CHANGES OF LIPID PEROXIDATION, REDUCED-GLUTATHIONE LEVEL, AND ATPASE ACTIVITY IN ERYTHROCYTES OF PATIENTS WITH DYSLIPIDEMIA

A. ZIOBRO[1], M. BRONCEL[2], J. CHOJNOWSKA-JEZIERSKA[2], P. DUCHNOWICZ[1], M. KOTER-MICHALAK[1]

[1]Univerity of Łódź, Poland; [2]Medical University of Łódź, Poland

Dyslipidemia is a well-recognized risk factor for cardiovascular disease and one of the major causes of death. It is possible that dyslipidemia causes damage to the erythrocyte via generation of reactive oxygen species.

The aim of the study was to investigate reduced glutathione (GSH) concentration and level of thiobarbituric acid-reactive substances (TBARS) as a marker of lipid peroxidation, in whole erythrocytes. Erythrocyte GSH and TBARS levels were assessed according to the Ellman (1959) and Stocks & Dormandy (1971) methods, respectively. Oxidative damage to erythrocyte proteins was assessed by measurements of ATPase (total and Na^+K^+ ATPase) activity in erythrocyte membranes by the Bartosz *et al*. method (1994). All results were compared with those obtained for healthy volunteers.

The concentration of erythrocyte GSH decreased, whereas TBARS level was significantly higher in the patient group. Both the total ATPase and Na^+K^+ ATPase activity decreased by 30% and 46%, respectively, in the patients, compared to the control group.

These results show changes in the red blood cells as a consequence of oxidative stress induced in the blood of patients with dyslipidemia.