Na blood level is higher; K blood level is lower than normal. What kind of endocrine disorder can you suppose in the given clinical situation?

- a. Secondary hyperaldosteronism
- b. Hypofunction of adrenal glands
- c. Hyperparathyroidism
- d. Hypergonadism
- e. Primary hyperaldosteronism

479. Patient M., 64 years, ill with hyperthyroidism. Now she is in cardiological ward with complaints about asthenia, high irritability, swelling of jugular veins, painfulness in the region of liver. How may main disease be connected with the cardiac insufficiency?

- a. Increased excitability of myocardium

- b. Development of functional overload of heart
- c. Damage of myocardium by excess of thyroid hormones
- d. Development of stable spasm of coronary arteries
- e. Violation of heart energy supply

480. A laboratory rat was immobilized for 6 hours daily for 5 days. Presence of ulcers on mucous membrane of a stomach and a duodenum, loss of weight and presence of dystrophic changes in the thymus tissue, hypertrophy of adrenal glands cortex are revealed. Development of what process does the revealed changes verify?

- a. Complications of Cushing syndrome
- b. Development of Cushing illness
- c. General adaptation syndrome
- d. Acute adrenal failure
- e. Autoimmune pathology

481. A laboratory rat was immobilized for 6 hours daily for 5 days. Presence of ulcers on mucous membrane of a stomach and a duodenum, loss of weight and presence of dystrophic changes in the thymus tissue, hypertrophy of adrenal glands cortex are revealed. Name the reason of mucous membrane ulcer development?

- a. Toxic action of glucocorticoids metabolites on a vessels wall
- b. Toxic action of catecholamines metabolites on a vessels wall
- c. Excessive production of proteolytic enzymes
- d. Excessive production of reaginic type antibodies
- e. Excessive production of glucocorticoids and adrenaline

482. A laboratory rat was immobilized for 6 hours daily for 5 days. Presence of ulcers on mucous membrane of a stomach and a duodenum, loss of weight and presence of dystrophic changes in the thymus tissue, hypertrophy of adrenal glands cortex are revealed. Blood analysis revealed high cortizol level. Choose the probable change of leukocytic formula in this case.

- a. lymphocytosis
- b. neutrophilia
- c. eosinophilia
- d. eosinopenia
- e. monocytosis

483. A porpoise was immobilized for 5 hours. After 2 hours of experiment the arterial hypotension, hypothermia, skin hemorrhages were observed. In blood: low glucose level,

negative nitrogenous balance, eosinopenia.

Name the stage of stress:

- a. Alarm
- b. Resistance
- c. Exhaustion
- d. Long-term adaptation
- e. Urgent adaptation

484. A porpoise was immobilized for 5 hours. After 2 hours of experiment the arterial hypotension, hypothermia, skin hemorrhages were observed. In blood: low glucose level, negative nitrogenous balance, eosinopenia. Name the cause of negative nitrogenous balance :

- a. Reduction of exogenous proteins intake due to immobilization
- b. Strengthening of anabolic activity
- c. Strengthening of neutrophiles' phagocytes activity
- d. Strengthening of glucocorticoids catabolic activity
- e. Decrease of phagocytes activity

485. A porpoise was immobilized for 5 hours. After 2 hours of experiment the arterial hypotension, hypothermia, skin hemorrhages were observed. In blood: low glucose level, negative nitrogenous balance, eosinopenia. Name the reason of hemorrhages development:

- a. Strengthening of catabolism in a vascular wall
- b. Increased vessels wall permeability by catecholamines
- c. Destruction of a vascular wall by glucocorticoids metabolites
- d. Development of cytotoxic allergic reaction with development of a thrombocytopenia
- e. destruction of vessels walls by complexes antigen/antibody

486. A porpoise was immobilized for 5 hours. After 2 hours of experiment the arterial hypotension, hypothermia, skin hemorrhages were observed. In blood: low glucose level, negative nitrogenous balance, eosinopenia. Name the cause of eosinopenia:

- a. Increased blood hemolysis
- b. Destruction of eosinophiles in blood
- c. Eosinophiles migration to the tissues
- d. Depression of granulocytes maturation
- e. Disturbance of eosinophiles output from a bone marrow

487. Employees of space flights control centre showed increased number of stenocardias and heart attacks cases. 63 % employees have

moderate hyperglycemia, 17% have ulcer of a stomach and a duodenum. Surveyed people had no risk factors increasing probability of a heart attack, such as smoking, obesity, diabetes, increased blood cholesterol level. What is the most probable mechanism that causes myocardium injury at employees?

- Injury of a myocardium by glucocorticoids
- Injury of heart valves by antigenic complexes
- Increased glucocorticoids secretion
- Coronary vessels spasm under catecholamines influence
- A high level of glycemia with damage of vessels

488. Employees of space flights control centre showed increased number of stenocardias and heart attacks cases. 63 % employees have moderate hyperglycemia (glucose level - 8,5 mmol/L). What is the most probable mechanism that provides hyperglycemia development at employees?

