

Ministry of health care of Ukraine
Highest state scientific institution of the Ukraine
«Ukrainian medical stomatological academy»

"Approved"

at a meeting of the Department of Experimental
and Clinical Pharmacology with Clinical
Immunology and Allergology

Head of the department

Professor _____ Devyatkina T.A.

" _____ " _____ 2017 Pr. № _____

**Methodical guidance
for students' self-directed
work when preparing for practical session**

Academic discipline	Clinical Immunology and Allergology
Semantic module №2	Immunological status. Immunodeficiency diseases and immune-pathology
Topic 9	Allergic, toxic and allergic diseases
Year of study	Tumor immunology. Toxic and allergic effects of medicines
Faculty	5

1. Relevance of theme:

One of the major problems of immunology - immunooncological. It is well known that in the case of harassment of the immune system of cancer increases the accuracy of the hundreds and thousands of times. It is estimated that at the relative well-being every day in your body produces about 10 million mutant cells. Mutagenesis significantly increases under the influence of many unfavorable factors. Yes, cytostatics inhibit the activity of natural killer cells (PC), and ionizing radiation and toxic chemicals increase the number of mutant cells.

First of all, it should be noted that the immune system is always a certain way responds to the appearance of tumor tissue. Proof of this are the following facts: mononuclear cell infiltration of tumors; production of antibodies and the appearance of cytotoxic T lymphocytes; Positive skin tests of immediate and delayed hypersensitivity type, extracts the introduction of tumor cells in cancer patients; long-term development of tumors (tumor-witnesses); Cases of spontaneous regression of tumors; PC and activation of macrophages. Against the background of "positive" of the immune response that is directed against the tumor, at a certain stage of development are beginning to be implemented mechanisms to protect tumor cells. Malignant cells secrete substances that contribute to the induction of the body "negative" of the immune response, which disrupts the host's of immune system.

2. Learning objectives:

1. Repeat basic positions etiology oncological processes role of oncoviruses.
2. Clarify the role of the characteristic changes in cell markers, which struck the tumor process that plays an important part in modern immunodiagnostics in oncology.
3. To master the concept of antigens associated with a tumor: virus industrative antigens and tumor cancerogenous and cancer embrional antigens and others.
4. To know the role of T and B cells, macrophages, NK, LAK-cells, T-suppressor of tumor necrosis factor in the development and emergence of immunoproliferative syndrome.
5. Master principles immunodiagnosis and immunotherapy with monoclonal antibodies against tumor growth factor
6. To develop creative abilities in the process of clinical, theoretical, laboratory studies of patients with primary and secondary immunodefisitmi states.

3. Basic knowledge, skills necessary for studying the subject (interdisciplinary integration)

The name of the previous disciplines	These skills
Anatomy	The structure of the thymus, lymph nodes, moat plaques, spleen, bone marrow.
Normal physiology	The functioning of the central and peripheral organs of the immune system.
Biochemistry	The action of cytokines. The action of different groups of biologically active substances.
Microbiology and Virology	The immune response, diagnosis of bacterial and viral infections.
Therapy	Pathogenesis and clinical manifestations of allergic diseases and incendiary secondary immunodeficiencies. Collection of immunological and allergic history. Setting immunologic diagnosis. The principles of treatment.
Oncology	Pathogenesis, clinic and therapy of hematological malignancies principles. Collection oncological amneses, the ability to conduct oncology review.
Infectious diseases	The pathogenesis, clinical manifestations of bacterial and viral infections. To be able to diagnose bacterial and viral infections.

4. Tasks for work during preparation for the classes.

4.1. The list of key terms, parameters, characteristics which the student is to assimilate while preparing for the class:

Term	Definition
Tumor-embryonic antigen	AH which normally express at appropriate stages of fetal development. After birth, these structures are no longer defined and may again appear in adults with oncological process development.
Pathogenicity	The substance, which causes non-specific lymphocyte proliferation.
Idiotype	Portions of the amino acid sequences within the variable region of antibodies or T-cell receptor identification, which causes production of antibodies antidiotypic
Tumor necrosis factor alpha	Effector that is synthesized by monocytes and macrophages. Participates in the regulation of immune response, and destroy tumor cells
Myeloma	Tumor plasma B cells capable of indefinite proliferation in culture.

