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CRYOTHERAPY-INDUCED CHANGES IN LIPID PEROXIDATION AND ANTIOXIDANT ENZYMES ACTIVITIES IN PATIENTS WITH SPIN DEGENERATIVE DESEASES

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Using cold in theraphy has been known for many years and applied successfully in folk or natural medicine. In our times conventional medicine is looking for non-pharmacological methods to aid traditional theraphy. All alternative and natural treatments could be an effective way, in case of correct choise and systematic taking.

Cryotherapy is used in cooperation with pharmacological treatment, rehabilitation and biologic revitalization. The therapy is based on the applying cryonical temperatures (from –100°C to –160°C, 3 min) on the body surface for induction and use of the organism physiological reactions to cold. It includes 8–10 two-part treatments, one daily. Patients spend 3 minutes in cryogenical chamber and then are subjected to intensive kinesitheraphy, for about 20–30 minutes.

We determined the effect of cryotherapy on lipid peroxidation (TBARs) and activities antioxidant enzymes: catalase (CAT), peroxidase (GPx) and superoxide dismutase (SOD) in red blood cells of patients with spin degenerative deseases.

Changes in enzyme activity and lipid peroxidation were measured in 26 patients. Blood samples were taken before the first cryotherapy treatment and after 8 days of treatment (ACD was used for anticoagulation effect). All measerements were carried out on the next day.

Stock and Dormandy's method (1971) was used to determine the extent of lipid peroxidation. SOD activity was measured by adrenaline test (Misra, 1985), Bartosz's method (2003) was used in catalase activity determining and GPx activity was measured by the Rice-Evans's method (1991). There were no significant changes in catalase activity. Statistical significant decrease in activities of other antioxidant enzymes (GPx by about 40%, SOD by about 29%) was observed.