

Diagnosis and treatment of chronic renal disease in primary care

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COMMENTARY

Chronic kidney disease (CKD) is a serious non-communicable disease that affects people all over the world. CKD is defined and staged in national and international standards based on kidney function measurements that allow for risk stratification using routinely available indicators. Early identification is critical to prevent future risk because it is generally asymptomatic in its early stages. For most persons with CKD, the risk of cardiovascular complications outweighs the risk of progressing to end-stage kidney disease. Acute kidney damage is a major source of morbidity and mortality worldwide, and CKD predisposes to it. Despite the fact that only a tiny percentage of people with CKD develop to end-stage kidney disease, renal replacement therapy (dialysis or transplantation) is a significant financial and emotional burden for patients. Efforts in primary care are thus essential to lower the risks of cardiovascular disease, acute renal injury, and progression. Renal function monitoring is crucial, and primary care practitioners are well-positioned to oversee this element of therapy, as well as the management of modifiable risk factors like blood pressure and proteinuria. Making decisions about referral for a specialist nephrology opinion requires good primary care judgment as well. Because CKD frequently coexists with other diseases, it's critical to consider comorbidities and patient preferences. Primary care practitioners play a critical role in coordinating therapy while taking a holistic, patient-centered approach and ensuring continuity.

Kidney health is a top priority around the world. This reflects the kidneys' critical roles in maintaining fluid and electrolyte balance as well as removing waste (including medicines), releasing hormones to control Blood Pressure (BP) and stimulate red blood cell production (reducing the risk of cardiovascular disease and anemia), and activating vitamin D to maintain bone health. Chronic Kidney Disease (CKD) is a term used to describe the decline of kidney function over time. It's more common to be diagnosed with other comorbidities (such as hypertension, diabetes, and cardiovascular disease), isolated CKD is the exception rather than the rule, and CKD is linked to socioeconomic hardship. To avoid CKD development and cardiovascular events, lower the risks of Acute Kidney Injury (AKI), and enhance patient safety and medication administration, effective detection and management are required. Previously, it was thought that nephrologists in secondary care settings were responsible for managing patients with CKD, but increasing awareness of the nature and implications of early stages of the disease means that primary care practitioners have an important role to play. In order to identify persons with CKD, conduct proper risk assessment, explain the diagnosis to patients, and work with them toward optimal management and risk reduction, those working in primary care must have a thorough grasp of the condition. In general care, CKD is frequently asymptomatic, and the pathophysiology driving its progression is frequently unclear (as no renal biopsy is usually performed). It is recognized and defined by the existence of a kidney structural or function (or both) anomaly that has been present for at least three months. The presence or absence of structural kidney abnormality or other evidence of chronic kidney damage, particularly albuminuria, is used to classify it. Renal dysfunction is measured by the estimated glomerular filtration rate (eGFR) derived from serum creatinine using standard estimating equations and the presence or absence of structural kidney abnormality or other evidence of chronic kidney damage, particularly albuminuria. The Kidney Disease Improving Global

Outcomes (KDIGO) organization has created a "traffic light" staging scheme that includes both creatinine-based eGFR and albuminuria to summarize the phases of CKD.

CKD is a major non-communicable disease that is a predictor of poor outcomes. It frequently occurs in conjunction with (and worsens the prognosis of) other non-communicable diseases. For the vast majority of patients with CKD, the risk of acquiring cardiovascular disease outweighs the risk of progressing to end-stage kidney disease. A comprehensive multinational effort to identify, decrease, and enhance AKI incidence and care has recently acknowledged the elevated risk of AKI. End-stage renal disease and the resulting need for dialysis or transplantation are expensive for health-care systems and burdensome for individuals, thus early detection and intervention in primary care to lower the risk of progression is critical for long-term sustainability. In the UK, the financial cost of CKD was estimated to be £1.45 billion in 2009–2010, accounting for more than 1% of total health-care spending in that year, with over half of that spent on renal replacement therapy (RRT) and severe economic implications connected with cardiovascular problems. CKD is becoming more widespread in many countries, and according to the Global Burden of Disease Study 2010, it was the 18th leading cause of mortality worldwide (increased from 27th in 1990). In population-representative surveys in developed nations, the prevalence of moderate-to-severe CKD (stages G3–G5) is estimated to be between 5% and 6%, depending on the equations used to calculate eGFR from serum creatinine. The prevalence of the disease rises dramatically with age, and it is more prevalent in lower socioeconomic levels and specific ethnic groups. Despite some debate over whether people with milder kidney dysfunction should be classified as having a "disease," international guidelines such as those developed by the US National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI) and KDIGO represent significant advances in terms of defining CKD and providing evidence-based recommendations for care, particularly for interventions such as blood pressure control (the highest global risk factor in the Global Burden of Disease Study). Smoking, hypertension, and obesity are all risk factors for the development of CKD, and all of them are growing in frequency and associated risk status internationally, with indications of a higher prevalence in lower socioeconomic categories.

