


Review

Kidney Function Assessment in African American Patients: A Narrative Review for Pharmacists

Dhakrit Rungkitwattanakul ^{1,*} , Weerachai Chaijamorn ², Eunice Han ³ and Mohammed Aldhaeefi ¹

¹ Department of Clinical and Administrative Pharmacy Sciences, Howard University College of Pharmacy, Washington, DC 20059, USA; mohammed.aldhaeefi@howard.edu

² Faculty of Pharmacy, Siam University, Bangkok 10160, Thailand; weerachai.cha@siam.edu

³ United Healthcare, Minnetonka, MN 55305, USA; eunicehan85@gmail.com

* Correspondence: dhakrit.rungkitwatt@howard.edu

Abstract: Recent recognitions of longstanding societal inequity in kidney function assessments have prompted the call to eliminate race as part of the algorithm to assess estimated glomerular filtration rate (eGFR). Previous equations for eGFR estimation adopted race as part of the calculation. Incorporating race within eGFR equations results in overestimating and underestimating Black and nonblack patients, respectively. The inclusion of race is controversial. In September 2021, the National Kidney Foundation (NKF) and the American Society of Nephrology (ASN) combined task force recommended estimating the kidney function without using a race variable. The task force endorsed race-free creatinine-cystatin C equations to be more accurate than the creatinine-only equations. Before the application of NKF-ASN revised recommendations, major healthcare disparities influenced daily clinical practice. Those disparities include the delay in initiating medications that have renal or cardio-protective effects, such as sodium-glucose cotransporter-2 inhibitors (SGLT-2i) and angiotensin-converting enzyme inhibitors (ACEIs). Clinical judgment should be employed when dose adjusting medications. Combining the eGFR with other clinical assessment tools such as urinary output, the expanded use of confirmatory tests, and the eGFR trend is suggested for a better kidney function assessment. Additionally, creatinine-cystatin C is recommended when feasible, and when institutions have the laboratory abilities.

Keywords: glomerular filtration rate; kidney function; race; African American; black; equations



Citation: Rungkitwattanakul, D.; Chaijamorn, W.; Han, E.; Aldhaeefi, M. Kidney Function Assessment in African American Patients: A Narrative Review for Pharmacists. *Pharmacy* **2022**, *10*, 65. <https://doi.org/10.3390/pharmacy10030065>

Academic Editor: Timothy Nguyen

Received: 30 May 2022

Accepted: 17 June 2022

Published: 20 June 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Chronic kidney disease (CKD) is one of the most common medical conditions affecting all age groups and is a worldwide public health problem. In the United States (US), reports from the United States Renal Data System (USRDS) in 2019 showed the number of patients enrolled in the End-Stage Renal Disease (ESRD) Medicare-funded program increased from 17,907 in 1980 to 746,557 in 2017. The increase was almost a 3% increase from the previous year [1]. The report also calls attention to the striking racial variations in the prevalence of CKD and ESRD. In 2017, the incidence rate for ESRD in the United States was 370.2 per million/year. Of those, the rate among African-American patients was about three times greater than the rate among the Caucasian population [1]. Similarly, patients of African descent suffered a higher incidence of ESRD in the United Kingdom (UK) [2]. There is also a significant racial disparity in the etiologies of ESRD, average time of pre-ESRD nephrology care, and proportion of fistula use. Furthermore, the age of patients with ESRD tends to be younger among African-American patients [1]. This has drawn attention to the consequences of health disparities and inequity in medicine among the medical community.

African-American or Black patients are at a higher risk of developing CKD. The incidence of hypertension, diabetes, and obesity, which are the traditional risk factors for CKD is much higher in the African-American population than other races [3]. Additionally, among ethnic minority communities, lack of access to care and social determinants of