CHANGES IN THE LEVEL OF THE MIDDLE WEIGHT MOLECULES IN THE BLOOD SERUM AND HOMOGENATE OF THE NERVOUS TISSUE OF LABORATORY ANIMALS WITH EXPERIMENTAL HYPERINSULINEMIA IMPACT

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This article reflects the influence of hyperinsulinemic state on the body and the importance of its studying in diagnosing of biochemical changes in the acquired metabolic disorder. The indicator of average mass molecules characterizing the level of exposure of excessive doses of insulin to the blood and nervous tissue of laboratory animals is analyzed. It was found that experimental hyperisulinemia causes a metabolic rearrangement in the animal tissues studied, which leads to a significant change in the level of molecules of the average mass of different degrees.

The study used the following biological material: blood serum and a homogenate of nerve tissue. Laboratory animals were distributed four groups: control (intact) group; group 1 – laboratory animals exposed to a single exposure to insulin shock (1 time per

day, 1 day); group 2 – laboratory rats exposed to twice exposure to insulin shock (1 time per day, 2 days); group 3 – laboratory rats exposed to triple exposure to insulin shock (1 time per day, 3 days).

The rats of test groups were injected subcutaneously with 3,5 units of insulin The presence of development of hypoglycemic coma was determined by the appearance of convulsions, for cupping the coma, 3.5 ml of a 20 % solution of glucose were injected intraperitoneally.

In the experiment, there was a decrease of MWM concentration in the blood serum of laboratory animals of the 1st and 2nd experimental groups in strains with intact. It probably associated with the stressful nature of hyperinsulinemia and compensates for changes in the body by involving this kind of compounds in metabolic processes with their further transformation in various metabolic units.

On the third day of the experiment, an increase in average weight molecules in this tissue of laboratory animals was detected. Based on data from literature sources, one of the hypotheses of a registered change can be put forward as follows: this kind of increase in the level of average mass molecules in blood serum is possibly associated with the restoration of the pool of substances, some of which, in the view of numerous authors, have the properties of bioregulators that fit in In the expanding concept of the bioregulatory role of MWM in the body.

Analysis of the effect of experimental hyperinsulinemia on the organism of laboratory animals leads to a change in the level of MWM in the nervous tissue. Nevertheless, it is shown that this tissue shows greater resistance to this kind of action, in comparison with blood serum.

In general, hyperinsulinemia, both in the blood and in the nervous tissue, leads to a significant (in a previously noted number of cases) reduction in the level of MWM. In this case, if in the blood serum the decline develops within 1 and 2 exposures, and only between 2 and 3, compensation begins, then in the neural tissue, compensation occurs after the 1st.

Since the body in principle seeks to compensate for the stressful effects of hyperinsulinemia, the reduction in the level of MWM naturally allows one to point out that, first, their participation in this compensation as a whole, and secondly, the expense nature of such participation.

The foregoing allows us to propose the following hypothesis. A portion of MWM can serve as a source of osmotically active oligopeptides whose level fluctuations compensate for changes in osmotic blood pressure resulting from active glucose uptake.

From this point of view, a decrease in the level of MWM should reflect the work of the osmotic blood pressure monitoring mechanism. The apparent approximation of their content to the control group during the experiment can be explained as a compensatory increase in the level of MWM by a long-strained organism in anticipation of another insulin shock, that is, the so-called "anticipatory" (preliminary) compensation.

***Keywords*:** нyperisulinemia, middle-weight molecules (MWM), blood serum, nerve tissue homogenate.

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