

**CORRELATION OF INTENSIVITY OF GLYCOLITIC REACTIONS AND
OXYGEN ACTIVE FORMS GENERATION IN ERYTHROCYTES UNDER
SOME CARDIOVASCULAR DISEASES**

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Today we have much data about that under some diseases erythrocytes are involved in pathological process as demonstrated by biochemical changes occurring in them [1–3]. It is known, that glycolysis is the main metabolic way in erythrocytes and it's very important for energy production and regulation of hemoglobin oxygen – transport function [4].

Also, we have about more intensive production of oxygen active forms in erythrocytes under some diseases [1]. In this regard, it is interest to examine the correlation of the state of glycolytic reactions and oxygen active forms production in erythrocytes under some cardio-vascular diseases that was the aim of our work.

The materials for the study were the erythrocytes of healthy subjects (control group) and patients with dilated cardiomyopathy (20 persons, middle age 45,0 years) and with ischemic heart disease (25 persons, middle age 48,0 years). The blood of patients with disease was taken before treatment for an illness.

It has been shown, that in hemolysates of erythrocytes at two groups of patients the activity of hexokinase was rised: at 2,0 times as compared with control group. The content of phosphoenolpiruvate was rised also: at 1,8 times under cardiomyopathy and at 2,3 times under ischemic heart disease. The content ATP was rised at 2,4 times under cardiomyopathy and at 2,5 times under ischemic heart disease. These data evidence about that in erythrocytes of patients with dilated cardiomyopathy and ischemic heart disease the glycolitic reaction are intensified and these changes may have compensatoric sense.

At the same time, in hemolysates of erythrocytes of patients the speed of oxygen active forms (hydroxyl-radicals and superoxideanion) generation was rised also. The speed of generation of superoxideanion in erythrocytes was rised: at 1,7 times under ischemic heart disease, at 1,5 times – under cardiomyopathy. The speed of generation of hydroxyl-radicals was rised at 3,3 times under ischemic heart disease and at 2,75 times – under dilated cardiomyopathy as compared with control group.

It has been shown, that between indexes of glycolitic reactions and oxygen active forms generation in erythrocytes of patients the high correlation is observed. These data evidence about possibility realization in erythrocytes some processes with participation of oxygen active forms, that lead to optimisation of glycolitic reactions, energy production and, as a result, to supporting of erythrocytes functional activity.

Keywords: erythrocytes, glycolysis, hexokinase, phosphoenolpiruvate, ATP, superoxideanion and hydroxyl-radicals generation, cardiovascular diseases.

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