LECTURE COMPLEX

Discipline: "Blood and lymph in pathology"
Discipline code: KLP 3303
Name and code of the OP: 6B10115 "Medicine"
Amount of study hours/credits: 150/5
Course and semester of study: 3/6
Lecture volume: 2

Shymkent, 2024

The lecture complex is developed in accordance with the working curriculum of the discipline (syllabus) and discussed at the department meeting

Protocol No. 10 dated "31" 05 2024

Head of the Department, md, Professor E.K. Bekmurzayeva. Бекм-

Lecture N 1

1. Topic 1: Methods of examination of patients with pathology of the hematopoietic system. Diagnostic value. Questioning, complaints of patients with pathology of the hematopoietic system. Data of physical methods of examination of the hematopoietic system. General examination: palpation and percussion of the spleen: technique. Palpation of the lymph nodes.
2. Objective: To teach students to identify risk factors, causes, and clinical features of diseases of the hematopoietic system.

3. Lecture abstracts:
Research methods for diseases of the hematopoietic system. Despite the undoubted importance of data obtained using special methods of patient research, generally accepted clinical methods can provide valuable information.
A physical examination is carried out in full, as when examining the state of systems with other organs:
* Staining of the mucous membranes by the skin (as well as changes in the skin)
* Change language
* Enlarged lymph nodes
* Enlargement of the liver and spleen
* Changes in the state of systems with other organs - in the first row are the skeletal and nervous systems.

Palpation of the lymph nodes.

Under normal conditions, peripheral lymph nodes are a round or oval structure measuring from 5 to 20 mm. They do not exceed the skin level and therefore are not visible to the naked eye during a general examination. The following lymph nodes are palpated: occipital, posterior, anterior, jaw, mental (metallic), supraclavicular and popliteal, axillary, elbow, inguinal. With the fingertips, using a sliding circular motion, palpate in the projected area of the transferred lymph nodes and press as much as possible into denser structures (bones, muscles). During palpation, pay attention to the properties: size, shape, consistency, soreness, mobility, adhesion to each other and to adjacent tissues, the condition of the skin over the lymph nodes.
Ultrasound examination of lymph nodes allows to detect a significant enlargement of the lymph node. Unchanged lymph nodes in echography are not determined by particularly large sizes similar to the acoustic properties of the surrounding tissues. The minimum size of pronounced lymph nodes is 8-9 mm. Lymph nodes detected by ultrasound examination are pathologically changed and require further diagnostic measures. Most often, lymph nodes are located in the trunk vessels or in the gates of organs. If they are not very large, they acquire a hypoechoic appearance with a pronounced smooth shape. With the progressive development of the pathological process, the size of the lymph nodes increases, the structure becomes more homogeneous, echogenicity may increase. The shape of the nodes is heterogeneous, there is a tendency to form conglomerates. With a change in the structure of the node, the distinction between the type of pathological process is not reliably controlled.
The optimal method for assessing all groups of lymph nodes is computed tomography. In computed tomography, the lymph nodes have a uniform rounded shape of soft tissues. The main criterion for the presence of a pathological process is determining the size of the chimneys. The size of non-enlarged lymph nodes detected by computed tomography does not exceed the diameter of the pit. Accordingly, lymph nodes with a diameter of 8-10 mm are calcified. An abnormal size of pronounced nodes is a sign of a pathological process. The structure and densitometric density of the nodes conditionally change its size. Of their localization, the most differentiated are the assessments of the sizes of the Teule lymph nodes.

Magnetic resonance imaging of one normal lymph node depends on the type of image. T1 - VI - an unchanged lymph node has a uniform oval and round shape, uniform structure, and a distinct shape. It is clearly differentiated from the surrounding tissues. Pathologically changed lymphatic pairs can reach significant sizes and have an uneven structure and shape.
In suspicious cases, radionuclide testing relies on positron emission tomography (PET).
Ultrasound examination. The location of the spleen is suitable for ultrasound examination. The structure of the spleen is fine-grained, the echogenicity is lower than the echogenicity of the liver, it is determined as a hyperechoic line, vessels are visible near the gate, all dimensions of the spleen are easily measured.
Computer tomography determines the compaction and size, structure. During computed tomography, the splenic sac is not detected. After the introduction of contrast, the vessels of the spleen are clearly visible and the accumulation of contrast in the body is visually visible.
Magnetic resonance imaging. Allows to determine the vessels of the spleen, the structure and all sizes of the organ without contrast.
Laboratory research methods:
1. Complete blood count
2. General urine analysis
3. Coproscopy
4. blood biochemistry: total bilirubin, with fractions, ALT, AST, ferritin, serum iron.
5. determination of osmotic resistance of erythrocytes
6. Coombs reaction

Instrumental research methods:
1. sternum puncture
2. Trephine biopsy
3. endoscopic examination
4. Ultrasound examination
5. X-ray examination

4. Illustrative material: presentation.
5. Literature:the main one, the additional one is indicated on the last page of the syllabus
6. Control questions(feedback):
1. What are the main complaints in diseases of the hematopoietic system?
2. What should you pay attention to during a general examination of patients with diseases of the hematopoietic system?
3. How is palpation of lymph nodes performed?
4. What information does percussion of the spleen provide?
5. What other physical methods are used when examining patients?

Lecture N 2

1. Topic 2: Leading clinical syndromes (anemic, hemorrhagic and thrombocytopenic) in hematology. Predisposing factors and causes leading to the development of anemic, hemorrhagic and thrombocytopenic syndromes. Questioning, complaints, anamnestic features, general examination and objective data of the patient. Laboratory and instrumental research methods for leading clinical syndromes of diseases of the organs of the hematopoietic system.