4.2. Theoretical questions for the class:

1. Antineoplastic and problastomnye mechanisms of interaction between the immune system of the organism "host" and "tumor".
2. Factors immunological resistance of the tumor. The concept of tumor with measured antigens. Immunosuppressive effect of tumors. Immune changes in cancer patients.
3. Immunodiagnostics .Under a differential CD phenotype of tumor cells. Modern approaches to the patient with cancer immunotherapy.

4.3. Practical works that are performed in class:

1. Learning to diagnose autoimmune disease, given the typical changes in the immune system.
2. The limit I type of immune disorders in patients with autoimmune diseases, based on the data and immunogram.
3. To be able to appoint a general clinical and immunological examination of patients with autoimmune diseases.

Content topics

1. Problastomic antineoplastic and mechanisms of interaction between the immune system of the organism "host" and "tumor".

2. Factors immunological resistance of the tumor. The concept of tumor with measured antigens. Immunosuppressive effect of tumors. Immune changes in cancer patients.

Immunodiagnostics. Under a differential CD-fenotioma tumor cells. Modern approaches to the patient with cancer immunotherapy.

Tumors formed from the breach of regulatory mechanisms that influence the normal growth and development of cells. Changes that occur with surface antigens of tumor cells that are recognized by the immune system. The immune response to these new antigenic structures are used for the diagnosis of cancer, prevention of tumors and tumor therapy. In this regard, you need to learn basic information that characterizes the anti-tumor immunity

All tumors can be divided into 3 groups:

1. High immune sensitive tumors (eg, melanoma, kidney cancer and bladder).
2. Middle immune sensitive tumors (in particular, colon cancer and lymphomas).
3. Little immune sensitive tumors (e.g., breast cancer and lung cancers).

The tumor is formed and grows in a simultaneous deployment of the counter but directed reactions. The dynamics of tumor growth is determined by the balance between the factors of immune supervision and problastomic factors that contribute to tumor growth.

Etiology of tumors

Agents that promote the malignant transformation of cells are known as carcinogens.

Today decided to allocate four groups of carcinogens:

I. Chemical:

1.1. Carcinogenic chemicals - compounds which induce tumor formation significantly, or at least cause an increase in frequency of occurrence of cancer.

1.1.1. Cause or changes in DNA - damage purine and pyrimidine foundations, breaks polynucleotidic chains and education crosslinks between them - or Editin induced chromosomal aberrations (deletions of chromosomes).

1.1.2. There are epigenetic, causing changes in proteins that regulate cell growth.

1.1.3. There are sinergic viruses (derepression oncogene) or serve as promoters for carcinogens.

1.2. Food carcinogens.

1.3. Carcinogens-hormones:

1.3.1. Glucocorticoids.

II. Physical carcinogens (different types of radiation, which lead to the development of tumors, most likely as a result of a direct effect on DNA or mediation of the activation of cellular oncogene):

1.4. Ultraviolet radiation.

1.5. X-ray radiation.

1.6. Radiation from radioisotopes.

1.7. Radioactive contamination of the area

III. Viral:

1.8. Oncogenic RNA viruses: retroviruses (oncornaviruses).

1.9. Oncogenic viruses (papilloma viruses, Epstein-Barr virus (EBV), hepatitis B and C)

DNA.

IV. Genetic: (for the most part a genetic tendency to develop new-root arises from the inherited loss of one or more genes supres and tumors -

Today distinguish such basic mechanisms of oncogene:

I. Integration of the viral oncogene (Xp chromosome; oncogene), for example, retroviruses containing an oncogene.

II. Activation of cellular oncogene integrated virus, which itself does not contain an oncogene. Malignant transformation associated with the exception of suppressor effects on proto-oncogene due to changes in the spatial placement of the genes.

