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## Therapy

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### **DIABETES UNDERDIAGNOSIS OF PATIENTS WITH CARDIAC PATHOLOGY**

Diabetes is one of the biggest causes of morbidity and mortality in developed countries. When combined with hypertension, coronary artery disease and dyslipidemia, diabetes can significantly increase the risk of cardiovascular complications, deteriorate the prognosis of the disease and reduce the response to drug therapy. Therefore, glucose level control is extremely important for patients with cardiac diseases.

Glycosylated hemoglobin (HbA<sub>1c</sub>) is widely used for the diabetes diagnosis, as well as a marker of glycemic control. It is a specific compound of hemoglobin with glucose, which reflects the average concentration of glucose in the blood over erythrocyte period of life (about 120 days). The biggest influence on the content of HbA<sub>1c</sub> within this time is provided by blood glucose level over the last 30 days, when about half of the HbA<sub>1c</sub> is formed.

Today this index is known as a golden standard for blood glucose level assessment and efficiency of its correction and treatment of diabetes which, according to orders, is given without exception to all patients with diabetes of 1-st and 2-nd type up to 4 times a year.

However, this method has not turned out to be rather reliable. Anemia, abnormal hemolysis, frequent bleeding, sickle cell anemia, adrenal insufficiency, overdose hypoglycemic drugs, prolonged intense exercising, prolonged low-carb diet, a rare genetic disease (Hers' disease, von Gierke's disease, Forbes's disease, hereditary fructose intolerance, thalassemia), insulinoma, elevated levels of urea, receiving ranolazine – all of that may be the reasons for low levels of glycosylated hemoglobin.

A very forcible fact is that among all of the diabetic patients there were patients whose hemoglobin has a different capacity for glycosylation. Due to that, the desire to achieve once again the same final HbA<sub>1c</sub> level within all patients can lead to growth of hypoglycemia and pseudonormalization of glycemia.

The study held by the NHANES (the National Health and Nutrition Examination Survey) involving 5395 patients has shown that in cases where there was a pre-diabetes (reference values HbA<sub>1c</sub> = 5,7-6,4%), the confidence level was 35,1%, while the diabetes (HbA<sub>1c</sub> ≥ 6,5%) accuracy of the method was considerably lower – only 24,9% (Guo F. et al, 2014.).

Carrying out an additional glucose-tolerance test or analysis for fructosamine that reflects the level of glucose for the last 2-3 weeks and does not depend on the level of hemoglobin in the blood can improve general reliability of the diagnosis.

Consequently, the possibility of diabetes underdiagnosis can't be excluded only by relying solely on the results of HbA<sub>1c</sub>. This, in turn, may lead to faulty hypoglycemic therapy prescription.