

# PROCESSES OF LIPIDS PEROXIDATION AND ACTIVITY OF ANTIOXIDATIVE ENZYMES IN ERYTHROCYTES UNDER OXIDATIVE STRESS IN VITRO

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It is known, that under different diseases the oxidative stress is developed [1, 2]. These processes are connected with generation of oxygen active forms [1]. Today we have much dates about that under some diseases erythrocytes are involved in pathological process as demonstrated by biochemical changes occurring in them [3, 4]. In this regard, it is interest to examine the state of processes of lipids peroxidation and antioxidative system in erythrocytes under oxidative stress in vitro.

The materials for the study were the erythrocytes of healthy subjects. Erythrocytes were incubated in Fenton system, containing 10,0 mM FeSO<sub>4</sub> \* 7H<sub>2</sub>O and 3,0mM H<sub>2</sub>O<sub>2</sub> during 4 hours at 4°C.

Fenton system have ability for production of radical oxygen active forms, in particular, superoxideanion [5]. The control was the erythrocytes, which didn't incubated in Fenton system. The erythrocytes were hemolysated by distilled water. The membranes of erythrocytes were separated from hemolysate by centrifugation. In membranes and hemolysate of erythrocytes the content of total lipids [6] and lipids peroxidation products (LPP) [7, 8] was determined. The activity of catalase [9] and glutation-reductase [10] was determined in hemolysates. All indexes were studied by spectrophotometric methods of biochemical analyses.

It has been shown, that under oxidative stress the level of total lipids in membranes, and hemolysate of erythrocytes was lowed: at 31,0 percents and at 2,0 times, accordingly, as compared with control. The level of primary and secondary products of lipids peroxidation (LP) in membranes and hemolysates was rised. The content of primary

products of LP was risen at 26,5 times in membranes and at 12,9 times in hemolysate of erythrocytes. The content of secondary products of LP was risen at 3,2 times in membranes and at 7,7 times in hemolysate.

At the same, the activity of antioxidative enzymes in hemolysates was changed also. The activity of catalase was lowed at 1,7 times as compared with control and activity of glutation-reductase was risen at 1,4 times.

The obtained dates evidence about that under oxidative stress in vitro the intensification of lipids peroxidation reactions in erythrocytes is accompaned with mobilization of adaptative reactions that is important for stabilization of redox potencial in red cells.

**Keywords:** erythrocytes, oxidative stress, Fenton system, lipids peroxidation, antioxidative enzymes: catalase, glutation-reductase.

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