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Original Article

ASSOCIATION BETWEEN BLOOD DONATION FREQUENCY, ANTIOXIDANT ENZYMES AND LIPID PEROXIDATION

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Abstract:

Iron is a pro-oxidant cofactor that may be linked to atherosclerosis progression. Free iron catalyzes the generation of free radicals and free radicals promote the oxidation of lipids. Reduction of body iron stores secondary to blood donation has been hypothesized to reduce lipid peroxidation. The aim of this study was to evaluate the association between blood donation and antioxidant enzymes and lipid peroxidation product malondialdehyde (MDA). We investigated hemoglobin (Hb), serum ferritin, MDA level, glutathione peroxidase (GPX) and superoxide dismutase (SOD) activities in the whole blood of 150 male volunteer blood donors aged from 30 to 60 years attending Tehran Blood Transfusion Center. Subjects were divided into 5 groups according to the frequency of blood donation per year. With increasing the number of blood donation in a year, the body iron stores, GPX activities and serum MDA were significantly reduced ($P < 0.05$) but SOD was significantly increased ($P < 0.05$). High-frequency blood donors had evidence of decreased body iron stores, decreased lipid peroxidation and enhanced activity of antioxidant enzymes when compared with low-frequency donors

Keywords:

superoxide dismutase

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