

Activation of Lipid Peroxidation in the Brain Is an Important Link in the Pathogenesis of Influenza. The Protective Effect of Antioxidants

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Experimental and clinical observations attest to the development of neurological disorders during influenza [A. A. Smorodintsev, 1984]. This may result from postinfection alterations in the function of the hypothalamo-hypophyseal-neurosecretory system [B. A. Frolov *et al.*, 1991].

We experimentally confirmed the pathogenetic significance of lipid peroxidation (LPO) in the brain of mice infected with influenza and its poststress aggravation [B. A. Frolov *et al.*, 1986; L. K. Chetverikova *et al.*, 1987, 1991]. Our results indicate the following:

1. Lethal influenza is accompanied by a noncompensatory activation of LPO both in the infection focus (the lungs) and in the brain of the mouse.

2. The level of LPO product accumulation in the lungs and in the brain reflects the severity of the infection.

3. Poststress aggravation of influenza is attended by additional activation of LPO in the brain.

4. LPO activation develops against the background of a compensatory growth in the activity of the endogenous antioxidant protective enzymes superoxide dismutase and catalase.

5. The use of preparations with antioxidant activity limits postinfection and poststress LPO activation and elicits preventive and therapeutic effects, lowering the death rate from influenza by 20-40%.

The role of LPO activation is discussed as one of the key molecular mechanisms in postinfection disorders of central regulation, the detoxication system, and the immune response, and the prospects of the use of antioxidants as metabolic correctors in the treatment of viral infections are considered.

A New Treatment of Epilepsy Resistant to Traditional Antiseizure Pharmacotherapy

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Numerous disorders of cerebral function are linked to circulation disturbances that lead to functional hypoxia and facilitate the activation of free-radical processes, which may contribute to the development of neuropathological syndromes. Proceeding from this, we attempted to use the novel antihypoxant with antioxidant activity olifen (developed by Yu. V. Medvedev, Institute of High-Purity biopreparations, St. Petersburg) in the treatment of severe epilepsy resistant to conventional therapies.

After the antiseizure activity of olifen had been confirmed in animal studies, the drug was given to epileptic patients. (At the present time, it is approved for clinical use as an antihypoxant.) The study included 180 patients.

Good and very good results were attained in 92% of the patients with a disease duration of 14.6 ± 1.8 years and seizure frequencies of 1 per week to 30 per day. In some patients (even in those who had been suffering from epilepsy since childhood) seizures disappeared altogether. In the group as a whole the frequencies of generalized and focal seizures decreased 5- and 2-fold, respectively. The mean duration of the seizures decreased 2-fold (in addition to EEG, we monitored blood rheology and coagulation, and pO). Treatment with olifen improved all the parameters.

It should be stressed that olifen offers the possibility of going over to monotherapy. Our results are encouraging for the treatment of severe epilepsy resistant to conventional therapies.

Lipid Peroxidation in Newborns from Various Ecological Zones

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The aim of this work was to study lipid peroxidation (LPO) in the erythrocytes of newborns from different ecological zones. LPO intensity was assessed by mea-

suring the malonic aldehyde (MA) concentration, percentage of MA binding, MA degradation, the MA degradation/MA content (D/MA) ratio, antioxidant activ-