

DYNAMICS OF LEVEL OF GLYCOSYLATED HEMOGLOBIN IN BLOOD OF RATS WITH EXPERIMENTAL DIABETES MELLITUS TYPE 2

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It is known that the main criteria for compensation of diabetes mellitus (DM) are fasting glucose, postprandial blood glucose and glycosylated hemoglobin (HbA1c). In this case, one of the main risk markers for development and progression of long-term complications of diabetes is glycosylated hemoglobin (HbA1c).

Glycosylated hemoglobin is a compound of hemoglobin with glucose which is formed in a result of nonenzymatic chemical reaction of hemoglobin A, contained in erythrocytes, with blood glucose. Glycosylated hemoglobin reflects glycemia over an extended period of time (1-2 months) - average half life of red blood cells. HbA1c concentration is directly proportional to the mean blood glucose concentration in healthy people and is equal to 4.6% of the total hemoglobin. In diabetic patients this index can be 2-3 times higher.

The aim of this work was to study the dynamics of the concentration of HbA1c in rats on a background of experimental DM type 2 in different periods of observation.

Diabetes reproduced by intraperitoneal administration to rats with streptozotocin (Sigma, USA) at a dose of 65 mg/kg against the background of protective effect of nicotinamide. Blood glucose was determined by glucose oxidase method, content HbA1c - colorimetric method. And it was expressed as a percentage from total hemoglobin. Testing was performed on the 7th, 15th and 30th day after the administration of streptozotocin.

As a result of the study it was found a significant breach of carbohydrate metabolism. As evidence of this was increase in basal glycemia on the 7th day of the experiment by 2.7 times comparing with intact animals. Settled state of moderate hyperglycemia persisted throughout the experiment. On the 7th day, HbA1c levels did not differ from that of intact rats. On the second term of test was observed only a slight tendency to increase the concentration of HbA1c by 14%. However, on the 30th day of research on the background of a stable level of glucose there was a significant rise in HbA1c content in the blood by 76% that reflected a prolonged state of hyperglycemia.

Thus, elevated level of the end product of HbA1c glycation on model of DM type 2 induced by streptozotocin, was directly proportional to the glucose content in the blood of rats and was found already on the 30th day of the experiment.