

# Effect of dapagliflozin on renal function

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## INTRODUCTION

- Dapagliflozin is a sodium-glucose cotransporter-2 (SGLT-2) inhibitor that inhibits renal glucose reabsorption in an insulin-independent manner, thereby increasing urinary glucose excretion.
- Dapagliflozin can be used as monotherapy or in combination with other antidiabetic medications, including insulin therapy in type 2 diabetes.
- While there are isolated incidents of deterioration in renal function due to SGLT-2 inhibitors in clinical trials, there is experimental evidence supporting that SGLT-2 inhibitors are nephroprotective rather than nephrotoxic.

## AIM

- To investigate changes in renal function before and during treatment with dapagliflozin in our routine clinical setting.

## METHOD

- A retrospective study of patients who had been initiated on dapagliflozin and had undergone at least one follow-up visit.
- A paired-t test was performed to examine changes in serum creatinine and estimated glomerular filtration rate (eGFR) before and during treatment with dapagliflozin.
- Pre and post-treatment changes in body weight, blood pressure and HbA1c were also examined.

## RESULTS

- We identified 148 patients (63% male) who had at least one follow-up visit.
- They had a mean age of 57.8 ±9.0 years and a mean duration of treatment of 15.6 ±8.7 months.
- No significant change in pre and post treatment serum creatinine (76 ±18 vs 77 ±21mmol/L, P=0.509) and eGFR (92 ±23 vs 92 ±24 mL/min per 1.73 m<sup>2</sup>, P=0.983) was observed.
- A modest but significant reduction in systolic blood pressure (139 ±19 vs 134 ±19mmHg, P=0.002) and diastolic blood pressure (79 ±10 vs 77 ±8mmHg, P=0.025) was observed.
- Significant reduction in HbA1c, body weight and BMI were also observed as shown in Table 1.
- In those individuals with a follow-up of less than 6 months (n=23), eGFR decreased from 87 ±20 to 80 ±20 mL/min per 1.73 m<sup>2</sup>, P=0.02).

Table 1. Mean change in renal function, blood pressure, HbA1c and body weight in patients receiving dapagliflozin

Measurement	Baseline	Follow-up	Mean difference (95%CI)	P
Creatinine (µmol/L)	76 ±18	77 ±21	1 (-2, 4)	0.509
eGFR (mL/min per 1.73m <sup>2</sup> )	92 ±23	92 ±24	0 (-3, 3)	0.983
Weight (kg)	105 ±18	102 ±18	-3 (-4,-2)	<0.001
BMI (kg/m <sup>2</sup> )	36 ±6	35 ±6	-1 (-1.4,-0.8)	<0.001
SBP (mmHg)	139 ±19	134 ±19	-5 (-8,-2)	0.002
DBP (mmHg)	79 ±10	77 ±8	-2 (-4, 0.2)	0.025
HbA1c (mmol/mol)	82 ±18	69 ±13	-13 (-16, -10)	<0.001

Data are given as the mean ± SD. eGFR: estimated glomerular filtration rate; BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure; CI: confidence interval.

## CONCLUSION

- No significant change in renal function was observed in our cohort (n=148), who had been treated with dapagliflozin for a mean duration of 15.6 months.
- Our finding supported the idea that SGLT2 inhibitors are not nephrotoxic.
- Larger studies with long-term follow-up are warranted to confirm the nephroprotective effect of SGLT-2 inhibitors.

### REFERENCES:

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