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Renal outcomes and all-cause death associated with SGLT2 inhibitor versus other glucose-lowering drugs (CVD-REAL 3 Korea)

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Objectives: There are limited results of real-world evidence elucidating the beneficial effects of sodium-glucose cotransporter-2 inhibitors (SGLT-2i) on renal outcomes and mortality in patients with type 2 diabetes (T2D) and a generalized risk profile.

Methods: Using data from the Korean National Health Insurance Service database from January 2014 to December 2017, a total of 701,674 patients were identified with T2D. We divided these patients into new-users of SGLT-2i and new-users of other glucose-lowering drugs (oGLDs). Propensity scores in the two groups were matched 1:1. We examined for the risk of end-stage renal disease (ESRD) and all-cause death.

Results: Patient characteristics were well-balanced between groups and there were 45,016 patients in each group: median age 58.1 ± 10.6 years; mean estimated glomerular filtration rate (eGFR) 89.2 ± 27.4 ml/min/1.73m²; 8% of patients had proteinuria. We identified 167 incident ESRD and 1,070 all-cause deaths during follow-up. Use of SGLT-2i *versus* oGLDs was associated with a lower risk of ESRD (HR: 0.47; 95% confidence interval [CI]: 0.34 to 0.65) and all-cause death (HR: 0.82; 95% CI: 0.73 to 0.93). In a subgroup analysis by eGFR, initiation of SGLT2i vs OGLD was associated with lower risk of progression to ESRD among patients with eGFR 60-90 and <60 ml/min/1.73m²; whereas lower risk of all-cause death associated with SGLT-2i *versus* oGLD was observed across the entire range of renal function.

Conclusions: In this large nationwide study of Korean patients with T2D, initiation of SGLT-2i vs OGLD was associated with lower risk of ESRD and all-cause death.