Abstract Type : Poster exhibition
Abstract Submission No.: A-0446
Abstract Topic : Renal Conservative Care + Geriatric Nephrology + Sarcopenia

Association Between Differences in Creatinine- and Cystatin C-Based Estimated Glomerular Filtration Rate and Osteoporotic Fractures in older Korean adults.

Soo young Jung[1], So-young Lee[1], Soonchul Lee[2], Hogyeong Kang[2], Jihyun Baek[1], HyeYun Jeong[1], YuHo Lee[1]
[1]Department of Internal Medicine-Nephrology, CHA Bundang Medical Center, Korea, Republic of
[2]Department of Orthopedic Surgery, CHA Bundang Medical Center, Korea, Republic of

Objectives : Osteoporotic fractures in the elderly are linked to increased mortality and reduced quality of life, emphasizing the need for effective prediction and prevention. Cystatin C is a more sensitive biomarker of renal function than creatinine, as it is less affected by muscle mass. This study examines the difference between eGFR based on cystatin C (eGFRcys) and creatinine (eGFRcr) and its association with osteoporotic fractures in Korean elderly.
Methods : This cross-sectional study included patients aged 65 years or older who visited CHA Bundang Medical Center between April 2005 and May 2022. Serum creatinine and cystatin C levels were simultaneously measured, and osteoporotic fractures were identified via medical chart review. Patients who had undergone kidney replacement therapy (KRT) were excluded, leaving 2,605 patients for analysis. The difference in eGFR (eGFRdiff) was calculated as eGFRcys - eGFRcr (mL/min/1.73m²).
Results : The mean age of participants was 74.2 ± 6.4 years, with 50.2% female. The mean eGFRcr and eGFRcys were 62.8 ± 26.1 and 59.0 ± 27.4 mL/min/1.73m², respectively. In 59.8% of participants, eGFRcys was lower than eGFRcr, indicating a negative eGFRdiff. (Figure 1) The negative eGFRdiff group was 2 years older than the positive eGFRdiff group with a mean age of 75.1 years ($p < 0.05$) and had a higher prevalence of CKD with 28.7% diagnosed with CKD compared to 22.8% in the other group ($p < 0.05$). Multivariable logistic regression, adjusted for age, sex, and comorbidities, showed an odds ratio of 1.60 for osteoporotic fractures in the most negative eGFRdiff group (Quartile1). (95% Confidence Interval: 1.03–2.51; $p < 0.05$) (Figure 2)
Conclusions : In elderly individuals, eGFRcys is often lower than eGFRcr, and a greater discrepancy between eGFRcys and eGFRcr was associated with higher osteoporotic fracture risk. This suggests that eGFRdiff could be a useful marker for assessing fracture risk in clinical practice.

Figure1.png

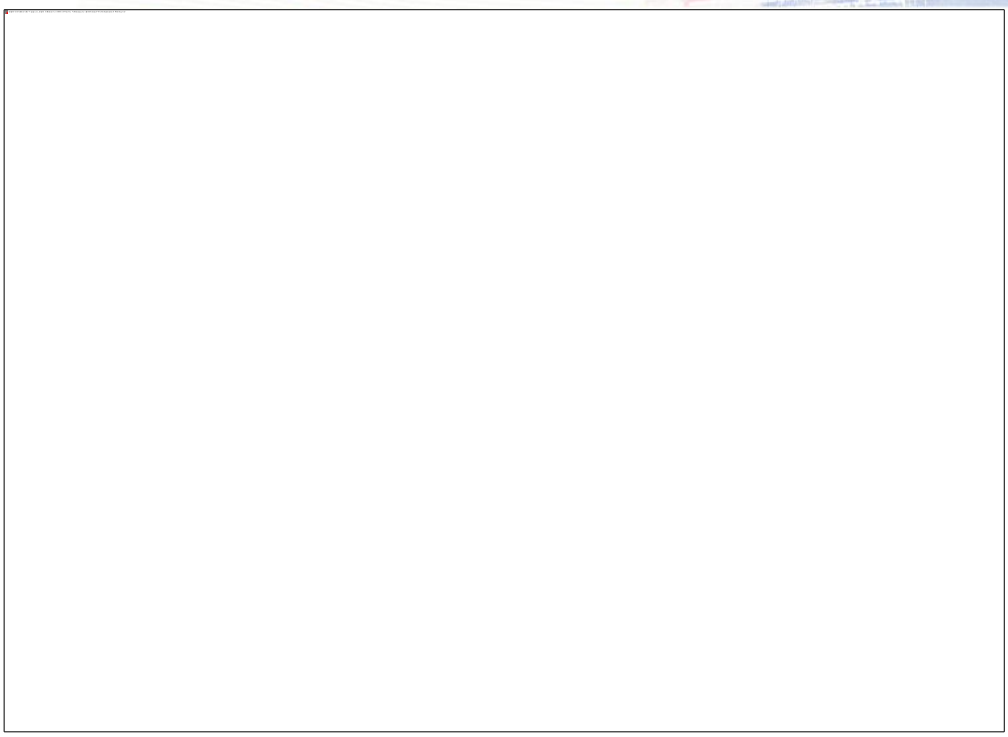

Figure1.png

	Quartile 1 eGFRcys << eGFRcr	Quartile 2 eGFRcys < eGFRcr	Quartile 3 eGFRcys ≈ eGFRcr	Quartile 4 eGFRcys > eGFRcr
eGFRdiff range (mL/min/1.73 m^2)	-78.9 to -13.6	-13.6 to -3.82	-3.82 to 5.70	5.70 to 88.7
Odd ratio (95% CI)				
Hip fracture	1.65 (0.67-4.24)	1.13 (0.50-2.64)	Ref	1.06 (0.40-2.74)
Radius fracture	1.67 (0.57-5.39)	0.92 (0.29-3.01)	Ref	1.22 (0.40-3.95)
Spine fracture	1.42 (0.85-2.42)	0.96 (0.56-1.65)	Ref	1.20 (0.71-2.07)
Osteoporotic fracture	**1.60 (1.03-2.51)**	1.01 (0.65-1.60)	Ref	1.18 (0.74-1.88)