ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 12, Issue 06, June-2025 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

REVIEW OF CHRONIC KIDNEY DISEASE IN CLINICAL PRACTICE

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Abstract. Early detection is a critical strategy for preventing kidney disease, its progression, and related problems, yet multiple studies have found that public knowledge of renal illness is poor. Thus, expanding information and adopting long-term solutions for early diagnosis of kidney illness are public health priority. Economic and epidemiological data highlight why kidney illness should be prioritized on the global public health agenda: kidney disease prevalence is rising internationally, and it is now the seventh highest risk factor for mortality. Furthermore, demographic trends, the obesity epidemic, and the consequences of climate change are all expected to increase kidney disease prevalence even more, with major implications for survival, quality of life, and health-care spending around the world[1]. Importantly, the burden of kidney disease is largest in historically disadvantaged people, who frequently lack access to appropriate renal disease medications, contributing significantly to present socioeconomic gaps in health outcomes.

Key words: CKD, etiology, diagnosis, diabetic kidney disease, sodium–glucose co-transporter 2 inhibitors

Population growth, ageing and the increasing burden of diabetes, heart disease and hypertension are the best-recognized drivers of CKD incidence, especially in regions with advanced economies. As many as 1 in 3 people with diabetes and 1 in 5 with hypertension in high-income countries (HICs) have CKD, which has led to the suggestion that focusing on the control of diabetes and cardiovascular disease will alleviate the growing burden of CKD. This assumption is based on the premise that screening for CKD is part of the standard of care for these conditions and that no special interventions are required in those with kidney diseases. Kidney disease is an increasing global problem that disproportionately affects poor, vulnerable and marginalized populations, and is associated with high individual, health care and societal costs[2]. Approximately 700 million people are estimated to have CKD worldwide. Population dynamics are increasing the numbers of people at a high risk of kidney disease but with limited access to kidney care. This effect is driven both by population growth and an ageing population. Climate change and loss of global biodiversity are also increasing the risk of infectious diseases that predispose to AKI and CKD outside of current tropical areas as the climate becomes more conducive to the survival of parasites (for example, those causing malaria or schistosomiasis) and/or their vectors (for example, mosquitoes or ticks) The direct health care costs of kidney disease are relevant at the global, country, health system and individual levels. Patients with CKD are complex to manage and account for a disproportionately large amount of national economic expenditure. The changing population dynamics predicted over the next 20 years will translate to an increase in the number of people with kidney disease in LICs and LMICs, who are the least able to access kidney care. Arguments have been made that prioritizing kidney disease is not necessary in health systems without the resources to pay for the care of people with kidney disease. This approach will perpetuate and exacerbate the current global inequities in the care of patients with kidney disease, represents a pressing moral quandary to the world and is contrary to the Sustainable Development Agenda of leaving no one behind. Acceptance of such a situation by using the framing of cost-effectiveness as the primary metric further deprioritizes these patients, leading to the outright denial of care. The status quo perpetuates this injustice. The changing population dynamics predicted over the next 20 years will translate to an increase in the number of people with kidney disease in LICs and

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In order to better manage CKD and provide better care for patients, the classification of CKD was developed by the National Kidney Foundation Kidney Disease Outcomes Quality Initiative [1] and the international guideline group Kidney Disease Improving Global Outcomes (KDIGO) [3]. CKD stratification is based upon the estimated glomerular filtration rate (eGFR) and albuminuria. There are six eGFR categories. An eGFR of less than 60 mL/min per 1.73 m2 for more than 3 months is indicative of impaired renal function and the severity of kidney damage increases with decreasing eGFR measurements. Patients with early onset of the disease, stage 1–2, have normal to mild decreased levels of eGFR (60 to C 90 mL/min per 1.73 m2). Patients with stage 3a–3b have mild to moderate decreased levels of eGFR (45–59 mL/min per 1.73 m2 , respectively). Severely decreased levels of eGFR, stage 4–5 (15–29 to \15 mL/min per 1.73 m2 , respectively), are indicative of advanced stages of the disease and kidney failure. Stratification also comprises three categories of albuminuria. Patients with an albumin to creatinine ratio (ACR) of 3 to at most 30 mg/ mmol are classified as having microalbuminuria and at moderate risk of adverse outcomes. Those with ACR of greater than 30 mg/mmol are classified as having macroalbuminuria and being severely at risk of developing adverse events [4]. The eGFR and albuminuria categories independently predict adverse outcomes for patients with CKD, and the combination of both increases this risk further [6]. The CKD classification system aids clinicians in carrying out accurate assessments of CKD severity and other complications which helps to inform decisions associated with the management and monitoring of patients [4]. Over the last 2 years, novel therapeutic approaches for CKD management have emerged, with particular attention on mineralocorticoid receptor antagonists (MRAs) and sodium–glucose co-transporter 2 (SGLT2) inhibitors. The clinical effectiveness of finerenone, a selective oral, non-steroidal MRA, has recently been demonstrated to lower risks of CKD progression and cardiovascular events in diabetic kidney disease (DKD) [3]. Finerenone is under review for approval by the European Medicines Agency (EMA) and US Food and Drug Administration (FDA). More recently, these cardiovascular and renal protective effects of SGTLT2i have also been demonstrated in a broad range of patients with more advanced stages of CKD (mean eGFR was 43.1 ± 12.4 mL/min per 1.73 m2) without diabetes [6]. In the DAPA-CKD trial, many patients were without diabetes, including IgA nephropathy, ischemic/hypertension nephropathy and other glomerulonephritis [5]. Patients receiving dapagliflozin had a 39% relative risk reduction in the primary composite outcomes of a sustained decline in eGFR of at least 50%, ESKD and renal- or cardiovascularrelated mortality and a 31% relative risk reduction of all-cause mortality compared to placebo [7]. Safety outcomes from clinical trials of dapagliflozin have also shown similar incidences of adverse events in both placebo and dapagliflozin arms [5]. This narrative overview highlights some of the major issues related with CKD. Early stages of the disease are clinically silent, preventing early management and allowing for progression of CKD and ESKD. Patients with severe CKD have a higher risk of cardiovascular-related morbidity and mortality due to clinical symptoms. Advanced stages of CKD and ESKD lead to poor outcomes and severe clinical and economic burdens.

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