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NEUROMORPHOLOGIC AND NEUROCHEMICAL REGULARITIES OF PRENATAL EXPOSURE OF DEVELOPING HUMAN BRAIN TO ALCOHOL

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Objective: To identify neuromorphologic and neurochemical patterns of prenatal exposure to alcohol of developing brain of man as risk factor for development of mental pathology in offspring of mothers with alcoholism.

Methods: We studied brains of embryos and fetuses (7-12 weeks). There were obtained 53 embryos: 23 - from alcoholics and 30 - from healthy women. Age of patients was 26-39 years, disease duration - from 3 to 13 years. All cases were diagnosed with stage II alcoholism (F 10.201; F 10.202). To evaluate the properties of benzodiazepine receptors in brains of embryos sinaptoneurosomas we used method of radio receptor binding of selective ligand <sup>3</sup>H-flyunitrazepame.

Results: Damage to cytoplasmic membrane and internal cell membrane systems, emergence and subsequent transformation of different types of spherical formations in perinuclear space, variety of options of mitochondria as a normal structure, and with signs of functional and structural pathology, increased development of Golgi complex, appearance of lipofuscin, multi-vesicular cells and myelin formation, delay of development of synaptic contacts of vesicular type, manifested in decreasing length of postsynaptic density of synaptic contacts, reducing area and perimeter of presynaptic terminals in main study group, changing nature of vascularization of brain tissue, what was expressed in reduction of average area of vessels, an increase in their number per unit of area and reducing perimeter of brain.

Conclusion: We have found that alcoholism during pregnancy results in decrease of affinity of synaptosomal receptors of brains of embryos. This may affect overall neurotransmitter processes in brain.