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SEASONAL CHANGES OF THE CONTENT OF PRODUCTS OF FREE RADICAL OXIDATION OF LIPIDS AND PROTEINS IN RAT KIDNEYS

An important part of metabolic processes in the body providing adaptive response to the effect of geochemical and anthropogenic factors is enzymatic antioxidant system which controls pro- and antioxidant balance in the body. The state of this balance is characterized by the content of free radical oxidation products in tissues.

Processes of free radical oxidation of lipids and proteins in rat kidneys at different seasons of the year have been studied. The experiment was performed in winter – December, in spring – March, in summer – June, and in autumn – October.

Experiment was performed on non-linear albino male rats, 180±10 g of body weight. Animals were kept in vivarium at constant temperature and light conditions (according to the season).

The processes of lipid peroxidation were evaluated by the content of malonic aldehyde, the processes of free radical oxidation of proteins – by the content of aldehyde- and ketone derivatives of dinitrophenylhydrazine in postnuclear supernatants of rat kidneys.

Seasonal dependence of parameters of free radical oxidation of lipids and proteins in rat kidneys was established. The lowest level of oxidative processes was observed in summer, it raised in autumn-winter period reaching the highest values in spring.

We established that in natural spring equinox the content of malonic aldehyde and aldehyde- and ketone- derivatives of dinitrophenylhydrazine in kidneys of rats were the highest. These peculiarities of the processes of free radical oxidation at different seasons are probably related to changes in the activity of antioxidant system of rat kidneys as one of the adaptive mechanism to the influence of external factors on the body.