III. The translocation of genetic material that results in the activation of an oncogene or oncogene formation of new fragments of different chromosomes. In the first case, the first oncogene translocations us out from under the control of the suppressor gene and is affected continually operating in a new regulatory gene. Otherwise, at the break-connection is formed fancy new gene which leads to a bizarre protein synthesis (e.g., protein in chronic myeloid leukemia).

IV. Amplification - increasing the number of copies of the proto-oncogene. Thus supresorn genes are unable to control all copies (in particular, increasing the number of gene copies in tumors Toussaint nervous system).

V. proto-oncogene mutation that leads to the synthesis of the mutant LCA. Formed as a result of a new mutation of an oncogene deprived regulatory influences.

VI. Inactivation of the gene, tumor suppressor, which makes post normal proto-oncogene activity.

In recent years, an important link open carcinogenesis - violation in tumor suppressor genes system that inhibit the activity of proto-oncogenes. Their main representative - a gene that controls the synthesis of protein p53 (the letter p in the title here comes the English word protein, and the number 53 - that molecular weight of the protein, which adds 53,000 Daltons). Synthesized protein controls the activity of p53 protooncogenes, allowing its expression only in certain periods of severely cell life, in particular, if necessary, its separation. p53 also controls apoptosis, cell directing on "suicide" in the case of damage to its genetic apparatus. In this stabilizes p53 genetic structure of the cell, preventing the occurrence of harmful mutations, including - tumor making. Some viral oncogene p53 binds and inactivates ego, that leads to the activation of protooncogenes reporting and cancellation of apoptosis and thus the cell conglomeration mutation that creates a substrate not only for occurrence of neoplasia, but also for tumor progression.

Factors immunoresistance tumor cells

1. Low immunogenicity of tumor antigens. Since tumor cells are derived from their own host cells, they keep most of the antigenic, which effectively supports the immune tolerance.

2. The imbalance between the rate of tumor cell proliferation and immunocomplement cells. Completely realistic such a situation, when the intensity of tumor proliferation exceeds the rate of accumulation of antitumor immune factors that will inevitably lead to failure of the immune response.

3. Change the antigens in tumor progression. As a result, tumor progression accumulate genetic differences tumor cells which make proliferation under different conditions. This is due to enhanced mutagenesis neoplasia and leads to the appearance of new surface antigens, which may not recognize the existing T-killers. The time that is spent for Immunological races at of new antigens, proliferation and maturation antigenspecific and their cytotoxicity their T-cell tumor is used for an active break and fairy race and and expression of new antigenic substances.

4. Selection immunoresistance tumor cells. Those tumor cells that are most sensitive to the effector mechanisms of the immune response are eliminated in the early stages of tumor growth. Therefore, with the increase in the life of the tumor decreases the effectiveness of immune responses directed against it, since the very immune response contributes to the breeding and immune resistant neoplastic cells.

5. Termination of expression of class II histocompatibility molecules on the surface of tumor cells. This phenomenon is most often the result of breeding immunoresistance tumor cells. Cells that have stopped the expression of given molecules become insensitive to the cytotoxic and dissistance T-killers because they are known not to the races.

6. The appearance of soluble antigens associated with a tumor. Not that of molecules tumor antigens are able to leave the cell membrane and to circulate in the free state. They are recognized by the immune system, "distracting" immuno response from non-producing tumor.

7. Quick catabolism of antibodies on the cell membrane. Antibodies on the membrane of tumor cells, "visualize" neoplasia for innate resistance factors (macrophages, complement, natural killer cells). However, due to the production of proteolytic enzymes tumor cells detached from the immune complexes their surface before their antibodies manage to perform a biological function.

8. Production of tumor suppressor substances. One of these substances have transforming growth factor P which suppresses the cellular immune response.

9. The advent of cellular receptors to various growth factors and cytokines incentive their growth. A large number of receptors for growth factors (platelet-derived, epidermal, fibroblastic) and cytokines (such as IL-1 or IL-2), which stimulates the division allow the tumor cell to sustain high rates of proliferation.

