DIAGNOSIS

Cystatin C is not an unbiased marker of GFR

Serum cystatin C levels are influenced by factors other than glomerular filtration rate (GFR), a retrospective analysis suggests.

Serum concentration of cystatin C has been proposed as a more reliable marker of GFR than serum creatinine, because cystatin C is produced by all nucleated cells, not just muscle. Using pooled data from 3,418 US and European patients with chronic kidney disease, Lesley Stevens and colleagues related either log cystatin C level or log creatinine concentration to log GFR (as measured by urinary clearance of iothalamate or ethylenediaminetetraacetic acid) to compare the influence of determinants other than GFR on the two parameters.

Creatinine level was influenced by surrogates of muscle mass (age, ethnicity, and sex) to a greater extent than was cystatin C level. However, after adjustment for age, ethnicity, sex, and study, log cystatin C and log creatinine had coefficients for log GFR of –67.0% and –70.5%, respectively. A coefficient of ±100% represents an ideal linear relationship; therefore, this finding indicates that serum cystatin C levels are associated with factors other than GFR and surrogates of muscle mass to a greater extent than are serum creatinine levels. These factors include diabetes, proteinuria and markers of inflammation.

Stevens cautions that the study was not designed as a 'race' between cystatin C and creatinine and that these two markers are probably best used in combination to minimize the confounding effects of non-GFR determinants.

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Original article Stevens, L. A. *et al.* Factors other than glomerular filtration rate affect serum cystatin C levels. *Kidney Int.* **75**, 652–660 (2009).