



Journal Scan

Canagliflozin and renal outcomes in type 2 diabetes and nephropathy

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The prevalence of type 2 diabetes mellitus is increasing in recent decades which is the primary factor accounting for substantial global increase in end-state kidney disease. The only currently approved treatment for renoprotection in patients with type 2 diabetes is rennin-angiotensin system blockade. The CREDENCE (Canagliflozin and Renal Events in Diabetes with Established Nephropathy and Clinical Evaluation) trial was designed to assess the effects of sodium glucose co transporters 2 (SGLT2) inhibitor canagliflozin on renal outcomes in patients with type 2 diabetes and albuminuric chronic kidney disease.

In a randomized, double-blind, placebo-controlled, multicentre clinical trial, 4401 patients had undergone randomization with a median follow-up of 2.62 years. Patients were eligible if they were at least 30 years of age and had type 2 diabetes, with glycated haemoglobin level of 6.5–12.0%. They were also required to have chronic kidney disease, defined as an estimated glomerular filtration rate (EGFR) of 30 to <90 ml per minute per 1.73m² of body surface area and albuminuria (urinary albumin-to-creatinine ratio,

>300 to 5000). All the patients were required to be receiving a stable dose of an angiotensin receptor blockers (ARB) or angiotensin-converting enzyme inhibitor (ACEi) for at least 4 weeks before randomization. Patients were randomly assigned in a double-blind fashion (!!) to receive either canagliflozin (100 mg orally once daily) or matching placebo.

The primary outcome of the study was composite of end-stage kidney disease, doubling of the serum creatinine level from baseline sustained for at least 30 days. The characteristics of the study group were as follows: the mean age was 63 years, 33.9% were women, the mean glycated haemoglobin value was 8.3%, the mean estimated GFR was 56.2 ml/min/1.73m² and the median urinary albumin-to-creatinine ratio was 927.

The results of the study revealed that the event rate of the primary composite outcome of end-stage kidney disease, doubling of serum creatinine level or renal or cardiovascular death was significantly lower in the canagliflozin group than in the placebo group which resulted in 30% lower relative risk. Patients in canagliflozin group also had a lower risk of end-stage kidney disease, hospitalization for heart failure and the composite of cardiovascular death, myocardial infarction or stroke. These results indicate that canagliflozin may be an effective treatment option for renal and cardiovascular protection in patients with type 2 diabetes with chronic kidney disease. Rates of amputation and fracture observed in two groups were similar.

This trial concluded that in patients with type 2 diabetes and kidney disease, the risk of kidney failure and cardiovascular events was lower in the canagliflozin group than in the placebo group at a median follow-up of 2.62 years.

There are many diabetics in India, and kidney disease is one of the major causes of morbidity in them. Presently, drug canagliflozin is available; however, it is an expensive one. Although the American Diabetes Association has suggested its use after metformin, many patients can still not afford such a drug. This is the first trial in which renal outcomes and cardiovascular events were studied for canagliflozin.

Conflict of interest

None.

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