Is calorie restriction with sodium-glucose cotransporter 2 inhibitor dapagliflozin a better option for type 2 diabetes mellitus management?

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In a recent multicentric, double-blinded, randomized, placebo-controlled trial by Liu et al.,[1] involving 328 subjects aged 20–70 years with type 2 diabetes for ~ 6 years and with body mass index >25, dapagliflozin (10 mg/day or placebo) with calorie restriction resulted in a significantly higher rate of remission of diabetes compared with calorie restriction alone. The main objectives evaluated are diabetes remission (characterized as glycated hemoglobin <6.5% and fasting plasma glucose <126 mg/dL without the use of any antidiabetic medications for a minimum of 2 months) while the secondary objectives are variations in body weight, waist size, body fat percentage, blood pressure, glucose levels, and serum lipid levels after 12 months. Dapagliflozin, sold under the brand names Farxiga (US) and Forxiga (EU), is a hypoglycemia medication used to treat type 2 diabetes.[2] Developed by Bristol-Myers Squibb in partnership with AstraZeneca, it is on the World Health Organization's List of Essential Medicines for diabetes management.

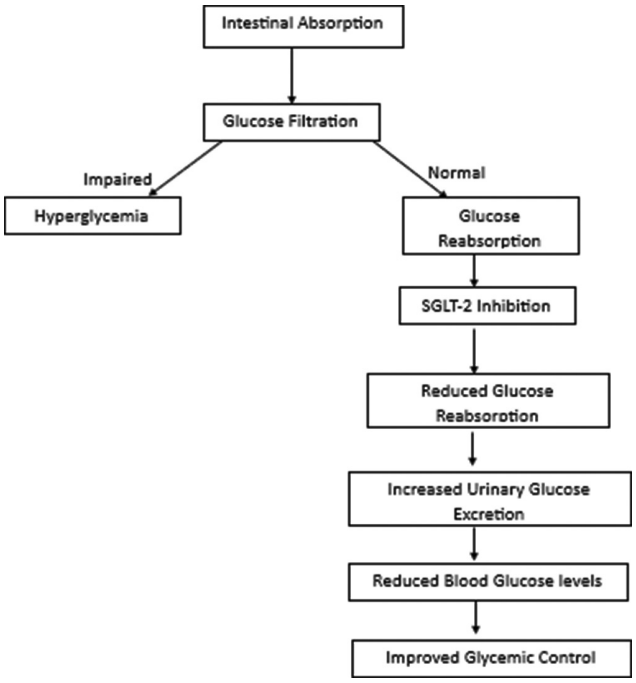

Figure 1: Mode of action of oral sodium-glucose cotransporter 2 inhibitor, dapagliflozin

Dapagliflozin is a sodium-glucose cotransporter 2 (SGLT2) inhibitor. It blocks SGLT2 in the proximal renal tubules, reducing the reabsorption of filtered glucose.[3] This increases urinary glucose excretion, lowering blood glucose levels (Figure 1). Dapagliflozin also promotes osmotic diuresis and modest weight loss, providing metabolic benefits for patients with type 2 diabetes.[4]

Therefore, from this elegant study by Liu et al., we may conclude that this combination of dapagliflozin and calorie restriction led to substantial improvements in systolic blood pressure, body fat percentage, serum triglycerides, and high-density lipoprotein cholesterol levels, suggesting that the integration of dapagliflozin with a structured calorie restriction regimen is both effective and feasible for achieving remission in early-stage type 2 diabetes. We must, however, be aware of the key potential side effects of SGLT2 inhibitors,[5] which involve genital mycotic infections (e.g., yeast infections), Urinary tract infections, Dehydration and volume depletion, Diabetic ketoacidosis, and acute kidney injury. Careful monitoring and patient education are important when prescribing SGLT2 inhibitors. Adjusting dosage, managing hydration, and maintaining close follow-up can help mitigate these adverse effects.

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