LETTERS TO THE EDITOR

Estimating GFR: The Devil Is in the Details

To the Editor:

We agree with the first conclusion of Iversen et al[1] regarding the added value of cystatin C to estimate glomerular filtration rate (GFR) when used in combination with serum creatinine (sCr). This result is a confirmation of previous observations from much larger cohorts.[2,3] It is a pity that this analysis has not taken into consideration the new European Kidney Function Consortium (EKFC) cystatin-based equation (and the combined equation).[2] Also, the reference method used for GFR measurement is not ideal.[4] It must be reminded that cystatin C is currently relatively little used in daily clinical practice, except in some countries. Therefore, comparison of sCr-based equations remains of interest. In this context, we disagree with the interpretation of the authors, who claim that the Chronic Kidney Disease Epidemiology Collaboration equation (2009 CKD-EPI sCr) is performing better than the respective full-age spectrum equations.[5] In their European cohort, Iversen et al showed a bias of +2.6 (−1.3 to +4.7) and −4.3 (−6.7 to −1.3) mL/min/1.73 m^2 for 2009 CKD-EPI sCr and EKFC sCr, respectively. The difference is not significant. The inaccuracy (% of estimating GFR beyond 30% of measured GFR) is also very comparable (8.5% [3.8%-14.2%] vs 7.5% [2.8%-13.2%]). All sub-analyses must be interpreted with caution because of the small sample size. However, it does not seem that the 2009 CKD-EPI sCr equation is performing better than the EKFC sCr. Regarding the 2021 CKD-EPI sCr, its performance is slightly worse.

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In Reply to Estimating GFR: The Devil Is in the Details

We thank Delanaye and Pottel for their response letter,[1] which raises some important points. Our main goal was to assess the relative accuracies of estimated glomerular filtration rate (eGFR) equations based on creatinine, cystatin C, beta-trace protein, and beta-2 microglobulin in hospitalized older adults. We found that the addition of cystatin C to creatinine-based equations improved accuracy, whereas the addition of beta-trace protein and/or beta-2 microglobulin did not. This corroborates earlier literature, but it is one of only a few such studies among elderly multimorbid patients. These patients are at a disproportionately high risk of inaccurate GFR estimates and adverse outcomes related to such errors,[2] but they are under-represented in the development of most modern eGFR equations.

We agree that the 2023 European Kidney Function Consortium (EKFC) creatinine–cystatin C combination equation should be considered. Our article was already through peer review when this equation was published, but subsequent analysis shows that it performs similarly to the 2012 Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) combination equation in our cohort (Table 1). We think it is clear from these data that both CKD-EPI and EKFC outperform their respective FAS equations. Whether EKFC is more appropriate in Europeans is a topic of ongoing debate.[3]

Regarding our use of 99mTc-DTPA plasma clearance as the reference method, this is the current clinical standard within Denmark and the only option available at most clinical laboratories. Delanaye and Pottel reference a review by Soveri et al[4] stating that DTPA plasma clearance is inaccurate, but several studies contradict this conclusion.[5] As it happens, we are currently investigating other methods, including iohexol plasma clearance.[6]

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