

Serum creatinine is a more useful tool for the evaluation of renal function in the elderly as than calculating the glomerular filtration rate

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To the editor: The simple calculation of the glomerular filtration rate (GFR) from mathematical formulations using the serum creatinine value (sCr), sometimes even being directly provided by the Laboratory, and the convenience of not having to collect 24-hour urine, has allowed health professionals to classify chronic renal disease (CRD) in several stages.¹⁻²

Standardized determination of GFR by means of mathematical formulations in the whole population may yield low GFR values with unclear usefulness in clinical practice.

An example of the low reliability of these mathematical formulations is their indiscriminate use in the elderly. We have performed a cross-sectional study on 80 elderly people (mean age 82.4 ± 6 years; 31% males; 81% high blood pressure; 37.3% diabetes mellitus), who were stable with different sCr values

(range 0.7-3 mg/dL). The aim was to assess the GFR in this population and determine whether the decrease in GFR < 60 mL/min (stages III-IV) is related to the analytical alterations associated to CRD. We measured the following blood values: acid-base balance, calcium, phosphorus, ions, urea, and blood cell count. A urinalysis was also performed. The GFR was calculated by means of the Cockcroft-Gault³ and MDRD⁴ equations.

Mean GFR calculated by Cockcroft's equation was 39 ± 14 mL/min and by MDRD was 51 ± 16 mL/min. According to the K-DOQI classification, a GFR < 60 is categorized as stage 3 chronic renal disease. Since all the patients in our study had global mean GFR < 60 mL/min (with both formulations), they ought to be classified at least as stage 3 CRD.

The sCr values correlate with urea (r: 0.73, $p < 0.001$), uric acid (r: 0.46, $p < 0.001$), calcium (r: -0.24, $p = 0.032$) and potassium (r: 0.26, $p = 0.021$).

Cockcroft formulation correlates with sCr values (r: -0.67, $p < 0.001$), urea (r: -0.61, $p < 0.001$) and MDRD correlates with sCr values (r: -0.84, $p < 0.001$), urea (r: -0.68, $p < 0.001$), uric acid (r: -0.48, $p < 0.001$) but none of them correlates with other typical alterations of CRD.

In summary, the elderly have a diminished GFR inherent to the aging process, and the GFR determination with the formulations do not seem to offer any advantage from simple sCr determination. We absolutely agree with the sceptic vision of Dr. Robles about the GFR calculation, presented in an article published in your journal.⁵

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