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Comparison of eGFR Discordance Metrics for Predicting Activities of Daily Living Dependence in Older Adults With Chronic Kidney Disease

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Objectives : In older adults, reduced muscle mass may cause creatinine-based eGFR (eGFR_{cr}) to overestimate kidney function compared with cystatin C–based eGFR (eGFR_{cys}), resulting in eGFR discordance. This discrepancy may reflect frailty and functional decline. We examined the association between eGFR discordance and ADL dependence and compared four discordance metrics.

Methods : This cross-sectional study used baseline data from 497 patients aged ≥70 years from 17 Korean multicenter prospective chronic kidney disease (CKD) cohorts. eGFR_{cr} and eGFR_{cys} were calculated using the 2021 CKD-EPI creatinine and 2012 CKD-EPI cystatin C equations, respectively. Discordance metrics included eGFR_diff_1 (eGFR_{cys}–eGFR_{cr}), eGFR_diff_2 ((eGFR_{cys}–eGFR_{cr})/eGFR_{cr}), eGFR_ratio (eGFR_{cys}/eGFR_{cr}), and eGFR_log_diff (log(eGFR_{cys})–log(eGFR_{cr})). ADL dependence was defined as a Korean Activities of Daily Living score ≥8. Logistic regression and ROC analyses were performed with adjustment for age, sex, diabetes, hypertension, BMI, albumin, hemoglobin, and hsCRP.

Results : The mean age was 78.7±5.5 years, 54.3% were male, and 53.9% had diabetes. ADL dependence was observed in 89 participants (17.9%). In univariate analyses, all discordance metrics were significantly associated with ADL dependence (diff_1 OR 0.964, 95% CI 0.948–0.980; diff_2 OR 0.128, 95% CI 0.054–0.304; ratio OR 0.128, 95% CI 0.054–0.304; log_diff OR 0.558, 95% CI 0.401–0.777; all p<0.001). These associations remained significant after multivariable adjustment (diff_1 OR 0.931, 95% CI 0.903–0.960; diff_2 OR 0.029, 95% CI 0.005–0.167; ratio OR 0.029, 95% CI 0.005–0.167; log_diff OR 0.422, 95% CI 0.223–0.801). In ROC analyses, adjusted AUC values were 0.718 for diff_1, 0.753 for diff_2, 0.753 for ratio, and 0.763 for log_diff, indicating the best discriminative performance for the logarithmic discordance metric.

Conclusions : eGFR discordance was independently associated with ADL dependence in older adults



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with CKD. Among the evaluated metrics, logarithmic discordance showed the best predictive performance, although the overall discriminative ability remained modest.