CLINICAL INSIGHTS

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Empagliflozin versus metformin for glucose variability and metabolic outcomes in drug-naïve type 2 diabetes: The EMPA-FIT study

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- Sodium-glucose cotransporter-2 (SGLT2) inhibitors offer cardiovascular and renal benefits beyond glycemic control. However, their effect on glucose variability (GV) in drug-naïve individuals with type 2 diabetes (T2D) is not well established. This study compared the effects of empagliflozin versus metformin on GV and metabolic outcomes.
- Multicenter, open-label, randomized study, 46 drug-naïve adults with T2D (HbA1c 6.5 %-10.0 %) received empagliflozin (10 mg/day; n = 23) or metformin (1000 mg/day; n = 23) for 12 weeks. The primary outcome was change in mean amplitude of glucose excursions (MAGE), assessed by continuous glucose monitoring. Secondary outcomes included standard deviation of glucose, time-in-range (TIR), metabolic parameters, and safety.
- At Week 12, empagliflozin significantly reduced MAGE (-19.58 mg/dL; 95 % CI: -30.62, -8.53) compared with metformin (-4.33 mg/dL; 95 % CI: -7.98, -0.68) (n = 19 vs. n = 18, respectively). TIR improved in both groups, with no significant between-group differences.
- Empagliflozin treatment led to greater reductions in body weight and waist circumference, along with increases in HDL-cholesterol and decreases in triglyceride and uric acid levels. The decrease in HbA1c from baseline was greater in the empagliflozin group (-1.15 % [95 % CI: -1.44, -0.85]) than in the metformin group (-0.78 % [95 % CI: -1.02, -0.54]), resulting in a statistically significant between-group difference (p = 0.049)

Empagliflozin significantly reduced GV and provided additional metabolic benefits in drug-naïve individuals with T2D. These findings support its potential utility in early diabetes management, particularly in targeting glycemic variability.

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