10. The ability to induce apoptosis of cytotoxic T-lymphocytes. It is known that activated T cells express on their surface molecules that are receptors apoptosis. Doom T-cells does not occur, as the interaction with other cells they receive signals that temporarily cancel apoptosis. Some tumors begin expression, and which is capable induce apoptosis in Fas-positive cells. In such cases, the tumor specificity T-killers not only damage the cancer cells, but they themselves are killed when interacting with them.

11. "decoy receptors," expression of tumor cells. These receptors (e.g., TRAIL - 3 or TRAIL - 4) correspond to the structure of molecules that initiate apoptosis in a cell. However, their cytoplasmic region deprived of the death domain. Moreover, activation of these receptors is accompanied by synthesis of proteins that stimulate cell division. Activating the "decoy receptors," performed by lymphocytes to kill the tumor cells by apoptosis, but the latter is not only not perish, but have the opportunity to enhance the pace of their own proliferation.

The I. The concepts of antigens associated with a tumor, cancer embryonal antigens (PEA) - (fetal protein (KEA), (2 - ferritin liver, human chorionic gonadotropin (HT).

II. Antigens deterministic viral genome:

DNA (adenoviruses, viruses, SV 40, Shwartz papilloma virus, etc.).

RNA (leukemia viruses, Gross, Rous sarcoma, mouse mammary tumor virus)

Virus Epstein-Barr (lymphoma Burkitt)

III. Cancer individualized individual antigens strictly different in different individuals and in different tumors of the same subject, even if used for tumor induction same carcinogen:

- chemical (methylcholanthrene, benzpyrene et al.);
- physically minutes (UV radiation, and the 90 strontium, cellophane film and others.).

The reasons for the inefficiency of the immune response at the tumor processes:

1. Loss of antigens, immunological, antigenic modulation.
2. Immunological tolerance host organism.
3. Blocking tumor factors that inhibit the cytotoxic sensitized lymphocytes, suppressor cells.

The immunological cancer indication based on the blood of cancer antigens identified antibodies and sensitized lymphocytes to tumor antigens. The aim is to develop a reliable immunodiagnostic in vitro tests that can detect a tumor in the development of clinical symptoms and determine its location. Often tests are not specific enough for this type of tumors are sensitive and selective enough, but clinically apply:

1. phenotyping using monoclonal antibodies;
2. way to assess the functional activity of lymphocytes.

Determination of tumor markers

tumor localization	high degree *	Central power*	Additio nal marker
Cancer of the colon (rectum)	REA	CA 19-9 CA 242	
Pancreas cancer	CA 19-9 CA 242		REA
Stomach cancer	CA 72-4	REA	CA 19-9
Esophageal carcinoma			SCC REA
Hepatocellular carcinoma	AFP		
Cancer of biliary ducts	CA 19-9	AFP	
Mammary cancer	REA SA15- 3 ACI		
ovarian Cancer	CA125	CA 72-4	REA
Cervical cancer	SCC	REA	
Small cell lung cancer	NSE	Syfra - 21-1	REA
Non-small cell cancer light	REA CA 15-3 Syfra - 21-1	CA 72-4	
Prostate cancer	parsec		
Bladder Cancer			Syfra - 21-1
Thyroid Cancer	CT TG		REA
Tumors of the nasopharynx	SCC		REA
Herm and Nogent tumor testis and ovary	AFP β -hCG		
Chorus and onkartsinoma	β -hCG		

Note: CT - calcitonin;

* - * - The importance of specific tumor marker

While, as in the study of leukemia widely used immunological, cytological methods in solid tumors histological limited, immunomorphological technique. Typically, monoclonal antibodies are used.

With few exceptions, the immunotherapy of tumor diseases is carried out only in addition to traditional and surgical, radiological and medical methods of treatment. Under favorable conditions, the immune system is able to surely remove only a few millions of cancer cells. A large number of the cells causes the "failure" of immunity and tumor growth. Immunotherapy is effective only when tumorlet or cell debris after primary therapy because the methods of immunotherapy treated after removal of the primary tumor or leukemia after chemotherapy.

