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Nutritional Frailty and Its Association with Renal Function Change in Elderly CKD Patients on SGLT2 Inhibitors

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Objectives : Chronic kidney disease (CKD) is common in the elderly, and sodium-glucose cotransporter-2 inhibitors (SGLT2i) are now first-line therapy due to their nephroprotective and cardiovascular benefits. While generally safe, caution is required in elderly patients with comorbidities such as low body mass index (BMI), or a high risk of volume depletion. This study evaluates the impact of nutritional status on changes in renal function in elderly CKD patients treated with SGLT2i.
Methods : We analyzed real-world data from 302 elderly CKD patients who were newly prescribed SGLT2i, with renal function measurements at baseline, 3 months, and 12 months. Nutritional status was assessed using the Geriatric Nutritional Index (GNRI), with scores ≤98 indicating nutritional frailty. Rapid renal progression was defined as an eGFR decline >10 ml/min/1.73m² or ≥40% reduction within a year.
Results : The mean age was 76.0 ± 8.1 years, with 81.5% diabetes. Among them, 46 patients (15%) had a low GNRI score (≤98). These patients were older (80.5 vs. 75.2 years, P<0.001) and had significantly lower BMI, body weight, hemoglobin, and albumin levels (P<0.001). They also exhibited higher rates of proteinuria with increased protein/creatinine ratios (P<0.001). Over 12 months, the GNRI ≤98 group experienced greater eGFR declines compared to the GNRI >98 group (-3.5 vs. -1.7 ml/min/1.73m², P<0.001). Low GNRI score was also independently associated with a higher risk of rapid renal progression, with a multivariate hazard ratio of 3.05 (95% CI: 1.20–7.60, P = 0.016) after adjusting for age, anemia, and proteinuria.
Conclusions : SGLT2i is generally safe and effective in most elderly CKD patients, as shown by stable eGFR changes in the GNRI >98 group. However, patients with a low GNRI score face a higher risk of rapid renal progression, suggesting the need to assess frailty and nutritional status when prescribing SGLT2i in vulnerable elderly CKD population.

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