

DISTRIBUTION OF THE GABA_{B1} SUBUNIT OF THE RECEPTOR TO GABA IN DIFFERENT LAYERS OF RAT NEOCORTEX IN THE REMOTE TIMES AFTER PERINATAL HYPOXIAS

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The study of distribution of GABA_{B1} subunit of GABA_B receptor in different layers of rats neocortex in remote post-natal times after perinatal hypoxias was the object of the present work. In this work, we used models of preterm pregnancy in humans and effect of hypoxia in the neonatal period as generally accepted and widely used models for studying the effects of brain damage in the early period of development. The GABA_{B1} subunit in the neurons and neuropil of the sensorimotor region of the neocortex was detected by an immunohistochemical reaction. It has been revealed that in the control rats which have reached sexually mature of age, the level of GABA_{B1} subunit differs in different layers of neocortex. In upper layers II–IV and deep layer VI of the neocortex as in neurones and neuropil, the high level of the GABA_{B1} subunit is present. However, the level of GABA_{B1} subunit in deep layer V was found to be more low. At the rats which had experienced the influence of sharp perinatal hypoxia, significant decrease (in 2 times) was revealed in the level of GABA_{B1} subunit in comparison with control values in neurones of all layers of the neocortex. As result, perinatal the hypoxia can invoke change of the state of neurones expressing GABA_{B1}, and consequences of these changes can be remained at mature animals. Reduction of inhibitory transmission GABA, increase of quantity released glutamate, enhancing excitation and increasing neurotoxicity might be a consequence of the decrease in the level of GABA_{B1} subunit. The present research is directed to revealing of the target of influence perinatal to a hypoxia, and the received results will promote searching for new means that are necessary for liquidation of consequences of a sharp hypoxia in the neonatal period.

Keywords: GABA_{B1} subunit, receptors, neocortex, perinatal hypoxia