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Prevalence and Risk Factors of Initial Estimated Glomerular Filtration Rate Decline in Patients Receiving SGLT2 Inhibitors: A Real-World Clinical Study

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Objectives : Recent studies demonstrate that early reductions in kidney function from SGLT2i treatment may associated with long-term outcomes. However, the initial dip in eGFR in real-world clinical settings is an important issue with clinical considerations. Many observational data generally support the findings of RCTs, showing a modest and transient decline in eGFR, but the extent and prognosis of the dip may vary among individuals. In this study, we investigated the prevalence and risk factors of initial dip with the use of SGLT2i in real-world practice.

Methods : Data from 2,084 patients treated with SGLT2 inhibitors from June 2018 to December 2022 was analyzed, focusing on renal function changes through at least three eGFR blood tests (baseline, 3, and 12 months post-treatment). If any eGFR value measured within 3 months was lower than the baseline value, it was considered as an initial dip, and the dip was classified as mild(0-10%), moderate(10-30%), and severe(\geq 30%).

Results : Initial dip was observed in 801(38.4%) patients after starting SGLT2i treatment. This dip was more common in patients with lower baseline eGFR. The percentage of dip was 28.5%, 45.9%, 49.1%, and 56.2% in the eGFR groups of \geq 90, 60-90, 45-60, and $<$ 45ml/min/1.73m², respectively ($p<$ 0.001). The likelihood of experiencing a moderate or severe dip increased with lower eGFR categories. Contributing factors included lower baseline levels of eGFR, hemoglobin and albumin, and uric acid levels. The presence of diabetes or serum HbA1c levels did not correlate with the initial eGFR decline. The use of RAS blockers, CCBs, and diuretics was associated with a higher risk of the eGFR dip, whereas beta-blockers showed no association. The concurrent use of metformin with SGLT2i appeared to protect against the eGFR decline.

Conclusions : The study identifies key factors predicting the initial eGFR decline in patients initiating SGLT2i treatment, helping to manage kidney function, particularly in CKD patients.

Figure 1.jpg

