Structural and functional changes in the hippocampus when carrying out halothane anesthesia and sham surgery in combination with endogenous bioresonance therapy in experiment

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The study of the state of the stress-limiting systems of the body, after anesthesia and surgery, are the most relevant at the present time, since it is known that suppression or activation of these systems can become a powerful factor contributing to the development of postoperative complications. The main stress of compensatory reactions, as you know, falls in the first phase of the postoperative period, a number of factors of which (aftereffect of inhalation drugs for anesthesia, pain, the effect of a surgical wound) have a direct impact on the compensatory mechanisms of the patient's body (Selye G., 1960; Bodrov V. A., 2000; Kuznetsova B.A., 2000).

Purpose of the study: study of the effect of endogenous bioresonance therapy on the process of normalization of the morphofunctional activity of the hippocampus during halothane anesthesia and sham surgery in the experiment.

Objects and methods of research Material of research: brain tissue of white rats (n = 120). The animals were divided into three groups: 1. Control group - intact animals; 2. The first experimental group - adult white rats after a sham operation, under conditions of halothane anesthesia; 3. The second experimental group - adult white rats after a sham operation, under conditions of halothane anesthesia and BRT sessions in dynamics. Research methods: a) assessment of the histoarchitectonics of brain tissue on paraffin sections - staining with hematoxylin-eosin; b) immunohistochemical assessment of GABA and GAD65 / 67 positive cells in the brain tissue; c) the method of endogenous bioresonance therapy (BRT).

results

As a result of the studies, it was found that the action of the inhalation anesthetic, halothane, causes a decrease in GAD 65/67 positive cells in the CA1 and CA3 fields of the rat hippocampus. The negative effect of halothane is primarily manifested in relation to the neurons of the CA3 field. BRT sessions have a positive effect on the process of normalization of the morphofunctional activity of neurons in the CA1 and CA3 fields of the hippocampus of white rats after sham surgery under conditions of halothane anesthesia. The process of normalization of the morphofunctional activity of neurons in the hippocampus of white rats, which is more pronounced in the CA1 field, after BRT sessions, is partially manifested already 24 hours after the operation. The positive effect of BRT sessions, which is expressed in the restoration of the number of GAD 65/67 positive

cells in the hippocampus of adult rats is reached on the seventh day (168 hours) after sham surgery under conditions of halothane anesthesia. Different sensitivity to BRT sessions of pyramidal neurons of the hippocampus of the left and right hemispheres was established. In contrast to the CA3 field, BRT sessions after 168 h stimulate an increase in the number of GAD 65/67 positive cells in the CA1 field. The results obtained give the right to assert that several BRT sessions (n = 5) contribute to the restoration of the number of GAD 65/67 positive cells in the hippocampus of adult rats on the seventh day (168 hours), after a sham operation under conditions of halothane anesthesia, while under conditions only halothane anesthesia without the use of BRT, by the seventh day, the restoration of the number of these cells has not yet been noted.

Conclusions: bioresonance therapy has a corrective effect on the structural and functional changes in the hippocampus that occur during halothane anesthesia and sham surgery in the experiment.

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