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Prevalence of CKD in the United States: GFR Estimating Equations Matter

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To the Editor:

The sensitivity analysis by Snyder et al. (1) evaluated prevalence estimates of CKD in the adult general population by using different equations for estimated glomerular filtration rate (eGFR). The prevalence of stages 3 and 4 chronic kidney disease (CKD; eGFR, 15–59 ml/min/1.73 m²) was lower with the Mayo Clinic Quadratic (MCQ) equation (2) at 6.3% than with the MDRD Study equation (3) at 8.3%. As Snyder et al. note, the MCQ equation was developed using approximately two-thirds healthy persons and one-third clinical CKD patients, whereas the MDRD Study equation was developed using only clinical CKD patients. The MCQ was not developed with a standardized serum creatinine assay and Snyder et al. corrected for this using an indirect method.(4) A direct correction based on exchanged frozen serum samples is also available (5) and may lead to different results. Having a universal threshold (<60 ml/min/1.73 m²) for a standard equation (MDRD Study equation) has led to a consistent literature, but the epidemiology of CKD may be distorted. We found that the inclusion of healthy persons in the sample used to develop an estimating equation led to a higher risk of eGFR <60 ml/min/1.73 m² in men than in women, whereas an equation developed using only clinical CKD patients led to a higher risk of eGFR <60 ml/min/1.73 m² in women than in men.(6) The use of demographics in equations to model the non-GFR determinants of serum creatinine among clinical CKD patients may not be transferable to the general population where demographics also reflect risk of CKD.(7) There may not be a single equation that is accurate for both the general population and for nephrology clinics.

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