



Features of the Course of Type 2 Diabetes Mellitus in Combination with Arterial Hypertension and Ways to Correct Them

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ABSTRACT

Arterial hypertension (AH) is a powerful and modifiable risk factor for the development of macrovascular and microvascular complications of diabetes mellitus (DM). [1,2,4,5] Patients with hypertension and diabetes belong to the group of high and very high risk of developing cardiovascular complications and chronic kidney disease. [3,6,7,9] The combination of type 2 diabetes and hypertension dramatically increases the risk of developing end-stage microvascular and macrovascular diabetic complications: blindness, end-stage chronic kidney disease, lower limb amputation, myocardial infarction, cerebral stroke, and worsens the prognosis and quality of life of patients.

Keywords:

Hypertension, diabetes

Introduction. Arterial hypertension (AH) is a powerful and modifiable risk factor for the development of macrovascular and microvascular complications of diabetes mellitus (DM). [1,2,4,5] Patients with hypertension and diabetes belong to the group of high and very high risk of developing cardiovascular complications and chronic kidney disease. [3,6,7,9] The combination of type 2 diabetes and hypertension dramatically increases the risk of developing end-stage microvascular and macrovascular diabetic complications: blindness, end-stage chronic kidney disease, lower limb amputation, myocardial infarction, cerebral stroke, and worsens the prognosis and quality of life of patients. [8,10,11]

Material and methods:

It has been researched 60 patients with type 2 diabetes mellitus, including men (38), women (22), middle age (45-55). The first group (30) included patients with DM without concomitant hypertension as a control and comparison. The

second group – (30) included patients DM with type 2 with arterial hypertension of 1-2 degrees of severity as a control and comparison. The severity in patients of group 1 was determined by the level of glucose on empty stomach (8.9) and the level of glycated hemoglobin (7.5). In patients of group 2, when blood pressure increased, an increase in glomerular filtration was detected and a correlation dependence of blood pressure was 140/100, the level of glomerular filtration increased to 140-150, which indicated nephropathy on the background of hyperglycemia. The duration of DM was 1-10 years, and the duration of hypertension was 1-8 years. The biochemical study included assessment of total blood count, urine, fasting glycemia, glycemic profile, determination of glycosylated hemoglobin, cholesterol, creatinine, and glomerular filtration rate in all patients.

Biochemical blood tests were performed in the laboratory of the Turakulov Russian National Research Medical Center using

commercial equipments from Immunotech(Czech Republic).

Results. The groups were comparable in age — 53.6±10.7) and (55.8±13.1) years, in duration of hypertension (5.5±2.4) and (6.7±3.0) years, in body mass index (33.8±2.8) and (33.7±1.7) kg /m2. All patients were on hypoglycemic therapy. Group 1 - patients with diabetes without concomitant hypertension took SGLT-2 drugs, and group 2 - patients with type 2 diabetes with arterial hypertension took SGLT-2 drugs in combination with ACE inhibitors.

Discussion.

According to our study, it was determined that the number of patients after combination therapy with SGLT-2 drugs and ACE inhibitors improved blood chemistry indicators in patients with type 2 diabetes mellitus in combination with arterial hypertension, and we also managed to reduce the number of patients with type 2 diabetes with nephropathy in the stage of proteinuria.

Dynamics of blood chemistry parameters in patients with type 2 diabetes in combination with hypertension during 12 months of follow-up

Indicator	of The Group of subjects	Initially	After treatment
Glucose, mmol / l	Group 1	9.8 ±0.9	7.9 ±0.9
	Group 2	8.6±0.6,6	7.6±0.5
CF ml / min	Group 1	70.4±22.0	80.0±17.6
	Group 2	78.0±15.5	89.3±19.9
HbA1c (%)	Group 1	8.5±0.6	7.5,5±0.3
	Group 2	7.0±0.2	6.5±0.4
Total protein, g / l	Group 1	90±6.4	82.1 ±3.7
	Group 2	88.0±4.1	79.9±3.5
Creatinine, mmol/l	Group 1	80.3±18.4	77.9±24.1
	Group 2	85.6±15.1	78.7±10.3
Cholesterol mmol / l	Group 1	6.6±0.76	5.0±0.81
	Group 2	5.9±1.04	5.3±0.63

Conclusions: According to our data, the combined approach to hypoglycemic and antihypertensive therapy with SGLT-2 drugs and ACE inhibitors was highly effective in patients with combined pathology, depending on the level of blood pressure and glycemia,

taking into account the principles of chronotherapy (a good antihypertensive effect was obtained in 89.6% of patients, including the target blood pressure level achieved in 67.2% of patients). Our studies have also shown that the use of combination therapy with SGLT-2 drugs

and ACE inhibitors improves the organ-protective effect, stabilizes blood pressure and prevents the development of cardiovascular complications.

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