- Increased exogenous glucose intake
- Increase of gluconeogenesis and glycolysis
- Development of a 1st type diabetes
- Development of a 2nd type diabetes
- Increased tissue resistance to glucose

489. Employees of space flights control centre showed increased number of stenocardias and heart attacks cases. 63 % employees have moderate hyperglycemia, 17% have ulcer of a stomach and a duodenum. The others 20 % of employees complained about decreased work capacity, progressing weakness. What is most probable reason of the immune status of employees' changes?

- Increased of T-helpers quantity
- Increased T-lymphocytes cytotoxic activity
- Increased B-lymphocytes quantity in blood
- Increased IgG concentration in blood
- Decreased IgM and IgG concentration in blood

Pathology of nervous system.

490. Patient N., 49 years, is delivered in hospital with complaints on headache, vomiting. Psychataxia, ABP 140/90 mmHg, there is limitation of voluntary movements in the left extremities. Tone of muscles in the left hand and leg is increased according to spastic type. There are increased local tendinous reflexes, pathologic reflexes. Choose the most possible diagnosis of the pathology at the patient.

- Hemorrhagic stroke
- Meningitis
- Cardiac infarction
- Ischemic stroke
- Gastric bleeding

491. Patient N., 49 years, is delivered in neurology unit. There is limitation of voluntary movements in the left extremities, more in a hand. Tone of muscles in the left hand and leg is increased according to spastic type. There are increased local tendinous reflexes, pathologic reflexes. How can you characterise the neurologic disorders at a patient?

- Peripheral paresis
- Extrapyramidal paresis
- Myasthenia
- Ataxia
- Central paresis

492. Patient N., 49 years, with stroke. There is limitation of voluntary movements in the left extremities, increased tone of muscles in the left hand and leg according to spastic type, increased local tendinous reflexes, and pathologic reflexes.

What mechanism caused the development of muscle hypertonus and hyperreflexia at a patient?

- activation of motoneurons cause of stroke
- activation of excitatory influences from the nidus of stroke
- activation of synaptic impulse transmission
- decreased impeding descending influences
- inhibition of cerebral cortex motoneurons

493. Patient C., 22 years, came to neuropathologist with complaints about diplopy of text when reading for a long time, quick fatiguability of mimic muscles, problems with chewing and swallowing. Diagnostic tests revealed asthenia of oculomotor and masticatory muscles. At electromyography there is decreased amplitude of action potential. How can you characterise the neurologic disorders at a patient?

- Central paresis
- Peripheral paresis
- Extrapyramidal paresis
- Myasthenia
- Ataxia

494. Patient C., 22 years, diagnostic tests revealed asthenia of oculomotor and masticatory muscles. At electromyography there is decreased amplitude of action potential. After proserin

injection (blocker of acetylcholinesterase) there is regressing of all symptoms in 30 minutes. What affection of nervous system has caused this pathology at a patient?

- a. affection of pyramidal neurones or their axons
- b. violation of synaptic impulse transmission
- c. affection of motoneurones of spinal cord or their axons
- d. affection of extrapyramidal neurones
- e. affection of cerebral cortex neurones

495. Patient C., 22 years, came to neuropathologist with complaints about diplopy of text when reading for a long time, quick fatiguability of mimic muscles, problems with chewing and swallowing. Diagnostic tests revealed asthenia of oculomotor and masticatory muscles. After proserin injection (blocker of acetylcholinesterase) there is regressing of all symptoms in 30 minutes. At electromyography there is decreased amplitude of action potential. What mechanism has caused the development of muscle asthenia in this clinical situation?

- a. activation of impeding descending influences
- b. inhibition of motoneurones of spinal cord or their axons
- c. violation of contractile muscle function
- d. inhibition of synaptic impulse transmission
- e. inhibition of motoneurones of cerebral cortex

496. Patient C., 22 years, at diagnostic tests there is asthenia of oculomotor and masticatory muscles. At electromyography there is decreased amplitude of action potential. After injection of proserin (blocker of acetylcholinesterase) there is regressing of all symptoms in 30 minutes. What caused the development of this pathology at a patient?

- a. block of acetylcholine receptors
- b. damage of motoneurones
- c. violation of conduction by the nervous cells
- d. violation of muscle membrane polarisation
- e. lack of ATP in muscles

497. Patient L., 40 years, a month ago got the trauma of right thigh. At the examination of the neurologic status: active movements in right leg are limited because of severe pain, volume of muscles on the right leg is on 2 cm lesser, then on the left, Achilles and knee reflexes on the right side are absent. There is decreased proprioceptive sensitivity on the right leg in the

region of foot. How can you characterise the neurologic disorders at a patient?

