

Acute lymphoblastic leukemia (ICD- X - S91.0 ) is a neoplastic disease of the blood system, resulting from the malignant transformation of B- and T-lymphocytes' precursors. Expansion of malignant transformed cells derived from hematopoietic stem cells (HSCs), have lost their ability for differentiation and maturation into mature lymphoid cells. The clone of malignant cells occurs from a single cell that has undergone mutation.

Among malignancies of the hematopoietic and lymphoid tissues, occupying half of all malignant tumors, the share of leukemia in childhood is to 38-40%. The incidence of acute lymphoblastic leukemia (ALL) in children is 4 per 100000 child population, ratio male /female 1,3 :1 and the peak of the disease occurs at age from 2 to 5 years.

In the development of leukemia may play a role ionizing radiation, chemicals, viruses and bacteria, genetic predisposition (hereditary syndromes with abnormal numbers of chromosomes, defects in genes), such as Down's syndrome.

The basis of modern classification of ALL is the FAB-classification (French-American-British), which includes morphological and cytochemical characteristics of blasts.

The diagnosis of ALL is established in case of the presence of more than 20% blasts in the bone marrow's punctate.

In the clinical course of ALL there are the following periods: initial, acute, remission, relapse and terminal .

At the initial stage of the disease may occur nonspecific symptoms: raised body temperature, loss of appetite, increasing weakness, fatigue. In the study of peripheral blood anemia, granulocytopenia, thrombocytopenia can be detected (but not always). Most often these changes documented in the study of bone marrow.

The acute phase is characterized by symptoms of intoxication, loss of appetite, bone pain , increasing anemia, the appearance of hemorrhagic syndrome (from petechiae and bruising to various bleeding: epistaxis, gastrointestinal, kidney). One of the most common symptoms is an increase of peripheral lymphatic nodes - the submandibular, cervical, axillary, inguinal . They are painless, mobile,

not soldered to each other and surrounding tissues. This stage is characterized by enlargement of the liver and spleen.

Involvement of central nervous system (CNS) may occur in meningeal form, meningo-encephalic, encephalic, myelitic form; like polyradiculoneuritis, diencephalic syndrome, etc. Eyes' lesion is determined by the proliferation of leukemic cells in the choroid, retina, optic nerve papilla, anterior chamber and vitreous. In case of lungs' lesion alveolar septa, perivascular and peribronchial tissue, visceral and parietal pleura are involved. In girls with ovarian lesions can palpate dense, sedentary mass in iliac region, in case of involvement of the uterus spotting in which blast cells are found. The boys may experience testicular lesions: often one-sided, egg is dense to the touch, painless; the skin over it is with cyanotic hue.

Complete remission is considered with the absence of clinical manifestations of disease and normal quantity of cells in bone marrow; number of blast cells is less than 5% and the parameters of cerebrospinal fluid are normal.

Relapse is a condition when there is a return of the active stage of the disease after complete remission and one of the following:

- The number of blasts in bone marrow is more than 20%;
- Presence of extramedullary lesions (CNS, gonads etc.) when the content of blast cells in the bone marrow is less than 5 % ;
- The presence of 5 or more of leukemic cells in 1 mcl of liquor.

Relapse may have a different localization: isolated bone marrow, extramedullary with CNS, gonads, skin, orbit, almonds, etc. There are also combined relapses.

ALL diagnosis is established on the basis of complaints, clinical signs, medical history, the results of the objective study and the additional methods with the presence more than 20 % blasts in bone marrow punctate with the "failure" of maturing granulocytes. ALL is characterised not only by increased content of blast cells, but also by their anaplasia - folding, fragmentations, excavations, vacuolization of the nucleus, etc. Besides the detection of tumor cells in lymphoid

hematopoietic lineage, conduct other investigations - cytochemical, cytogenetic, molecular biological and immunophenotyping.

Treatment is carried out according to ALL act of Health Department of Ukraine № 364 from 20.07.2005, which involves the induction of remission, consolidation and maintenance treatment. Volume of treatment depends on the risk for the disease, which is determined according to the prognostic factors: age, volume of the tumor mass, the presence of adverse prognostic cytogenetic abnormalities t (9, 22) and t (4, 11).

As an illustration of the above, we give our own observation.

