



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

KSN SEOUL, KOREA
2026

The 46th Annual Meeting of the Korean Society of Nephrology



Jun 11 (Thu) – 14 (Sun), 2026

COEX, Seoul, Korea

Abstract Type : Oral presentation

Abstract Submission No.: A-0259

Abstract Topic : Renal Conservative Care + Geriatric Nephrology + Sarcopenia

Association Between Polypharmacy-Related Peripheral Edema and Functional Decline in Elderly Patients with Chronic Kidney Disease (CKD): A 3-Year Follow-Up Study

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Objectives : Polypharmacy is common among elderly patients with CKD due to multiple comorbidities. While peripheral edema is a known side effect of several medications, its long-term relationship with physical function and clinical outcomes remains under-investigated. This study aimed to evaluate the longitudinal association between polypharmacy-related peripheral edema, sarcopenia, and hospitalization over 3 years.

Methods : We prospectively followed 382 patients with CKD (aged >65 years) for 3 years. We collected data on routine prescriptions, including dihydropyridine calcium-channel blockers (DHCCB), pregabalin, and cilostazol. Peripheral edema was graded from 0 to 4 (G0-G4) based on pit depth and recovery time. Functional status was assessed using the SARC-F questionnaire (range 0-10) at baseline and at the 3-year follow-up. Sarcopenia was defined as a SARC-F score ≥ 4 . All-cause hospitalization during the follow-up period was also recorded.

Results : At the 3-year follow-up, patients with polypharmacy (≥ 7 medications) showed a significantly higher prevalence of persistent peripheral edema compared to those with fewer medications. Multivariate analysis revealed that polypharmacy itself was an independent risk factor for sarcopenia (Odds Ratio [OR] 1.8, 95% C.I. 1.1-2.9). Furthermore, a significant longitudinal increase in SARC-F scores was observed in patients with persistent edema (mean increase of 3.4 points, $p < 0.001$), suggesting an association with accelerated functional decline. Multivariate analysis indicated that persistent edema was independently associated with an increased risk of sarcopenia (OR 2.4, 95% C.I. 1.3-4.5). Furthermore, the group with higher edema grades had a higher rate of all-cause hospitalization (Hazard Ratio 1.85, 95% C.I. 1.2-3.8) than those without edema.

Conclusions : Both polypharmacy and its associated peripheral edema are significant contributors to the progression of sarcopenia and increased hospitalization risk in elderly CKD patients. These findings emphasize the importance of regular medication review and monitoring of drug-related side effects to preserve physical function and improve clinical outcomes in this population.