- a. Central paresis
- b. Peripheral paresis
- c. Extrapyramidal paresis
- d. Myasthenia
- e. Ataxia

498. At the examination of the neurologic status at patient L., 40 years, it is revealed that volume of muscles on the right leg is on 2 cm lesser, then on the left, Achilles and knee reflexes on the right side are absent, there is termhypesthesia and hypalgesia on the external side of right leg, loss of proprioceptive sensitivity in the region of foot. What part of motor analyser is damaged at a patient?

- a. Pyramidal neurones or their axons
- b. Motoneurones of spinal cord or their axons
- c. Extrapyramidal neurones
- d. Neurones of cerebral cortex
- e. Peripheral nerves

499. Patient L., 40 years, a month ago got the trauma of right thigh. At the examination of the neurologic status: active movements in right leg are limited because of severe pain, volume of muscles on the right leg is on 2 cm lesser, then on the left, Achilles and knee reflexes on the right side are absent, right leg is cyanotic. There is decreased proprioceptive sensitivity on the right leg in the region of foot. What mechanism has caused the absence of normal reflexes?

- a. inhibition of motoneurones of spinal cord
- b. violation of synaptic impulse transmission
- c. violation of excitation conduction
- d. activation of excitatory influences
- e. violation of irritation perception

500. Patient L., 40 years in a month after the trauma of right thigh volume of muscles on the right leg is on 2 cm lesser, then on the left one, active movements in all joints of right leg are limited because of expressed pain syndrome, there is decreased pulsation and cyanosis on the right leg. What mechanism caused the decreased volume of muscles on the affected extremity?

- a. Posttraumatic violation of blood supply
- b. Detraining of muscles
- c. Absence of tonic impulsion from motoneurones
- d. Decreased trophic influence of nervous system
- e. Pain syndrome

501. At the examination of the neurologic status at patient L., 40 years, it is revealed that

active movements in all joints of right leg are limited because of expressed pain syndrome, termhypesthesia and hypalgesia on the external side of right leg, loss of proprioceptive sensitivity in the region of foot. What mechanism caused the violations of sensitivity at a patient?

- a. Posttraumatic violation of activity of receptors
- b. Violation of impulse transmission by sensitive nervous fibres
- c. Pain inhibition of sensitive nervous centres
- d. Violation of sensitive receptors blood supply
- e. Activation of protective antinociceptive system of brain

502. Patient S., 37 years, in the last time notice progressing increased weakness in the lower extremities, pains in sural muscles. Active movements in lower extremities are absent, muscular tone and tendoperiosteal reflexes are increased. How can you characterise the neurologic disorders in the patient?

- a. Extrapyramidal paralysis
- b. Myasthenia
- c. Central paralysis
- d. Peripheral paralysis
- e. Ataxia

503. At the examination of the neurologic status at patient S., 37 years, it is revealed absence of active movements in lower extremities, increased muscular tone, pathologic reflexes, expansion of reflexogenic zones. What mechanism caused the muscular hypertonus?

- a. decreased impeding descending influences on neurones of spinal cord
- b. activation of cerebral cortex neurones
- c. increased excitability of sensitive receptors
- d. activation of synaptic impulse transmission
- e. inhibition of cerebral cortex neurones

504. Half spinal cord transection was done at frog at the level of thoracic part of on the right. What violation of central nervous system develops at this damage?

- a. Spinal shock
- b. Brown-Sequard syndrome
- c. Peripheral paralysis
- d. Inflammatory edema of spinal cord
- e. Pain syndrome

505. Half spinal cord transection was done at frog at the level of thoracic part of on the right. What neurological signs are on the side of affection?

- a. Central paralysis
- b. Hyperesthesia
- c. Absence of pain and temperature sensitivity
- d. Areflexia
- e. Hypesthesia

506. Half spinal cord transection was done at frog at the level of thoracic part of on the right. What neurological signs are on the opposite side?

- a. Central paralysis
- b. Hyperesthesia
- c. Hyperpathia
- d. Areflexia
- e. Absence of pain and temperature sensitivity

507. Modelling of syndrome of Brown-Sequard was done by half spinal cord transection at the level of thoracic part in the frog. What is the reason of different signs of neurological disorders in the lower limbs?

- a. Crossing of sensitive conduction tracts
- b. Crossing of motor conduction tracts
- c. Pain irritation on the side of affection
- d. Violation of impeding descending influences
- e. Shock inhibition of CNS neurones

508. Patient R., in four months after old stroke is delivered to hospital with the signs of central paralysis. Movements in the right hand and leg are absent, tone of muscles on these extremities is increased, local reflexes are increased. How can you name patient's state?

- a. Monoplegia
- b. Paraplegia
- c. Hemiplegia
- d. Tetraplegia
- e. Functional paralysis

509. In a month after old stroke there are typical presentations of paralysis of extremities as at hemiplegia at a patient. What clinical signs will prove the affection on the level of peripheral neurones and their axons?

- a. Hypertension and hyperreflexia
- b. Hypotonia and areflexion
- c. Atrophy of muscles and atonia
- d. Areflexia and atonia
- e. Hypertonia and areflexia