



## SglT-2 Inhibitors in Diabetic Type 2 Patients Nephroprotective Effects of (Empagliflozin)

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ABSTRACT

Study of the effect of SGLT-2 inhibitors on kidney function in Diabetes Mellitus Type 2 patients

**Keywords:**

SGLT-2 inhibitors, Diabetes Mellitus, Type 2 patients

**Relevance.** The prevalence of diabetes (QD) in the world is growing steadily every year. According to the International Diabetes Federation (IDF), about 537 million people have the disease in 2021, and according to forecasts, the number of these patients is expected to increase by 783 million people by 2045 [1]. Type 2 diabetes mellitus (DM) is strongly associated with atherosclerotic cardiovascular disease (ICRC) and is a risk factor for heart failure (YuYe); patients with QD are hospitalized with YuYe 4 times more often than patients with impaired carbohydrate metabolism [2-5]. In addition, DM is a risk factor for the development of chronic kidney disease (SuBK) and terminal SuBK [6-8]. The results of large randomized clinical studies have shown that a relatively new class of drugs - sodium-glucose cotransporter type 2 (SGLT-2) inhibitors - not only have an effective effect on glycemic control, but also the ability to reduce adverse events of cardiovascular disease and kidney results in patients with Type 2 diabetes. In this regard, the use of SGLT-2 in everyday clinical practice is of interest not only to endocrinologists, but also to doctors of the corresponding specialty.

**Goal:** Study of the effect of SGLT-2 inhibitors on kidney function in Diabetes Mellitus Type 2 patients

**Methods of persecution:** The examination was attended by 50 patients with diabetes mellitus type 2, who were treated in the Department of endocrinology of the multidisciplinary clinic of the Tashkent Medical Academy and contacted the Maslakhat Polyclinic. Their average age is  $46.3 \pm 4.2$  years, of which 35 males and 15 females are made up. The duration of diabetes in these patients was  $7.34 \pm 2.5$ . We conducted the following tests: an indicator of blood sugar levels on an empty stomach and 2 hours after meals, glycated hemoglobin, creatinine-mochevino, general forehead analysis, renal clutch filtration rate (KFT%), ultrasound in the kidneys and body weight index. Of these, 20 (40%) had diabetic nephropathy from diabetes complications, 15 (30%) had diabetic neuropathy, 10 (20%) had retinopathy and 5 (10%) had ischemic heart disease.

These patients received sulfonylmochevine unums ( amaryl 2 mg,altar 2mg) and biguanides before being examined. We test them by replacing them with SGLT-2ingibitors(empagliflozin 15mg /day)and biguanides(asformin,siophore).

To study the effect of SGLT-2 inhibitors on kidney function, 2 groups were assigned to the examination. Patients who took biguanide drugs with sulfanyl mochevina in Group 1 (20 Group 2 is conducted with SGLT 2ingibitors in patients receiving biguanids(30).

**Results of the examination**

1-Table

Change in indicators of carbohydrate metabolism activity against the background of SGLT 2 in Type 2 diabetes mellitus

	I group ,n=20		II group, n=30	
	before treatment,	after treatment	before treatment,	after treatment
Glucose on an empty stomach, mmol/l	10,4±2,4	8,8±1,6	9,5±2,7	7,2±1,1*
Glucose after 2 hours, mmol/l	13,4±2,6	11,7±1,8	12,7±2,2	9,6±1,4
HbA1C,%	9,2±4,5	8,9±1,4	9,8±1,8	6,8±1,3*

\*p<0,05 in relation to the indications before the treatment after the treatment

In order to determine the level of compensation for carbohydrate metabolism, blood sugar levels and glycated hemoglobin levels were determined. According to this, the average blood sugar level before the treatment is carried out is 10.4±2.4 mmol/l on an empty stomach, 13.4±2.6 mmol/l after 2 hours of meals; the amount of glycated hemoglobin is 9.7±1.3%.

In this,group i patients had a decrease in blood glucose levels by 15.38% after treatment,12.66% 2 hours after meals, and glycated hemoglobin by 8.22%.

In dynamics after three months, the average blood sugar level after the intake of SGLT 2

inhibitors and biguanids in 2 group patients is 9.5±2.7 mmol/l on an empty stomach, 12.7±2.2 after 2 hours of meals; glycated hemoglobin 9.8±1.8

In this,we found that in Group 2 patients after 3 months,the amount of glucose in the blood on an empty stomach decreased by 17%, 24% after 2 hours of meals, and the amount of glycated hemoglobin decreased by 30.6%.That is, the action of SGLT2 inhibitors(empagliflozin)has significantly reduced its indicator by positively affecting blood sugar levels.(Shown in Table 1

2 - Table

Change in indicators of kidney function against the background of SGLT 2 in Diabetes Mellitus 2 Type

	Creatinin,		Močevina		KFT(%)		Protein in the forehead (microalbuminuria)	
	before treatment,m mol/l	after treatment,mmol /l	before treatment,m mol/l	after treatment mmol/l	before treatment, mkm	after treatment, mkmol /l	before treatment,mg/g	after treatment mg/g

					ol/l			
I group	112,3± 4,3	110,8±2 ,6	8,3±2,4	7,9±2,1	73,4± 1,7	71,5±2, 9	330	250
II group	114,2± 2,1	112,5±3 ,3	7,2±1, 6	6,9±1,9	61,2± 2,7	75,7±1, 1	450	300

Kidney function against the background of sulfonyl Mochevina and biguanides taken by patients of Group I. creatinine in the forehead after treatment changed to 1.3%, Mochevina to 4.8%, and the Coptic filtration rate(KFT) changed to 2.5% to protein 24%

Kidney function was reduced by 1.4% to creatinine, 4.16% to mochevina, KFT increased by 4.4% in post-treatment results from SGLT2 inhibitors(empagliflozin) and those taking biguanide by our Group II patients. The amount of protein excreted in the daily urine increased by up to 33%.(Table 2

### Conclusion

1. 3 months after the consumption of hypoglycemic drugs in Group 2 of SGLT, patients in Group 2 had a decrease in blood glucose to an empty stomach by 17%, 24% after 2 hours of meals, glycated hemoglobin by 30.6%. That is, the effect of SGLT2 inhibitors(empagliflozin) significantly decreased its indicator by positively affecting blood sugar levels.

2. No hypoglycemic conditions were observed. In the case of sulfonylmochevin preparations, hypoglycemic conditions were observed, and this led to the development of rapid complications and side effects.

3. After 3 months of consumption of hypoglycemic drugs of SGLT Group 2, the kidneys increased ball filtration (KFT) by 4.4%. The amount of protein excreted in the daily urine (albuminuria) increased from 24% to 33%.

4. When the effect on liver function was studied, the liver enzyme indicators did not change following SGLT 2 inhibitors intake .

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