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## **Polypharmacy and peripheral edema in Korean elderly patients with chronic kidney disease (CKD)**

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**Objectives:** Polypharmacy in elderly CKD patients is popular because of their comorbid conditions. Among the potential adverse drug reactions, drug-related peripheral edema is usually neglected in many multi-drug prescriptions. This study aimed to investigate the prevalence and risk factors for peripheral edema associated with polypharmacy in a CKD population.

**Methods:** This prospective cross-sectional study was performed for CKD patients, aged over 65 years. We collected the demographic data including prescription medications; anti-hypertensive drugs, oral glucose-lowering drugs, antiplatelet drugs, analgesics, and neurologic medication. The grading of leg edema was determined by pit depth and recovery time from grades 0-4 (G0-G4).

**Results:** The total of 372 CKD patients was enrolled in this study. The mean age was  $72.7 \pm 11.3$  years. The number of routinely prescribed medications was 1-3 in 37.1%, 4-6 in 36.2%, 7-9 in 19.6%, and over 10 in 7.1% of the patients. The mean eGFR was  $54.2 \pm 12.5$  ml/min/1.73m<sup>2</sup>. The number of prescriptions was higher in G4 edema group (15.4% in grade 1 vs. 28.2% in G4 edema group). Physical activity was lowest in higher edema group. The higher dose of dihydropyridine calcium-channel blocker (DHCCB) was prevalent in higher edema grade group (17.1% of amlodipine users in G0 vs. 44.2% in G4 group). Pregabalin and NSAID users were prevalent in higher edema-graded group. Multivariate logistic regression analysis showed that a higher number of prescribed medications was an independent risk factor for peripheral edema; the HR of 4-6, 7-9,  $\geq 10$  of the medications was 2.062 (95% C.I. 1.223-5.771), 2.226 (95% C.I. 1.854-12.021), and 4.324 (95% C.I. 3.102-12.174) compared to 1-3 of medication, respectively.

**Conclusions:** Peripheral edema is frequent in CKD population and related with polypharmacy. Higher dose of DHCCB can be a risk factor for severe peripheral edema in CKD patients. Prescription cascade for diuretics should be concerned because it could be a result of drug-related edema.