LETTER TO EDITOR

The Hidden Pitfalls of Serum Creatinine: When Normal Values Mislead

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Dear Editor,

Serum creatinine is widely used as a rapid and inexpensive marker of renal function. However, it is less well appreciated that "normal" creatinine levels do not always reflect normal kidney function. This discrepancy is particularly evident in certain patient populations, where serum creatinine may underestimate the degree of renal impairment.

Patients with low muscle mass such as the elderly, malnourished, or those with chronic illnesses may have deceptively low baseline creatinine despite significant renal impairment.[1] Studies in older patients have shown that a seemingly 'normal' creatinine may mask significantly reduced GFR, often <45 mL/min/1.73m^2, indicating stage 3 chronic kidney disease.[2] This phenomenon, sometimes referred to as "creatinine blindness," is underrecognized in day-to-day practice.[3]

Conversely, individuals with high muscle mass (e.g., athletes or bodybuilders) may have mildly elevated creatinine without any underlying renal dysfunction.[4] High-protein diets, particularly in athletes, can raise serum creatinine without indicating true kidney dysfunction.[5]

These nuances highlight that creatinine should not be interpreted in isolation. Estimated GFR equations, adjustment for muscle mass, and adjunct biomarkers like cystatin C offer a more reliable assessment. Clinicians must remain aware of these limitations to avoid both underdiagnosis and overdiagnosis of kidney disease.

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