Non-specific stimulation of the adjuvant involves the use of BCG, *Corinebacterium parvum*, levamisole, interferon, interleukin, tumor necrosis factor. Specific active immunotherapy - is immunized with vaccines that contain tumor antigens.

The specific passive immunotherapy - an introduction to the body of the recipient immune cells from sensitized donors.

Therapy leukointerferon activated lymphocytes - administering to the patient's own mononuclear peripheral blood cells which had previously been incubated with IL-2 (Lac-therapy in patients with kidney cancer)

Use of monoclonal antibodies (Hybrid synthesized against patient tissue material), which exhibit independent activity against B-cells of lymphomas, or in conjunction with radionuclides, physicians forms enzymes - against other tumors. In recent years, there is a high efficiency from the use of monoclonal antibodies to tumor growth factors, especially in the complex treatment of metastatic processes.

Materials for students' self-directed work.

A. Tests for the self-control:

1. Human papillomavirus-16.18 is:

1. Lymphoma Burkitt
2. Cervical cancer
3. Sarcoma
4. Leukemia adults

2. When neutropenia nucleonata use of sodium contributes to:

- a) stimulating primarily red link hematopoiesis;
- b) activates ribonuclease;
- c) derived leukocytes and depot.
- g) activates protease phagocytes

3. Drug effect monoclonal antibodies to lymphocytes lymphoma mainly based on:

- a) agglutination "labeled" lymphocytes
- b) the destruction of the immune system "labeled" lymphocytes
- c) the type of DNA action I abnormal lymphocytes

4. Natural killers NRN (NK) cells exert their effects on the condition:

1. The irregularities in the activities of the chromosome 6
2. In the presence of a target cell antigen HLA II class
3. In the absence of cell HLA antigen receptor of I class
4. The presence in the target cell phagocyte marker

5. Name more specific onco-markers of gastric cancer:

1. SA-42;
2. SA-125;
3. SA-72-4;
4. SA-19-9.

6. Natural killer cells (PC) - is:

- A. B-cells, which can kill without complement;
- B. cytotoxic T cells;
- C. increases when the number of immunization;
- D. capable of destroying cells infected by viruses, without previous by other factors.

7. What type of hypersensitivity is associated with T-cell?

- A type of I - anaphylactic reactions;
- B. Type II - cytolytic reaction;

- C. Type III - immunocomplex reactions;
- D. Type IV - cytotoxic cellular response;
- E. Type V - an autoimmune reaction.

8. What immune system cells recognize antigen in complex with major histocompatibility molecule:

- a) T-helper cells
- b) B cells
- c) Eosinophils
- d) Cytotoxic lymphocytes

9. Specific antigens that are on the surface of tumor cells in their immune properties:

- a. The same
- b. Different
- c. It differs only by markers of HLA-system

10. A man 59 years suddenly appeared back pain on the right and gross hematuria, similar phenomenon has been a few weeks since. On-no: t0 - 37,70, Ps - 88 in 1 min, AT-140/80 mm Hg. On the part of the heart and lungs are not detected changes. Abdomen soft, painless. Liver + 1 cm . Swelling of the lower limbs there. Varicose p asshirenie veins of the spermatic cord on the right. In the blood: anemia, acceleration Choe, hypoproteinemia . In the urine proteinuria, e ritrotsituriya. What is the most reliable diagnosis?

- A Tubercles e s kidney
- B Chronic glomerulonephritis
- C Urolithiasis disease
- D kidney tumor
- E Chronic hepatitis

11. Sick 53 complains on weakness, lack of appetite, weight loss, increased body temperature. Objectively : poliimphoadenopatia, nodules consistency hepatomegaly. AT Blood: Ep. $4,0 \times 10^{12} / L$; Hb-110 g / l; l - $100 \times 10^9 / L$; b - 1%; e - 1%; n - 4%; c - 42%; m - 25; L - 50%; shade Botkin, basket cells. What is the diagnosis most likely in this case ?

