Sodium-Glucose Co-transporter-2 Inhibition Vs. Dipeptidyl peptidase-4 Inhibition in Diabetic Kidney Transplant Recipients: single center experience ESOT cobinhagen 2024

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Introduction

- Diabetes is the most common cause of chronic kidney disease (CKD) globally.

  The renal and cardio-vascular benefits of the new anti-diabetic agents are not

  assessed comprehensively.

Aim Of The Study

- We aimed to evaluate the short term renal and cardio-protective effects of Sodium-Glucose Cotransporter-2 Inhibition (SGLT2i) Vs. Dipeptidyl peptidase-4 Inhibition (DPP4i) among diabetic kidney transplant recipients.

Patients and methods

- In this observational trial, 222 diabetic kidney transplants recipients (NODAT or type 2 diabetes) were enrolled and were categorized into two groups. Group 1 (n=99) received SGLT2i while group 2(n=123) received DPP4i as an add on antidiabetic medications.

- All patients in the two groups were followed up for 12 months.

Results

- **Most patients in the two groups (1&2) were men (59.6 vs. 61.7%, p=0.73) in their middle age (58.5±11.9 vs. 54.4±12.9, p=0.016) years respectively. The two groups were matched regarding their demographics especially the type of donor, type of immunosuppression (induction or maintenance), number of cardiovascular events before enrollment in the study and the number of patients who were maintained on ACEi or ARB(p>0.05).**

- **The minority of patients were smokers (12.9 vs.8.7%), and chronic glomerulonephritis was the original disease in 36.4 vs. 35.4% in the two groups, respectively. Most of the enrolled patients (72.8 vs. 78.6%) underwent hemodialysis pre-transplant.**

Demographics Of The Studied Patients

	SGLT2i group (n=99)	DPP4i group (n=143)	P value
Age	58.5±11.9	54.4±12.9	0.016
Sex			
Male	59	76	
Female	40	47	0.73
Donor type			
LRRT	33	28	
LURT	43	70	
Cad	23	25	0.11
Induction			
None	25	30	
Simulect	25	28	
Lymphocyte depleting agents	42	58	
others	7	7	089
Maintenance immunosuppression			
Tacrolimus based	82	91	
Neoral based	15	25	
Others	2	7	0.20
Basal cardio-vascular events before enrollment in the study	18(18.2%)	18(14.6%)	0.47
ACEi or ARB therapy	35(35.4%)	36(29.3%)	0.334

Results

- During follow up period, patients in both groups were comparable regarding mean blood pressure, body weight, HbA1C, 24-hour urine protein, and graft function (represented by the mean serum creatinine) at different time intervals and compared to base line values(p>0.05).

- However, the mean HbA1C was significantly higher in group 1 during the whole follow up period of the study (p<0.05) but it did not drop significantly compared to baseline values (p>0.05).

- We did not report any macroangiopathic events (cerebral stroke, acute myocardial infection, or peripheral arterial disease) in the two groups during the study.

Clinical And Laboratory Parameters Of The Studied Patients

	SGLT2i group (n=99)	DPP4i group(n=123	P value
Systolic blood pressure			
Basal	136.3±16.9	134.3±17.7	0.403
At 3 months	136.2±17.4	131.8±15	0.043
At 6 months	135.1±17.4	131.5±17.5	0.127
At 12 months	134.3±13.5	131.3±16.4	0.151
Diastolic blood pressure			
Basal	75.9±9.3	76.4±11	0.733
At 3 months	75.7±9.0	74.5±9.7	0.349
At 6 months	76.8±9.5	76.0±9.6	0.531
At 12 months	77.1±11.5	75.9±8.2	0.386
Body weight			
Basal	87.2±20.6	82.6±16.7	0.043
At 3 months	85.7±19.9	82.6±16.6	0.169
At 6 months	86.5±19.3	82.6±17.1	0.086
At 12 months	85.2±21.3	81.8±19.2	0.219
Proteinuria follow up (mg/day)			
Basal	159.3±236.8	122.4±197	0.20
At 3 months	145.5±221.2	117.9±184.7	0.31
At 6 months	137.4±225.1	126±198.2	0.69
At 12 months	151.5±233.7	122±176.3	0.28
HbA1C follow up			
Basal	7.53±2.11	5.30±3.71	<0.001
At 3 months	7.42±2.39	5.26±3.68	<0.001
At 6 months	7.37±2.48	5.13±3.66	<0.001
At 12 months	6.95±3.18	5.5±6.7	0.052
Scr. follow up			
Basal	110.6±51.9	132±94.6	0.045
At 3 months	112.4±43	120.8±57.9	0.228
At 6 months	115.5±49.1	117.6±51.0	0.758
At 12 months	116.9±47.6	123.5±74.3	0.444

Conclusion

- Both GLT2i and DPP-4 I are comparable regarding renal and cardio-vascular protection among diabetic kidney transplant recipients.

- Keywords: DM, renal protection, kidney transplant