INFLUENCE OF LEAD ACETATE ON LIPID PEROXIDATION IN THE PROCESS OF LIVER MITOCHONDRIAL MEMBRANE AND ITS CORRECTION WITH DHQ-11 CONJUGAT

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Significance:
Mitochondria placed in the cell are targets for heavy metals. Among them, Pb^{2+} ions have a negative impact on the functional system of mitochondria[4,5]. Under the influence of heavy metals, there is a violation of electron transport in the mitochondrial respiratory chain and an increase in the amount of ROS. Damage to the mitochondrial membrane caused by heavy metals can be repaired with plant substances. However, the effect of the DHQ-11 conjugate [3] based on the flavonoid dihydroquercetin separated from the Siberian cedar and the isoquinoline alkaloid F-18 on LPO induced by Pb^{2+}, Fe^{2+} and ADP in the liver mitochondrial membrane has not been investigated *in vitro* [4].

Objective: To determine the effect of DHQ-11 conjugate on rat liver mitochondrial membrane LPO.

Research methods. Experiments were carried out on 180-200 g purebred white male rats. Mitochondria were isolated from rat liver by differential centrifugation. Liver mitochondrial membrane LPO level was defined by polarographic method. Oxygen consumption was measured using a Mitocell S 200 microrespirometry system based on a Clark type oxygen electrode (Strathkelvin Instruments, Scotland). The incubation medium for mitochondrial membrane LPO detection was as follows: 175 mM KCl, 10 mM Tris-HCl, and 3 mkM rotenone, pH 7,4.

Results. In the experiment, oxygen consumption during membrane lipid peroxidation induced by ADP/Fe^{2+} and lead acetate in rat liver mitochondria was characterized by two-phase kinetics. At the same time, the stages of the lag-phase and rapid oxygen consumption are distinguished carefully. In our experiment, oxygen consumption by mitochondria was 4.38 mkg, 4.22 mkg, 3.65 mkg for 5 minutes under the influence of the DHQ-11 conjugate on the

LPO process of the mitochondrial membrane of the liver at concentrations of 3, 5, 10, 20, and 30 mkM. 1.98 mkg, 1.39 mkg. atomic O_2/min. was defined that it turned out.

Based on the results obtained, a conclusion can be drawn; a concentration of 30 mkM of the DHQ-11 conjugate had a strong inhibitory effect on the lipid peroxidation of the mitochondrial membrane.

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