- A Chronic EQF s lymphocytic leukemia
- B Acute leukemia
- C Chronic myeloid leukemia
- D limfogranulomatoz
- E myeloma disease

12. The patient marks a change in urine color for the past two months. In a period of 10 years in the production of contact with components of aniline dyes. In the analysis of urine - haematuria. What disease should be excluded in the first place?

- A Hemolytic anemia
- B Urolithiasis disease
- C Acute glomerulonephritis
- D. Tuberculosis of kidneys
- E. Bladder Cancer

13. The patient 60 years old, he was in the hospital on the left-hand exudative pleurisy observed rapid accumulation of fluid after each evacuation. Which disease meets these dynamics?

- A postpneumonic pleurisy
- B Dressler's syndrome
- C Systemic lupus broomrape
- D Blastomatous process

14. A boy of 9 years in a grave condition: the body temperature of 38-39 ° C, nosebleeds, pain in the bones. OBJECTIVE: sudden pallor, purpura, necrotizing ulcerative stomatitis. Enlarge all groups of lymph nodes, liver + 5 cm , spleen + 4 cm . What research solve in diagnosis?

- A Abdominal ultrasound
- B General blood analysis
- C Immunological complex
- D radiograph of the mediastinum

E myelogram

15. The patient was 52-year-old complaining about the thickening of the neck, a feeling of pressure, violation of swallowing, voice changes. Sick 1:00. On examination, the thyroid gland is uneven due to increased left lobe, painless, its mobility is limited, dense consistency, cervical lymph nodes are enlarged. Pulse - 80 / min, body temperature 36,6°C, ESR - 14 mm / BPE. What diagnosis is most likely?

- A megakaryoblastoma
- B Diffuse toxic goiter
- C Subacute thyroiditis
- D Thyroid Cancer
- E Hypothyroidism, unspecified

16. The patient of 63 years complained of pain in the lower back. Regarding sciatica held physiotherapy treatment. However, the patient's condition has not improved. The patient was conducted R graphs bones of the pelvis and spine, which found significant osteoporosis and bone defects. In moderate normochromic anemia blood in the urine - proteinuria. The total blood protein - 10.7 g / l. What kind of disease should be thinking in the first place?

- A Multiple myeloma
- B Bone metastases
- C Urolithiasis disease
- D Acute sciatica
- E systemic osteoporosis

Task №1

In 46-year-old woman suspected of having cancer of breast has been a significant reduction in weight, expressed muscle weakness, heaviness in swallowing liquid food th edema; ESR - 38 mm / yr Your early diagnosis and patient management plan.

Answers: 1 -2; 2 -e; 3 -b; 4 - 3; 5 -3; -A 6; 7 D'; 8 -b; 9 -b; 10 -D4 -A 11; 12 - E; -A 13; 14 - E; -A 15; 16 - A.

Problem 1: The patient - clinical signs of dermatomyositis, which, most likely, is non-plastic character. Timely tumor removal, typically leads to remission dermatomyositis.

Control of the final level of knowledge

1. Non-specific, natural immunity is presented:

- a) Immunoglobulin G;
- b) Helper E cells;
- c) NK cells;
- d) immunoglobulin A.

2. One of the mechanisms of cell activity of NK cells :

- 1. You divide 1-2 type of alpha interferon
- 2. You fission gamma interferon
- 3. Appearing of interferon beta
- 4. 5-8 type and alpha-interferon

3. What is primarily an indication for bone marrow transplantation?

- 1. Acute and chronic leukemia
- 2. Mostly B dependent immunodeficiencies
- 3. Mostly T-dependent immune deficiencies
- 4. Gipoplastic anemia

4. Natural killer (NK) cells carry a killer effect on the condition

- 1. Disturbance in the activity of chromosome 6
- 2. Appearance in cells ie the target antigen HLA II class
- 3. Presence in the target cells s markers HLA I class
- 5. The presence of phagocytes in cell markers

