

RELATIONSHIP BETWEEN CHANGES IN BODY COMPOSITION AND ORCHIDOMETRY PARAMETERS WITH GLYCEMIC CONTROL IN CHILDREN WITH TYPE 1 DIABETES.

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Purpose of the research. Study the relationship between changes in body composition and orchidometry parameters with glycemic control in children with type 1 diabetes mellitus.

Materials and methods of research. To perform the work, the results of bioimpedance analysis of body composition and testiculometry were studied in 112 boys aged 7-17 years with type 1 diabetes mellitus, under observation at the Bukhara branch of the RSSPMCE. To study carbohydrate metabolism indicators in 112 children with type 1 diabetes mellitus, data from the history of the disease (glycosylated hemoglobin level, duration of the disease) from the archives of the Bukhara branch of the RSSPMCE and their relationship with bioimpedancetric indicators were analyzed.

Results of the study. Type 1 diabetes, which begins mainly in childhood, leads to serious metabolic disorders. The level of glycemic indicators influences changes in body composition, including bone and muscle mass, adipose tissue, and the overall state of nutrition. In children with DM1, muscle mass at $HbA1c \leq 9.0\%$ averaged 18.5 ± 0.4 kg, at $HbA1c > 9.0\%$ - 15.9 ± 0.3 kg, with a difference of 2.6 kg (14%). With an increase in the level of glycosylated hemoglobin, an increase in muscle mass deficiency was observed ($p < 0.05$).

Bone mass in children with $HbA1c > 9.0\%$ was 0.6 kg (17%) lower than in children with $HbA1c \leq 9.0\%$. Without fat mass in children with $HbA1c > 9.0\%$ was 3.7 kg (14%) lower, water content - by 3.5%, protein - by 8%, skeletal muscle - by 6.5%. At the same time, the proportion of adipose tissue was 18% higher.

In children with $HbA1c \leq 9\%$, the testicular volume was lower than in healthy individuals (6% for the right and 7% for the left), indicating the influence of diabetes on testicular development even with controlled glycemia levels. In children with $HbA1c > 9\%$, the decrease in testicular volume was more pronounced (by 24% for the right and 21% for the left), which confirms the negative impact of poorly controlled diabetes. The left testicle, on average, lagged behind more strongly, which may be related to its anatomical and vascular features.

Conclusion. Changes in body composition in children with type 1 DM significantly depend on the level of glycemia. At $HbA1c > 9.0\%$, changes in all body composition parameters are almost twice as high as at $HbA1c \leq 9.0\%$. At the same time, the developmental delay in testes is 7% with $HbA1c \leq 9.0\%$ and 21% with $HbA1c > 9.0\%$. Elevated $HbA1c$ levels negatively affect testicular development.