MORPHOLOGICAL CHANGES IN THE MITOCHONDRIA OF CELLS OF TRABECULAR ZONE IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA

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PURPOSE: to study the ultrastructure of mitochondria of cells of trabecular zone in patients with primary open-angle glaucoma.

METHODS: We study the state of the mitochondria of cells of trabecular zone in 10 patients with POAG at stages III and IV disease. Used trabecular-ectomy zone, obtained during the deep sclerectomy of patients with POAG. The study of ultrastructure of mitochondria was carried out in endothelial cells and fibroblasts with the electron microscope. As a result, viewed more than 60 slices.

RESULTS: We have reviewed the trabecular zone endothelial cells, and fibroblasts of connective tissue, which showed slightly increased in size to the optically dense mitochondrial matrix. Christa mitochondria were shortened and reduced. In isolated mitochondria observed phenomena of degeneration and destruction. All registered structural changes of mitochondria were in varying degrees of severity. In the connective tissue of the fibrocytes predominate, surrounded by bundles of collagen fibers of various structures. The contours of the mitochondria of cells fibroblastic some wavy, distorted cristae. The outer chamber of mitochondria is light, looks optically empty. In fine-grained matrix is determined by a substance of high electron density. In some fibroblasts with severe degenerative changes occurred abruptly swollen mitochondria. They were visible vacuoles and fragments of cristae, located near the membrane. Matrix cavity greatly enlightened. In the endothelium, changes in mitochondria were less pronounced than in the cells of fibroblastic series. Observed fragmentation of the cristae of mitochondria. In the interior of the mitochondria was also determined endothelial Fine material, the higher electron density.

CONCLUSIONS: We have identified changes in the structure of the mitochondria of trabecular zone in patients with POAG. This can lead to mitochondrial dysfunction as a structure responsible for the energetic processes in the cell. Modest reductions in bio-energy cells can not manifest itself as an independent disease, but the effect on the character of the flow such as primary open-angle glaucoma.