5. What is the universal mechanism of action antipathogenic killer cells :

- 1. The formation of membrane channels for calcium ions

2. Activation of lysozyme
3. Ugnetenie apoptosis
4. Activation membrane attack slit of complex and complement

6. The basic role of interferon gamma:

1. Stop protein synthesis of viral RNA
2. Involve directly to the transcription process
3. Play role of immunoregulatory cytokine
4. Complete around the lesion antiviral cellular barrier

7. Prior to the main problastomnic factors that enhance tumor growth include:

- a. NK -cells
- b. IL-6
- c. violation of APC function
- d. IL-1

8. The first is due to the immunogenicity of tumor cells?

- A. By changing the cell size
- b. Changing the shape of cells
- c. The appearance on the surface of the cell stands to specific antigen
- d. the connection of all these factors,

9. The patient 19 years about the last 2 months observed the growing weakness, skin hemorrhage, nosebleeds, low-grade fever. The lymph nodes, liver, spleen is not enlarged. The shelter : HB-50 g / l, er.- 1.5×10^{12} / L, reticulocytes - 0.2%, CPU - 0.9×10^9 / L, S / I - 1% s / I - 38% eoz. 1% lymphs. - 55% mon.- 5%, platelet - 30×10^9 / L, SHZE 60 mm / year, with in a iron - 15 mmol / l. What are the correct diagnosis

- A. V12 - deficiency anemia
- B. Acute leukemia
- C. Hemolytic anemia
- D. Aplastic
- E. Iron deficiency anemia

10. The patient 20 years limfогranulomatоз morphological variant - lymphoid depletion, Stage 3-B. What is the treatment for this patient will be in charge?

- A. Combined treatment is,
- B. Radiation therapy
- C. Surgical intervention
- D. Comprehensive treatment
- E. Chemotherapy

11. Female, 30 years, complains of discomfort in the left side of the abdomen, pain in the joints, famously, recurrent hemorrhage. On-no: Banti's syndrome, enlarged regional lymph nodes . The white blood cell count $200,109$ / L, a large number of granulocytes varying degrees ripened with five, mieloblastov Men above 5 \% in blood and cost, Ph chromosome in bone marrow cells. Recommended: constant the observation hematologist; possible radiation therapy and transplantation cost. What is the correct diagnosis in a patient?

- A. myelofibrosis
- B. malignant tumor
- C. Leukomoid reaction
- D. Chronic myelogenous leukemia
- E. Acute myeloid leukemia

12. The patient 18 years complains of a headache, general weakness, lack of appetite, fever up to 39° C, the appearance of swelling in the neck. Objectively: skin and mucous membranes dramatically pale packages lymph nodes in the neck on both sides up to 1 cm , unpainful. Liver + 1 cm , unpainful, spleen + 1.5cm , t $^{\circ}$ - 38° C. The blood: Nv.-98g / l, Er.- 2.9×10^{12} / L, Le - 32×10^9 / L, n - 0, c.. - 28% of - 2%, n. - 39% blasts - 31%, ret. - 31%, platelet- 120×10^9 / L, SOE 36mm / hour. What form of leukemia in a patient ?

- A. Chronic myelogenous leukemia.
- B. Acute myeloid leukemia

- C Chronic lymphocytic leukemia
- D Acute lymphoblastic leukemia
- E Undifferentiated leukemia

13. The patient 53 years complains on weakness, lack of appetite, weight loss, an increase in temperature. Objectively: polylimphadenopatia, components test consistency hepatomegaly. AT Blood: Ep. $4,0 \times 10^{12} / L$; Hb-110 g / l; l - $100 \times 10^9 / L$; b - 1%; e - 1%; n - 4%; c - 42%; m - 25%; L - 50%; shade Botkin, basket cells. What is the diagnosis most correct?

