

THE INDEXES OF GLUCOSE METABOLISM IN ERYTHROCYTES UNDER SOME HAEMATOLOGICAL DISEASES

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Today we have much dates about that under some diseases erythrocytes are involved in pathological process as demonstrated by biochemical changes occurring in them [1–3].

In this regard, it is interest to examine the biochemical state of erythrocytes under some haematological diseases, that was the aim of our work.

The materials for the study were the erythrocytes of healthy subjects (control group) and patients with erythraemia (11 persons, middle age 55,0 years), aplastic anemia (11 persons, middle age 53,0 years) and iron-deficiency anemia (13 persons, middle age 49,0 years). The blood of patients with diseases was taken before treatment for an illness.

The erythrocytes were hemolysated by distilled water. In hemolysates of erythrocytes the activity of hexokinase [4] and content of phosphoenolpiruvate [5] and ATP [5] were determined. All indexes were studied by spectrophotometric methods of biochemical analyses.

It has been shown, that in hemolysates of erythrocytes at all groups of patients the activity of hexokinase and content of phosphoenolpiruvate and ATP are rised as compared with control group. So, the activity of hexokinase in erythrocytes of patients was rised: at 2,8 times under aplastic anemia, at 2,4 times under erythraemia and at 1,9 times under iron-deficiency anemia. The content of phosphoenolpiruvate was rised: at 4,0 times under aplastic anemia, at 3,7 times under erythraemia and at 3,5 times under iron-deficiency anemia. The content ATP in erythrocytes of patients was rised at 4,3 times under aplastic anemia, at 2,96 times under erythraemia and at 2,8 times under iron-deficiency anemia, accordingly.

The obtained dates evidence about that in erythrocytes of patients with aplastic anemia, erythraemia and iron-deficiency anemia the glycolitic reactions are intensified and these changes may have compensatoric sense.

The analysis of obtained dates shows that in erythrocytes of patients with haematological diseases the energetic balance is rimained. It means that with increasing of expenditure of ATP the intensivity of glycolytic reactions in erythrocytes is rised.

Accounty, that glycolytic reactions in erythrocytes are connected with formation of 2,3-diphosphoglycerate (allosteric effector of haemoglobin [6]) it may be assumed that intensification of glycolytic reactions in erythrocytes under pathology leads to changes of oxygen-transport function of haemoprotein.

The connection of biochemical changes in erythrocytes of patients with type of pathology is observed.

Keywords: erythrocytes, glycolysis, hexokinase, phosphoenolpyruvate, ATP, haematological diseases.

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