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EFFECTIVE CARE OF EXPERIMENTAL DIABETES DEPENDS ON REGULAR MONITORING OF GLUCOSE AND GLYCATED HEMOGLOBIN LEVELS

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The link between glycemic control and the risk of developing microvascular complications in diabetes mellitus is well-documented in both domestic and foreign literature. The level of glucose and glycated hemoglobin (HbA1c) serves as the sole indicator of carbohydrate metabolism compensation, reflecting the quality of treatment and the likelihood of long-term complications in diabetes mellitus. Consequently, diabetes specialists worldwide emphasize the importance of regular HbA1c assessments, typically recommended to be conducted four times a year. Similarly, Uzbekistan also imposes the same frequency requirements for research.

Key terms: diabetes mellitus, glycated hemoglobin, glucose, diagnosis, therapy, experiment, experimental research.

Material and methods: Is to investigate changes in serum and urine glucose levels, as well as glycated hemoglobin levels in experimental diabetes mellitus.

The study's materials and methods included 72 outbred white rats, which were divided into 2 groups: 12 intact individuals and 60 experimental individuals.

In the experimental modeling of diabetes in animals, alloxan monohydrate was administered intraperitoneally in a single dose of 130 mg/kg, dissolved in 0.9% saline solution. The dosage for the experiment was selected with care to prevent excessive damage to the pancreatic tissue.

Experimental Study of Diabetes: Serum Glucose Levels and Disease Progression

The experimental study of diabetes included a series of experiments lasting 30, 60, 90, and 120 days.

Results:

Research showed that in the control (intact) group, the glucose level was 4.7±0.24 mmol/L, with reference values of 3.3–6.1 mmol/L. In contrast, in the experimental groups, the baseline glucose values were 4.1±0.09 mmol/L. By the 30th day of the experiment, glucose levels had increased to 7.1±0.07 mmol/L, indicating a successful induction of the diabetic state.

Changes in serum glucose concentration were observed throughout the study, with notable increases on the 60th, 90th, and 120th days. These increases were statistically significant, with glucose concentrations rising 2.4, 2.5, and 3.2 times, respectively, compared to the start of the experiment. These findings confirm the development of diabetes when comparing data with the control group of test animals.

Thus, information on serum glucose levels in experimental diabetes provides valuable insights into the progression of the disease.

To investigate the relationship between blood glucose levels and the corresponding glucose concentration in urine, we deemed it necessary to include this test in our experiment. The results showed that both the intact group and the experimental group before the induction of diabetes initially had negative test results for glucose in urine. By the 30th day of the experiment, 16 test animals showed positive results. This number increased to 23 out of 44 animals by later stages of the experiment, consistent with the data on changes in blood glucose concentrations throughout the study.

Conclusion

It should be noted that information on serum glucose levels in experimental diabetes provides valuable insights into the progression of the disease. Our experiment effectively confirmed and provided important data on the relationship between blood glucose levels and their corresponding response in urine glucose levels.

It is essential to emphasize that early detection of prediabetic conditions through monitoring glycated hemoglobin levels plays a critical role in preventing the progression of type 2 diabetes.