- A lymphogranuloma
- B Acute leukemia
- C Chronic myeloid leukemia
- D myeloma disease
- E Chronic Lymphocytic Leukemia

14. Sick 31 years addressed to the doctor complaining of swollen lymph nodes above the collarbone on the left. Pain in the chest and abdomen, night skin itches. Sick throughout the year. OBJECTIVE: palpable enlarged lymph nodes on the left unpainful and supraclavicular area. Liver and spleen not enlarged. The blood: hemoglobin - 70 g / L, WBC - $19,6 \times 10^9 / L$, eosinophils - 1%, 8% p., p. - 83% limf. 2%, 6% mon., SOE- 55 mm / year, platelet - 58 000. In Rh-graphs of the chest in the top of the right lung is determined by infiltration, which contrasts with the lung tissue. What research is most expedient to carry out to confirm the diagnosis?

- A Analysis of urine for protein Ben Jones
- B punch biopsy
- C sternal puncture
- D Lymph Node biopsy
- E X-ray examination of the stomach

15. Patient 53's complains of weakness, lack of appetite, from Menen weight. Objectively: swollen lymph nodes of the neck, as well as the liver. In the blood: HB - 110 g / l, er. - $3,8 \times 10^{12} / L$ Lake. - $20 \times 10^9 / l$, Choe - 12 mm / year, b. - 1%, e - 1% n - 4%, p. - 36% l. - 56%, of - 2%, shadows Botkin, basket cells. Diagnosis?

- A Limfogranulomatoz.
- B Acute leukemia.
- C Chronic myelogenous leukemia.
- D Chronic lymphocytic leukemia.
- E Tuberculosis of lymph nodes

16. The patient 27 years, about a year noted fatigue, sweating, heaviness in the left upper quadrant, especially after eating. Objectively: enlarged spleen, liver. Wedge. en. Blood: er.-3, $2 \times 10^{12} / l$; HB-100 g / l. R - 0.87; leyk. $100 \times 10^9 / L$; baz.-7%; eoz.-5%; mielots.- 15%; yun.- 18%; pal.-15%; seg.-50%; limf.-2%; mon.- 0. retikulots.- 0.3%; trombots.- $400 \times 10^9 / L$. SHOE- 25 mm / hour. The most reliable diagnosis?

- A Erythremia .
- B Chronic lymphocytic leukemia.
- C Chronic myelogenous leukemia
- D. Acute leukemia.
- E Cirrhosis of the liver.

Answers: 1 - c; 2 - b; 3 -a; 4 - c; 6 - c; 7 - c. -to 8 9 -D; 10 -E; 11 - D; -A 12; 13 -E; -A 14; - A 15; 16 - S.

Literature:

Basic:

1. Roitt Ivan. Essentials Immunology. - Oxford: Blackwell Scientific publications, 1994. – 448 p.
2. Thomas J. Kindt, Richard A. Goldsby, Barbara Anne Osborne, Janis Kuby. Kuby immunology. – W.H. Freeman, 2007. – 574 p.

3. Bradley John, Mc Cluskey Jim. Clinical Immunology. - Oxford University Press, 1997. - 572 p.
4. Mulvar L., Bobbyrev V. Clinical immunology: Basic mechanisms and some clinical consequences. - Poltava: ASMI, 2012. - 168 p.

Additional:

1. Julius M. Cruse, Robert E. Lewis. Atlas of immunology. - CRC Press LLC. - 2000. - 456 p.
2. Lydyard P.M., Whelan A., Fanger M.W. Immunology. - Bios Scientific Publishers Ltd. - New York. - 2000. - 329 p.
3. Steven A. Frank. Immunology and Evolution of Infectious Disease. Princeton University Press. - 2002. - 335 p.
4. Kalden J., Herrmann M. Apoptosis and Autoimmunity. - WILEY-VCH VerlagCmbH and Co. - 2003. - 381 p.
5. Vervloet D., Pradal M., Castelain M. Drug Allergy. - Pharmacia & Upjohn, 1999. - 323 p.
6. Virella Gabriel, Dekker Marcel. Medical Immunology. - Marcel Dekker Inc., 1998. - 651 p.

<http://www.esmo.org>.

<http://www.fda.gov>.

<http://www.medicaldaily.com/immune-system>

<http://www.who.int/mediacentre>

<http://www.medicalnewstoday.com>

<http://www.sciencedaily.com>

Methodical guidelines composed by

Vakhnenko A.V.