

Epidemiology and referral patterns of chronic kidney disease in Johannesburg, South Africa: A single centre experience

Yusuf Urade¹, Zaheera Cassimjee^{1,2}, Chandni Dayal^{1,2}, Sheetal Chiba^{1,2}, Adekunle Ajayi^{1,2}, Malcolm Davies^{1,2}

¹University of the Witwatersrand, Johannesburg, South Africa

²Division of Nephrology at Helen Joseph Hospital, Johannesburg, South Africa

Abstract

Introduction: Chronic kidney disease (CKD) contributes significantly to the global non-communicable disease burden. Early intervention ameliorates progression of CKD; recognition of at-risk patient groups may improve detection through screening. We here report the epidemiology and referral patterns of CKD in the largest series of patients yet analysed in sub-Saharan Africa.

Methods: A retrospective clinical records review of patients attending a specialist nephrology outpatient clinic between 1 January 2011 – 31 December 2021 was undertaken. Demographic data, ascribed aetiology of kidney disease, comorbidities, and eGFR at referral were described for the cohort. Age and eGFR at referral were compared between ethnicities, sexes, and nationality categories using appropriate testing. Stepwise multivariate logistic regression was used to determine the effect of age, gender, ethnicity and immigration status on aetiological category of CKD and referral pattern.

Results: Black African patients who comprised the majority of the sample cohort were younger at referral and more frequently female than other ethnicities; non-nationals were younger at referral than South Africans. Hypertension-associated kidney disease was the leading ascribed aetiology of CKD (40.7%), followed by diabetic kidney disease (DKD) (19%), glomerular disease (12.5%), and HIV-associated kidney diseases (11.8%). Hypertension-related (25.9%) and diabetic (10.7%) kidney diseases were not uncommon in people living with HIV. Advancing age and male sex were associated with hypertensive nephropathy, DKD and obstructive uropathy; males were at increased risk of HIV-associated kidney disease and nephrotoxin exposure, as were patients of Black African ethnicity. 47.8% of patients were referred in CKD G4 or G5. Non-national immigration status and diabetes were associated with late referral; antecedent diagnosis of HIV reduced late referrals.

Conclusions: Hypertension, diabetes, and HIV remain important aetiological factors in CKD. Referral to nephrology services occurs late. Interventions and policy reform targeting at-risk populations are required to improve referral practices.