The critical role of the clinician to diagnose and stage CKD when using an estimated GFR

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The best overall index of renal function is the glomerular filtration rate (GFR). In the current Kidney Disease Outcome Quality Initiative (K/DOQI) and Kidney Disease Improving Global Outcomes (KDIGO) Clinical Practice Guidelines for Chronic Kidney Disease (CKD), a GFR<60 ml/min/1.73 m^2 for >3 months is classified as CKD and particular GFR levels are used for CKD staging. Therefore, a proper GFR estimation has a paramount importance for CKD diagnosing and staging. The most popular creatinine-based formulas for estimated GFR (eGFR) are Cockcroft-Gault (CG) and Modification of Diet in Renal Disease Study (MDRD). Recently a new equation, the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI), was introduced in 2009. The estimates for CKD prevalence depend on the formula used for eGFR since applying the new CKD-EPI equation reduced the estimated prevalence from 13.1% to 11.5%, representing a decrease of 3.2 million people. In an extensive literature reviews, two important findings were reported. First, at present time there is no sufficient data to support the endorsement of the new CKD-EPI equation over the MDRD one (only 1.8% higher accuracy within ±30%). Second, the CG and MDRD formulas correctly assigned only 64% and 62%, respectively, of the subjects to their actual K/DOQI-CKD stages (there is limited data for the CKD-EPI equation). This suggests that approximately 10 million (38%) subjects may have been misclassified, even misdiagnosed, on the basis of estimated CKD prevalence of 26.3 million adults in the United States. Since the GFR declines with aging and there is limited data for normal GFR at age >70 years, clinicians should be very careful to avoid under-diagnosing CKD (eGFR 60-90 ml/min/1.73 m^2) in young individuals, those who will benefit the most from an early nephrology referral, and over-diagnosing CKD (eGFR 45-60 ml/min/1.73 m^2) in elderly individuals.

Biography

Rossini Botev graduated from Medical University, Sofia, Bulgaria. After arriving in U.S., he first studied English, then prepared for and passed the ECFMG and FLEX exams as a foreign medical graduate. He completed his Internal Medicine internship and residency training at Kingsbrook Jewish Medical Center, State University of New York, and after that his Nephrology Fellowship at Hospital of Saint Raphael, Yale University School of Medicine. He is currently a very pro-active member of a nephrology unit with an exceptional CKD service in the Kaiser Permanente Hawaii Region, namely a recipient of the Kaiser Permanente 2012 James A. Vohs Award for Quality for "Population Care Management of Chronic Kidney Disease Program". He was also a Chairman and co-organizer of the first Hawaii Kaiser Permanente Symposium "Chronic Kidney Disease: The Coming Epidemic". His interest in prevention and management of CKD is reflected by several publications on this topic.

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