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Remote monitoring for the diabetes mellitus type 1 as an effective tool to improve disease compensation

Koshmeleva M.V.
Siberian State Medical University, Russia

Actuality: On an outpatient visit, it is not always possible to fully appreciate the variability of glycemia and its indexes, and also to make a careful correction of insulin therapy because of the lack of time for the doctor. Increasing the effectiveness of medical care and the improving the compensation of diabetes mellitus can be achieved through the introduction of remote monitoring. The use of remote technologies is a very topical direction in monitoring patients with diabetes mellitus type 1.

Objective: To evaluate the clinical and metabolic efficiency of remote monitoring of the children and adolescents with diabetes mellitus type 1 Materials and methods: The study included 80 patients with diabetes mellitus type 1, aged 8-18 years (12.6 ± 2.8), who were divided into 2 groups: 1 - patients receiving pump insulin therapy with a remote monitoring (40 people). The second group includes patients receiving therapy in the basal-bolus regimen (40 people). All patients were comparable in age and sex. The first group patients remotely transmitted data on self-monitoring, insulin therapy and diet to the doctor for recommendations, using the program CareLink iPro-2, Guardian (Medtronic, USA). Patients from the second group were visiting a doctor at their place of residence. All patients done analysis of glycated hemoglobin (HbA1c). Using the EasyGV calculator [https://www.phc.ox.ac.uk/research/technology-outputs/easygv], the following indexes were determined: standard deviation (SD), long-term glycemic index (CONGA), hypoglycemia risk index (LBGI), hyperglycemia risk index (HBGI), the average amplitude of glycemic fluctuation (MAGE), M-value. The statistical processing of the results was carried out using the IBM SPSS Statistics 20.0.0 program. For abnormally distributed parameters, we calculated the quartiles (Me, Q1-Q3). The significance of the differences was evaluated according to the Mann-Whitney U test. Significant differences were considered when $p < 0.05$.

Conclusions: Remote monitoring of patients with diabetes mellitus type 1 is an effective method of observation and leads to a decrease in the variability of glycemia and improvement of disease compensation.