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THE EFFECT OF THYROID HORMONES ON THE INTENSITY OF LIPID PEROXIDATION IN STRESS

The excessive lipid peroxidation process activation under the influence of stressors leads to the lesion of biological membranes. The importance of iodine-containing thyroid hormones in the protection of cells from stress lesion has been proved. However, their influence on the activity of lipid peroxidation in emotional stress hasn't been studied enough.

The aim of work isto learn the influence of iodine-containing thyroid hormones on the intensity of lipid peroxidation in the liver and blood in stress.

The experiments were carried out on 42 outbred rat-mates, with body mass of 220-250 grams. It was found that in stress the level of diene conjugates increased by 35% and in the liver, the malonic dialdehyde level increased by 37%. The concentrations of diene conjugates and malonic dialdehyde in blood increased by 27% and 30%.

The introduction of mercazolil caused the decrease of the products of lipid peroxidation in blood and in the liver: diene conjugates level decresed by 12% and 14%, malonic dialdehyde level decreased by 22% and 26%. Exposing the hypothyroid rats to stress caused more significant increase of the level of lipid peroxidation products, than stressed euthyroid animals had. The concentration of diene conjugates increased by 45% and 50%, the malonic dialdehyde level increased by 41% and 35% in relation to the group «Mercazolil». The euthyroid rats' degree of growth of diene conjugates was 10% and 23% more, degree of growth of malonic dialdehyde was 4 and 5% more after stress as compared to the value of degree of growth of lipid peroxidation products.

The introduction of like small doses of L-thyroxin didn't change the concentration of the lipid peroxidation products in blood and liver, but its growth is substantially limited in stress. As compared to the group «L-thyroxin», the level of diene conjugates and malonic dialdehyde increased by 24% and 28% in the liver (i.e the degree of growth was 11 and 9% lower), and increased by 19% and 21% in blood (i.e. it was 8 and 9% lower). However, as compared to the same period of the experiment on the rats, which didn't receive L-thyroxin, the level of diene conjugates and malonic dialdehyde was17% and 12% lowerin the liver, and 11% and 8% lower in blood.

Emotional stress is characterized by the activation of lipid peroxidation in blood and liver. Experimental hypothyroidism per se oppresses lipid peroxidation, provokes its more significant activation in stress. L-thyroxin in small doses, per se doesn't influence the intensity of lipid peroxidation, limits its activation in stress. Thus, the possibility of realization of antioxidant activity of thyroid hormones in emotional stress has been proved.