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The efficacy and safety of SGLT2 inhibitors in diabetic kidney transplant recipients

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Sodium-glucose cotransporter 2 inhibitors (SGLT2i) are a new oral antidiabetic drug that was first developed in 2012. The main mechanism of action is to inhibit glucose reabsorption at the brush border of the renal proximal tubules. Several studies have demonstrated that SGLT2i protect kidney injury via increases in sodium delivery to the macula densa and subsequent decrease of glomerular hyperfiltration by increased tubuloglomerular feedback. In addition, SGLT2i have a protective role in diabetic kidney disease by anti-inflammation and antifibrosis. However, in the post-hoc analysis of EMPA-REG study, 30% of SGLT2i users showed more than 10% of acute estimated glomerular filtration rate (eGFR) decline, which indicates eGFR dip. Therefore, we validated the beneficial effects and safety of SGLT2i in diabetic kidney transplant recipients.

A total of 2,083 kidney transplant recipients with diabetes were enrolled from six tertiary hospitals. There were 226 (10.8%) patients who prescribed SGLT2i for more than 90 days. During the mean follow-up of 62.9 ± 42.2 months, the SGLT2i group had a lower risk of a composite of all-cause mortality, death-censored graft failure, and serum creatinine doubling than the control group in the multivariate and propensity score-matched models. Multivariate analyses consistently showed a decreased risk of death-censored graft failure and serum creatinine doubling in the SGLT2i group. The overall eGFR remained stable without the initial dip after SGLT2i use. A minority of the SGLT2i users showed acute eGFR dip during the first month, but the eGFR recovered thereafter. SGLT2i improved clinical outcomes and can be used safely in kidney transplant recipients with diabetes.