Anastasia B., 4 years old, was treated at the Department of Children Hematology at the Institute of Urgent and Recovery Surgery named after V.K. Husak NAMS of Ukraine from November 2013 to January 2014. On admission, she complained of pain in the right arm and leg, fever up to 40 ° C, pallor, weakness, loss of appetite.

The girl is sick since September 2013, when there were complaints of general weakness, fever up to 38 ° C, the pain in her right shoulder. Then surgical pathology was excluded. Despite the absence of catarrhal symptoms, SARS was diagnosed, but the treatment hadn't any effect. The girl continued to be in a fever to 39 ° C, in October there were "volatile" bone pain, increased fatigue, appetite deteriorated . At that time in the analysis of peripheral blood revealed anemia (Hb 95 g/l, L 5,6 g/l ). Nurofen and paracetamol hadn't any effect on hyperthermia and so they repeatedly called for an "Ambulance" brigade that reduced body temperature by analginum, benadryl, dexamethasone. After that, the fever disappeared for 5-7 days, pain in the limbs had not bothered, and the girl became more active. They continued self-administration of analginum and dexamethasone to reduce body temperature. In November the study of blood revealed severe anemia (hemoglobin 70 g/l), 95% lymphocytosis. The child was consulted by a hematologist , and then she was admitted to the Department of Hematology for children for further evaluation and treatment.

In the department in the blood analyze - severe anemia. Biopsy from both iliac bones was performed: elements of normal hematopoiesis (myeloid cells, erythroid and megakaryocytic germs) are oppressed. Morphologically pattern is typical for acute leukemia.

Due to the repeated administration of dexamethasone child diagnosed acute lymphoblastic leukemia laboratory confirmed 18 days after admission to the department, although the clinical picture was growing daily: temperature rises to 39-40 ° C, pain in the limbs increased, which were hardly stopped by non-narcotic analgesics, size of the liver and spleen increased to 2 cm below the costal arch; there was asymmetry of nasolabial folds and uvula deviation to the left. Given the increase in symptoms was re- conducted bone marrow puncture In punctate from the left iliac bone the quantity of blast cells was up to 24-26 %. According to immunohistochemical study in tumor cells, expression of membrane CD19, CD10, and expression of the nuclear terminal desoxynucleotidyl transferase (TdT) were revealed. Conclusion: B- lymphoblastic leukemia. According to immunophenotyping, blast population phenotype defined corresponding to the pre-B - ALL variant (CD| 0 +| 19 +| 22 +| 24 +| IgM+).

On the basis of complaints, medical history, clinical presentation and additional research data, the girl was diagnosed with acute lymphoblastic leukemia, L, pre-B -cell variant, neuroleukemia, acute period.

The treatment protocol ALL-IC-BFM- 2009 was started. The girl received 2 administration of vincristine and doxorubicin , asparaginase administration 3 , prednisolone . Transfusion of red cells, platelet and fresh frozen plasma as well as detoxification and symptomatic therapy were carried out. However, in spite of therapy, the disease progressed with a fatal outcome .

The results of post-mortem studies have confirmed the clinical diagnosis of acute lymphoblastic leukemia, pre-B -cell variant. Neuroleukemia. Terminal period. Complications of the underlying disease: hemorrhagic syndrome (bleeding in the mediastinum , pleura, epicardium, the walls of the stomach and intestines, left adrenal gland, myocardium, esophagus, pancreas, kidneys). Total venous

congestion. Degenerative changes of the internal organs. Pulmonary edema. Swelling of the brain.

Thus, late diagnosis of acute leukemia and later initiation of treatment resulted in a fatal outcome. The peculiarity of this case report is that at the initial stage of the disease wasn't pay attention to the pain in the bones, did not investigate the clinical analysis of blood in a child with prolonged fever of unknown origin, were not complied with the basic rules of the system examination of patient, including inspection of the skin, mucous membranes, palpation of lymph nodes, liver and spleen. Negative role was played by frequent administration of hormones for relief of fever, which is "smeared" clinical picture and caused a significant delay in the diagnosis and led to the emergence of a new clone of cells resistant to therapy. This case demonstrates that unreasonable appointment of steroids "erased" clinical and laboratory signs of the disease, led to its further progression.