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Structural changes in the liver of animals infected with HSV-I and under the conditions of hemorrhagic stroke and anti-viral correction

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BACKGROUND: Herpes simplex virus (HSV) is induced by acute stroke because of immune deficiency and is a common complication of this disease. There are a lot of antiviral drugs with different mechanisms of action nowadays. The selection of a drug suitable for a particular patient with certain symptoms is still an important task.

The aim of the work is to study the histological changes of the liver against a background of hemorrhagic stroke and HSV-1 with the following Altabor correction.

METHODS: The study was conducted on laboratory mice of the Balb /c lineage, an average weight of 18-20 g. Mice were infected with HSV-1 and experimental stroke was simulated [Hara Y. et al; Joshi P.]. Animals were divided into 3 groups, 10 animals each: group 1 – intact mice, group 2– HSV-1 with hemorrhagic stroke, group 3 – HSV-1 with hemorrhagic stroke and Altabor company "Borshagivskyi KhFZ". Animals of group 3 have been treated with 5 mg/ kg of Altabor intraperitoneally once a day for 10 days. Liver samples of

experimental animals were subjected to morphological and morphometrical study. State of the blood vessels of the liver, changes in hepatocytes, the presence and density of leukocyte infiltrates have been studied. The morphometric analysis was performed using the Olympus BX 51 microscope and the Carl Zeiss software (Axio Vision SE64 Rel.4.9.1). Statistical processing was performed through nonparametric criterion of Kruskal-Wallis.

RESULTS: A tendency to decrease the structural changes of the microcirculatory system of the hepatic lobules and infiltration of mononuclear leukocytes relative to the comparison group without pharma cocreation was revealed in the group with Altabor. Focal foci of inflammation were also detected with the same frequency (40.0% on day 10 and 47.1% on day 30). Diffuse infiltration of macrophages and lymphocytes on day 30 dominated over other manifestations of the inflammatory response (detected in 20.0% on day 10 and 76.5% on day 30). Particular hypertrophy of the hepatocyte nucleus slightly prevailed over lysis and hepatocyte dystrophy: 60% vs. 40% at 10 days and 70.6% vs. 47.1% respectively. A statistically significant change in liver structure was found in the experimental group with Altabor ($P < 0.05$) according to the nonparametric Kruskal-Wallis test. The presence of specific and nonspecific changes in the liver was revealed in groups with Altabor pharmaco

correction. The tendency to decrease development of the inflammatory reaction, foci of diffuse infiltration and focal infiltrates was revealed. The decrease of lysis of hepatocytes and number of cells with atypical nuclei is an indirect manifestation of an infectious organ damage decreasing. An increasing number of cells with preserved nucleus and cytoplasm, nuclear hypertrophy can be assessed as a manifestation of functional cell activation.

CONCLUSION: Thus, histological methods indirectly make it possible to assess the consequences of the infectious process, the qualitative and quantitative changes in the affected organ and to make conclusions about the probable causes of regenerative processes activation. Hence, under the influence of Altabor there is a partial reduction in pathomorphological signs of the structural changes in the liver of animals with reactivation of HSV-I in stroke.