2. Objective: Based on the integration of fundamental and clinical disciplines, train students in the basics of clinical examination of the organs of the hematopoietic system in health and

pathology, and diagnose pathological syndromes during physical and laboratory-instrumental examination of the patient.

3. Lecture abstracts:

Anemias (anaemiae)— pathological conditions characterized by a decrease in the number of red blood cells and/or hemoglobin content in a unit of blood volume due to their general decrease in the body. Anemia in Greek means "bloodlessness" (an — without, haima — blood). The term "anemia" more accurately reflects the essence of these conditions.

In total, there are currently more than 50 types of anemia. According to

The following types of anemia are distinguished by origin.

1. Anemia due to blood loss (acute and chronic).
2. Anemia due to impaired blood formation (with a lack of iron in the body,

necessary for the construction of hemoglobin of red blood cells, necessary for

normal erythropoiesis. in case of suppression of bone marrow activity as a result of endogenous or exogenous toxicosis, radiation exposure or other, in some cases unexplained reasons, as well as due to replacement of red bone marrow by other tissue - myeloma growths, multiple tumor metastases, etc.).

3. Anemias due to excessive blood destruction - hemolytic. In this group

distinguish:

a) anemia with predominant extravascular (intracellular) hemolysis

erythrocytes in macrophages of the spleen, to a lesser extent bone marrow and liver (anemia,

caused by congenital morphological and functional inferiority of red blood cells (spherocytic, oval-cell, etc., autoimmune hemolytic anemia), occurring with hyperbilirubinemia and splenomegaly;

b) anemia with intravascular hemolysis, usually acute (with various toxic effects, transfusion of group-incompatible blood, cold, march, etc.), accompanied by the release of free hemoglobin into the plasma and hemoglobinuria; with chronic hemolysis (for example, with Marchiafava-Michele disease), hemosiderosis of the internal organs is also observed. This subdivision is conditional, since in some cases with the same form of hemolytic anemia, both intracellular and vascular hemolysis may occur.

Myeloaplastic syndromeunites a large group of conditions, different in etiology and pathogenesis, the main clinical manifestations of which are caused by the suppression of bone marrow hematopoiesis. By origin, the following are distinguished:

- congenital, i.e. genetically determined
- acquired forms of myeloid aplasia;

According to the flow, there are:

-sharp

- chronic.

There are also forms characterized by incomplete suppression of the regenerative capacity of the bone marrow, its hypoplasia and complete suppression of its function by aplasia.

Hemoblastoses— tumors originating from hematopoietic tissue; the growth of pathological cells can be diffuse and focal.

Hemoblastoses are malignant diseases of the blood system, characterized by

the following signs:

a) progressive cellular hyperplasia in the hematopoietic organs with a sharp predominance of the processes of reproduction (proliferation) of certain cells, which in each case constitute the morphological essence of the disease, over the processes of their maturation (differentiation) and the loss of their typical morphological and functional properties;

b) replacement (metaplasia) of normal cells of the hematopoietic organs by these pathological cells;
c) the appearance of pathological foci of hematopoiesis in various organs.

Acute leukemia(leucosis acuta) is characterized by uncontrollable proliferation of the youngest (blast) elements of the blood with disruption of their subsequent differentiation, as well as the development of foci of pathological hematopoiesis in various organs. Its most common are lymphoblastic and myeloblastic variants (acute lymphocytic leukemia, acute myeloid leukemia).

Acute leukemia is observed at any age, but most often affects men and women aged 20-30 years.

Chronic lymphocytic leukemia(lympholeucosis chronica) is currently classified as benign tumors of immunocompetent tissue. Its hematological basis are B-lymphocytes (morphologically having the character of mature, but functionally defective). It is manifested by systemic hyperplasia of the "lymphoid apparatus", lymphoid metaplasia of the spleen, bone marrow and other organs. Chronic lymphocytic leukemia is one of the common forms of leukemia. It is most often observed in middle and old age (25-70 years), mainly in men.

Erythremia(erythraemia; syn.: chronic erythromyelosis, Vaquez's disease) belongs to the group of "benign" myeloproliferative diseases and is characterized by total hyperplasia of the cellular elements of the bone marrow, most pronounced in the erythrocyte sprout. Erythremia was first described by the French clinician Vaquez in 1892. The disease most often affects elderly people, mainly men.

Lymphogranulomatosis(lymphogranulomatosis) is a systemic disease of a group of malignant lymphomas characterized by specific tumor lesions of the lymph nodes, spleen, and then other organs. The disease was first described by the English physician Hodgkin in 1832 and is therefore named after him.

Hemorrhagic diathesis— a group of diseases in which there is a tendency to bleeding and repeated bleeding, occurring both spontaneously and under the influence of injuries, even the most minor ones, which are not capable of causing bleeding in a healthy person.

Thrombocytopenic purpura(purpura thrombocytopenica; syn.: Werlhof's disease) — hemorrhagic diathesis caused by a lack of platelets in the blood. The disease was first described by the German physician Werl-Hoff in 1735. Thrombocytopenic purpura is more often observed in young people, mainly in women.

4. Illustrative material:presentation.
5. Literature:the main one, the additional one is indicated on the last page of the syllabus
6. Control questions(feedback):
1. Classification of anemia?
2. In what pathologies does anemic syndrome develop?
3. What diagnostic methods can be used to detect aplastic anemia?
4. What laboratory and instrumental studies are used to diagnose anemic syndrome?
5. What is leukemia?
6. What are the characteristics of lymphocytic leukemia?
7. What diagnostic methods can be used to detect myeloleukemia?
8. What laboratory and instrumental studies are used to diagnose lymphocytic leukemia and myeloleukemia?