

Ultrastructural characteristics of the mitochondria in experimental myocardial ischemia

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Summary. In this investigation, on the model of isolated rat heart mitochondria studied ultrastructural reorganization and established precondensation action of sevoflurane. The study involved 47 white rats of Wistar, with a mass of $234,00 \pm 2,64$ g, at the age of 5-6 months. Group I consisted of 20 individuals with artificial chemical diabetes treated with glybenclamid. Group II (27 individuals) was a control group. Ischemia was modeled after 30-minutes of sevofluran anesthesia and composed $20,4 \pm 0,30$ minutes in both groups. As a result of the research it has been noted that the percent of structurally altered mitochondria in subsarcolemmal and intramiofibrillar subpopulations in group II was accordingly on $60,6 \pm 2,1\%$ and on $67,1 \pm 3,4\%$ less, in relation to the changes in group I. At the same time, the average diameter of the mitochondria in animals of group II was lower than those values observed in the first group, both in subsarcolemmal and in intramiofibrillar subpopulations, accordingly $21,65 \pm 1,3\%$ and $28,57 \pm 1,12\%$. Thus, the cardioprotective effect of sevoflurane, is a powerful mechanism of anti-ischemic action, the point of application of which are both of mitochondrial subsarcolemmal subpopulation and intramiofibrillar mitochondrial subpopulation.

Key words: experimental diabetes mellitus, mitochondria, preconditioning.

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