P 14 NEW FINDINGS ON BIO-NORMALIZER REDOX REGULATORY ACTIVITY IN CHERNOBYL VICTIMS WITH NEUROLOGICAL DISORDERS

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The people from Chernobyl area developed a number of neurological disorders including psycho-emotional instability, irritation, insomnia, headache attacks, and sometimes impairment of movement, muscular tonus, sexual drive, reflexes and tactile sensitivity. All neurological and psychological disorders are usually accompanied by a certain characteristic pattern of electroencephalography rhymes. The lack of inter- and intrahemisphere coherence was found in a vast majority of Chernobyl patients with disturbances of central nervous system. The molecular and cellular basis for the pathological changes in nervous system caused by low-level irradiation is thought to be an oxidant/antioxidant imbalance, which causes an impaired blood flow in the brain. According to results of chemical analyses, BN contains several components capable of penetrating the blood-brain barrier and normalizing the cerebral metabolism. On these grounds, it was suggested that BN could ameliorate oxidative stress directly in the brain. Moreover, the BN-induced normalization of NO production by circulating blood and endothelial cells would certainly lead to the appropriate regulation of blood flow in the cerebral vessels. Fifty male Chernobyl liquidators with clinically and instrumentally confirmed disorders in neurological status were enrolled in the clinical trial in an attempt to show clinical effects, if any, of BN (2 sachets a day for 1 month). The clinical laboratory examination of oxidative stress included analyses of luminol-dependent chemiluminescence, nitric oxide and superoxide production by circulating white blood cells, analyses of lipid peroxidation in plasma and GSH content as well as SOD and catalase activities in erythrocytes. The data provided a strong evidence of severe *in vivo* oxidative stress which intensity corresponded to the severity of clinical symptoms. As anticipated, BN treatment resulted in substantial balancing of oxidant/antioxidant disturbances found in Chernobyl subjects. The most spectacular example of improvement of free radical-mediated processes was a sharp decrease of lipid peroxidation and normalization of superoxide/nitric oxide ratio. The changes of redox state well correlated with positive clinical effects observed.