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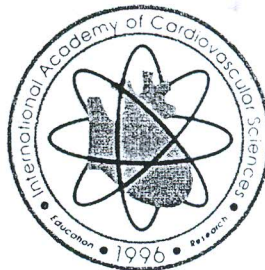
**„NUTRITION, TREATMENT AND  
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**ABSTRACT BOOK**

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## ANTIOXIDANT EFFECT OF COENZYME Q<sub>10</sub> AND VITAMIN E IN CADMIUM INDUCED ALTERATIONS OF ANTIOXIDANT DEFENSE SYSTEM IN THE RAT HEART

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Cadmium (Cd) is an ubiquitous, nonessential element that has recently raised concerns due to its accumulation in the environment. The toxicity of Cd as an industrial pollutant a food contaminant and as one of the major components in cigarette smoke has been well established. A number of nutrients have been shown to interact with Cd and alter its cellular effects. Several protective agents, including coenzyme Q<sub>10</sub> (CoQ<sub>10</sub>) and vitamin E (Vit E) play an important role in detoxification of endogenous and exogenous compounds. Our study investigated the possible protective effects of coenzyme Q<sub>10</sub> (CoQ<sub>10</sub>) and vitamin E (Vit E) alone or in combination against cadmium (Cd) induced alterations of antioxidant defense system in the rat heart. Male Wistar rats were injected with a single dose of CdCl<sub>2</sub> (0.4 mg Cd/kg i.p.), CoQ<sub>10</sub> (20 mg CoQ<sub>10</sub>/kg i.m.) and Vit E (20 IU Vit E/kg, i.m.), alone or in combination. Acute intoxication of rats with Cd were followed by significantly increased activity of antioxidant defense enzymes (CuZn SOD, GSH-Px, GST and GR), while the activity of Mn SOD was decreased in the heart. The treatment with Cd significantly decreased Vit C and Vit E concentrations. Treatment with CoQ<sub>10</sub>+Vit E reversed Cd-induced alterations in Vit C and Vit E concentrations. Our study suggests that the prooxidative effect of Cd is responsible for alterations in prooxidant-antioxidant balance in the heart. The obtained results support the assumption that CoQ<sub>10</sub> and Vit E functions cooperatively with endogenous antioxidants and diminished some toxic effects of Cd in rat hearts.