The most common site for CKD care is determined by a number of criteria, including the source and severity of the disease, as well as health system culture, which varies greatly around the world. The bulk of care for persons with mild-to-moderate CKD in the UK currently happens in primary care, thanks to the establishment of a national renal care framework in the UK ten years ago and the subsequent incentivizing of general practitioners (GPs) to identify and keep registers of patients with CKD. The primary location of care for individuals with progressively severe kidney disease who require RRT (dialysis and transplant) is usually secondary care. This more severely afflicted population is not the primary focus of this evaluation, however primary care continues to play an important supportive role, and there is evidence that GPs need greater advice in this area. There is also mixed evidence about CKD screening in general populations, which is not discussed in detail, though there is some evidence to support focused screening, such as in people with diabetes or hypertension, which is currently done as part of the NHS Health Check program in the United Kingdom.

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It is critical to understand the description and staging of CKD in order to accurately identify patients with the disease in clinical practice. This data is also essential for properly advising patients on their kidney health and stratifying their future risk. A patient is diagnosed with CKD if abnormalities of kidney structure or function have been present for at least three months, according to the KDIGO CKD recommendations (and the English National Institute for Health and Care Excellence (NICE) CKD guidelines). The most significant tests to identify CKD in practice, in primary care, are eGFR determined from serum creatinine and ACR derived from a urine sample. NICE recommends that selected populations be offered eGFR and ACR testing for CKD.

Primary care is crucial in the monitoring and management of CKD, especially when it comes to lowering the risk of cardiovascular disease and associated consequences. Only a small percentage of persons with mild or moderate CKD develop end-stage disease. Only 38 (1%) of 3,069 patients with CKD followed for a median of 8 years in a population-based study in Norway (the HUNT II trial) advanced to end-stage disease. As a result, the primary goal of monitoring in people with CKD is to perform risk stratification using objective measures in conjunction with clinical judgment in consultation with the patient, and to review this risk on a regular basis, not only to identify the small percentage of people who are at risk of disease progression, but also to identify those who are at risk of death cardiovascular disease and AKI are two examples of other consequences. Attempts to identify persons with CKD who are at risk of progression have sparked a lot of scientific interest. This has involved maximizing the effectiveness of current biomarkers, both individually and in combination. The capacity to appropriately identify people at higher risk of progression and mortality was increased by integrating creatinine-defined eGFR with ACR and cystatin C-derived eGFR. Several risk scores have been created, most notably from the perspective of the general population of people with CKD (23 different models were identified in a recent systematic review). People at risk of progression can be identified using a variety of demographic and clinical factors. Other novel risk variables, such as genetic markers, fibroblast growth factor 23, and new cardiovascular risk factors, have also been investigated.

Creatinine testing frequency for monitoring eGFR has been a source of contention, with recommendations based more on expert opinion than formal study data. As a result, the frequencies advised by NICE and KDIGO differ slightly, however those recommended by KDIGO are displayed with the KDIGO color scheme to highlight the risk of advancement in each category. The independent predictive ability of ACR measurement for a wide range of adverse clinical outcomes, including all-cause and cardiovascular mortality, AKI, CKD progression, and heart-failure-related hospitalization, has been demonstrated in international meta-analyses of large-scale general population cohorts. Controlling blood pressure is likely the most critical strategy in reducing both progression and cardiovascular risk in persons with

CKD, and it is a fundamental strength of primary care. Hypertension affects a large percentage of persons with chronic kidney disease. In a large database research in Canada (n=530,771), hypertension was found in 47 percent of persons with all stages of CKD.

Primary care is playing an increasingly essential role in the prevention of AKI. AKI is thought to be responsible for around one in every five emergency hospital admissions from primary care. Identifying those at risk (CKD, sepsis, dehydration, and hypovolemic), good medicine management (avoiding no steroidal anti-inflammatory drugs and other nephrotoxic agents), administration of key immunizations to reduce infection risk (including influenza and pneumococcal), and serum creatinine testing to identify those with deteriorating renal function are all important factors to consider. It's also crucial to keep an eye out for signs of CKD progression after an AKI, including regular medication reviews. Recognize that CKD impacts medication metabolism, and that many medications can affect renal function on the other hand. Comorbidities may be more important to individuals with CKD in the early stages, although this may change as the disease advances. Clinicians in primary care play a crucial role in overseeing and coordinating care for persons with chronic kidney disease. The necessity of good communication with CKD patients is linked to this. This is relevant at the mild-to-moderate stage to discuss risk stratification and self-management activities such as smoking cessation and weight loss (if overweight or obese), as well as the potential need for medication intervention. The evidence that a large proportion of persons with CKD have inadequate health literacy is concerning in this context. However, instead of simply simplifying information for patients, education programs and patient support groups may be encouraged to empower patients and enhance self-efficacy.

CKD is a widespread condition that is projected to become more common as the world's population ages and risk factors such as obesity become more prevalent. Many health systems cannot afford to see a rising number of individuals develop end-stage renal disease and require dialysis or a kidney transplant as a result of CKD. Because CKD is generally asymptomatic in its early stages, primary care practitioners play a critical role in its detection, risk assessment, and monitoring. Primary care also plays an important role in preventing complications and advancement in the management of risk factors such as high blood pressure and AKI prophylaxis. Primary care practitioners are best positioned to take a comprehensive approach to care in mild-to-moderate CKD and empower patients because CKD frequently occurs in conjunction with other chronic illness comorbidities. CKD is a good example of why primary health care is needed now more than ever, according to the principles of the World Health Organization's World Health Report 2008.