Morph Functional Changes of Ferments in the Neutrophiliac of Peripheral Blood in the Case of Virus Hepatitis B at Children

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ABSTRACT

The activity of SDG, LDG, G-6-FDG and £-GFDG at ill children has been studied. The change of ferments activity in depending of VHB course heaviness has been investigated. Steady and deep lowering of dehydrogenizes activity was marked at 6 patients (6,8%) with fulminant form of VHB.

It was concluded that t VHB the aerobic way of carbohydrate transformation (SDG) is sharply disordered, β-glycerol phosphate (β-GFD) and peptone phosphate (G-β-FDG) bypasses are suffered, as well as glycolysis (LDG) is activated. It is evidence of acute changes in energy phenomena, leading to the gathering of lactate and metabolic acidosis. Steady lowering of dehydro genesis is prognostically unfavorable indicator of VHB course.

Keywords: vital hepatite, ferments, microphages, metabolistic, carbohydrates.

Introduction. There is a close relationship between peripheral blood leukocytes and the liver under physiological and pathological conditions. The state of metabolism of peripheral blood leukocytes may reflect the degree of disturbance of metabolic processes in the body.

Purpose of the study. To study morphofunctional changes in enzymes in peripheral blood neutrophils in children with viral hepatitis B.

Materials and methods. In 88 children with HBV, the activity of SDH, LDH, G-β-FDG and a-GPDG, which are associated with different types of metabolism - glycolysis, synthesis of fatty acids, purines, pyrimidines, cholesterol, steroids, was simultaneously studied.

Examinations of patients were carried out against the background of generally accepted basic therapy, taking into account the severity and period of the disease. The diagnoses were established on the basis of clinical, epidemiological, biochemical and serological data. ELISA determined HBsAg, HBcAg, anti-HBc IgH and anti-HBc, PCR determined HBV DNA.

Results. The results of the conducted cytochemical studies were compared with the examination data of 50 healthy children who served as controls. At the height of the disease (I-II decade), a change in the activity of enzymes was noted depending on the severity of the course of HBV. In mild form of HBV (in 15-17%), an increase in the activity of LDH, G-β-FDG and a-GPDH was detected, with a simultaneous decrease in SDH activity ($P<0.001$). In the moderate form of the disease (in 46-52.2%) and especially in severe forms (in 11-12.5%), a statistically significant inhibition of the activity of SDH and G-β-FDG

and a-GPDG is observed (P<0.001). Along with this, LDH activity increased.

A persistent and profound decrease in dehydrogenase activity (less than 50% of control and even to zero) was found in 6 patients (6.8%) with fulminant HBV complicated by OPE.

Complete suppression of dehydrogenase activity in neutrophils (up to 0) was noted in cases that ended in death (in 4 children). With the extinction of clinical symptoms (I-IV decade), there was a tendency to increase the activity of SDH, a - GPDH, G-β-PDH and a decrease in LDH (P <0.05). During the period of convalescence (V-VI decade), these indicators approached the limits of the norm, and by the VII-VIII decade, LDH activity returned to normal.

Comparing the obtained results, we can conclude that HBV drastically disrupts the aerobic pathway of carbohydrate (SD) conversion, α-glycerophosphate (α-GPDH) and peptose-phosphate (G-β-FDG) shunts suffer, as well as compensatory, due to the principles of feedback functional connection Glycolysis (LDH) is activated. This indicates a sharp shift in energy metabolism, leading to the accumulation of lactate and metabolic acidosis, a persistent decrease in the activity of dehydrogenases - a prognostic unfavorable indicator of the course of HBV.

Discussion. Thus, the state of metabolism of peripheral blood leukocytes may reflect the degree of disturbance of metabolic processes in the body. Studies of cytochemical tests that reflect the course of HBV can be used to assess the severity and effectiveness of the therapy and the prognosis of the disease.

Pronounced changes in the metabolism of peripheral blood neutrophils were detected in patients with HBV. Normalization of neutrophil metabolism, clearly lagging behind the pace of clinical recovery, and mainly in mild forms of the disease. A low level of MPO, CBG- β-FDG in a relatively satisfactory condition is an unfavorable prognostic criterion, indicating a violation of the recovery processes of an important link in a single chain of nonspecific resistance of the organism.

The results of the study of the NBT-test in children with HAV and HBV, regardless of the severity of the disease, both at the height of the disease and during convalescence did not exceed the control (P <0.05). If patients had HAV and HBV with concomitant pathology (chronic bronchitis, rhinitis, lacunar tonsillitis, pneumonia, osteomyelitis, pyelonephritis), complicating the course of the disease, a statistically significant increase in the HCT-test (P<0.001) was revealed at the height of the disease with a subsequent decrease in indicators in convalescence period.

Conclusions.

1. Based on the data obtained, it can be assumed that changes in the metabolism of neutrophils are due to infectious-toxic effects, the action of the pathogen on the membranes and organelles of the cell.
2. The tests we studied characterize the state of an important metabolic link, which is associated with the protective bactericidal functions of neutrophils.
3. They can serve as additional criteria for assessing the severity of the course and the effectiveness of the therapy, they have a certain diagnostic and prognostic value.

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