The Importance of Antioxidant Enzyme and Total Antioxidant Status of Patients with Acute Myocardial Infarction on Thrombolytic Therapy

SNEZANA MARKOVIC1, JELICA DORDEVIC1, NADA MAJKIC-SINGH1,2, ZORANA VASILEVIC3, MIROLJUB PETROVIC3, LJILJANA GLAVINIC3, SNEZANA LETIC3, ALEKSANDRA MILOSEVIC3

1Institute of Medical Biochemistry, Clinical Center of Serbia, Belgrade, Yugoslavia
2Faculty of Pharmacy, Clinical Center of Serbia, Belgrade, Yugoslavia
3Institute of Cardiovascular Diseases, Clinical Center of Serbia, Belgrade, Yugoslavia

SUMMARY

It is believed that intensive production of free radicals occurs immediately after reperfusion, and that it explains a series of adverse effects of reperfusion. The aim of the study was to establish the importance of the antioxidative enzymes superoxide dismutase (SOD), glutathione peroxidase (GPX) and the total antioxidant status (TAS) in patients with acute myocardial infarction according to success or failure of reperfusion. Enzyme activities in erythrocyte hemolysate and concentration of TAS in plasma were determined by Randox kits in 50 patients with acute myocardial infarction. No significant differences in TAS between the mean values against either clinical status or the 10 time intervals were recorded. The SOD and GPX values were significantly influenced by the presence or absence of reperfusion (p<0.05). Monitoring of SOD and GPX at ten time points: before administration of streptokinase, 1, 3, 6, 12, 18, 24 hours, 2, 3 and 5 days after administration of streptokinase revealed the lowest SOD levels up to one hour before administration of streptokinase, supporting the fact that the maximum production of free radicals is achieved at that time. GPX values differed for 24 hours according to whether reperfusion was achieved or not. The obtained results suggest that free radical production is increased after reperfusion, and monitoring of antioxidant enzymes may help to evaluate the success of thrombolytic therapy. (Clin. Lab. 2000;46:495-499)