

TYPE 2 DIABETES: TIME TO CHANGE THE CONCEPT

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Abstract. *Diabetes mellitus (DM) as a concomitant disease with COVID-19 is considered as one of the significant risk factors for the development of adverse outcomes due to a more severe course of infection in conditions of hyperglycemia and other aggravating factors in these patients, such as older age, obesity, and a high incidence of comorbidities (hypertension, cardiovascular disease).*

Keywords: *Diabetes mellitus, disease, COVID-19, hyperglycemia, hypertension.*

Acuteness. World and domestic data indicate a higher mortality in patients with diabetes mellitus (DM) due to COVID-19, which determines the high relevance of the analysis of risk factors for adverse disease outcomes in DM to justify the tactics of managing this category of patients. [1,3,8] On March 11, 2020, the World Health Organization (WHO) declared a global pandemic of the new coronavirus infection COVID-19, which has now affected 187 countries around the world. In the Republic of Uzbekistan (RUz), as of June 8, 2020, more than 2.1 thousand confirmed cases of COVID-19 were officially recorded in 85 regions of the country, of which 737 were fatal [4,5,6]. The proportion of DM patients among those with COVID-19 ranges from 16.2% in China [10,11] to 25% in Uzbekistan [7,8,9]. At the same time, despite the steady increase in the number of publications devoted to the analysis of various risk factors for the severe course of COVID-19 in DM and its complications, the number of controversies regarding the tactics of managing this category of patients is progressively increasing, which is facilitated by the small size and heterogeneity of samples in studies. as well as high speed of information analysis. [12,13,14] Thus, verified data on the effect of various classes of hypoglycemic drugs on the outcomes of COVID-19 in DM are currently practically absent [1,2,15,16]. The fundamental issue of canceling or continuing organoprotective therapy with drugs that block the renin-angiotensin system (RAS), namely angiotensin-converting enzyme inhibitors (ACE inhibitors) or angiotensin II receptor blockers (ARBs) remains unresolved [1,3,17].

Target: To evaluate the features of heart rate variability (as a predictor of increased sudden cardiovascular mortality from arrhythmias) against the background of episodes of mild to moderate hypoglycemia.

Materials and research methods. Joint glycemetic monitoring (CGMS) and Holter monitoring were performed in 60 patients diagnosed with type 2 diabetes mellitus (DM2) (mean age of patients - 63 ± 7 years, disease duration - from 1 to 15 years)

Research results. Patients with DM2 showed a decrease in heart rate variability LF (321.8 ± 346.7 vs. 602.3 ± 528.2 ms²) ($p=0.05$), HF (108 ± 105.1 vs. 370 ± 450 ; $p=0.01$). Against the background of hyperglycemia, there was a significantly significant decrease in the low-frequency component of HRV (250.2 ± 154.2 versus 426.2 ± 154.2 ms²; $p=0.03$). Against the background of hypoglycemia, there was a decrease in the high-frequency component of HRV in patients with a history of hypoglycemia 120.7 ± 71.9 ms² against the background of hypoglycemia versus

254.48±170.4 ms² against the background of normoglycemia (p=0.09). Patients without hypoglycemia showed a more pronounced decrease in HRV HF (89±94 versus 329±263 ms²; p=0.03).

In patients with DM2, a decrease in the level of the daily arterial pressure index was revealed: SI SBP (3.43±0.7 vs. 15.5±0.8 in healthy people), SI DBP (4.3±0.9 vs. 13.14± 1.3 in healthy people). Blood pressure variability is significantly increased in patients with DM: ST SBP (day) 17.1±0.5 versus 8.2±0.5 (p<0.05); ST DBP (day) 13.4±1.3 versus 9.3±0.4 (p<0.05); ST SBP (night) 15.0±0.5 vs. 7.2±0.8 (p=0.05); ST DBP (night) 13.1±0.4 versus 8.6±0.7 (p<0.01). 79.5% of the studied patients had a distorted circadian rhythm of blood pressure.

Conclusions. Patients with DM2 in combination with coronary heart disease and arterial hypertension are characterized by a decrease in heart rate variability and a violation of the daily blood pressure profile, which together increase the risk of acute cardiovascular complications. Hyperglycemia further increases these risks, as indicated by a decrease in HRV scores. Patients with type 2 diabetes without previous hypoglycemia have a history of a sharp decrease in heart rate variability in response to the onset of hypoglycemia with severe symptoms, which is dangerous for the development of life-threatening arrhythmias, but is preventable by medication. In patients with type 2 diabetes and frequent hypoglycemia in history, there were no changes in heart rate variability in response to the onset of hypoglycemia due to a decrease in the sympathoadrenal response,

Clinical recommendation. We recommend that patients with diabetes have regular glycemetic control, diet and regular physical activity. Since physical activity lowers glycemia much better than a hypoglycemic drug.

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