Lown Right Care

Reducing Overuse and Underuse

Overdiagnosis of CKD in Older Adults: Unnecessary Interventions, Costs, and Worry

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Case Scenario

An 82-year-old man presents to his family physician to discuss his kidney function test results. He has well-controlled hyperlipidemia and hypertension treated with 40 mg of atorvastatin and 20 mg of lisinopril daily. His body mass index is normal. He exercises three or four times per week for 30 minutes on a stationary bike and follows a Mediterranean diet. Recent laboratory testing found a blood urea nitrogen level of 29 mg per dL (10.35 mmol per L), serum creatinine level of 1.43 mg per dL (126.41 μmol per L), and an estimated glomerular filtration rate (eGFR) of 49 mL per minute per 1.73 m^2 that was similar three months ago and not associated with albuminuria, classifying him with stage 3a chronic kidney disease (CKD). Before the visit, the patient shared the results with his brother-in-law, a retired cardiologist, who told him to request an urgent nephrology referral because the patient was in danger of progressing to kidney failure and eventually needing dialysis. The patient is concerned by this news and has many questions.

Clinical Commentary

CKD is abnormal kidney structure or function lasting more than three months.[1] The condition affects more than 47 million people in the United States and is most often associated with long-standing hypertension and diabetes mellitus.[2] CKD is associated with significant morbidity, mortality, and increased health care costs, particularly in patients requiring dialysis. It is an independent risk factor for cardiovascular disease and all-cause mortality.[1] A 2016 report showed that Medicare spending for patients with CKD was more than $52 billion, representing 20% of all Medicare spending.[2] It is unclear how much of that spending is related to the treatment of end-stage kidney disease compared with milder forms of CKD that may not progress to dialysis.

Many guidelines recommend routinely screening adults for CKD with serum creatinine, urine albumin/creatinine ratio, and serum cystatin C measurements and urinalysis.[3,4] However, these guidelines rarely quantify the benefit of such screening and whether it can help prevent progression to clinically relevant complications or the need for dialysis.

The National Kidney Foundation's 2002 clinical practice guidelines set the standard for the diagnosis of CKD, emphasizing serum creatinine, eGFR, and albuminuria.[5] Although these guidelines were updated in 2012, the diagnostic criteria for adults older than 65 years did not change significantly.[5,6]

During the past two decades, there has been a significant increase in the diagnosis of CKD; approximately 50% of this increase is in patients older than 65 years who were not previously classified as having CKD.[2] Progressive decreases in eGFR and renal blood flow secondary to reductions in the glomerular capillary plasma flow rate and the glomerular capillary ultrafiltration coefficient can occur with normal aging.[7] Recent studies suggest that the National Kidney

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- A physiologic decline in eGFR is expected with normal aging secondary to reductions in the glomerular capillary plasma flow rate and the glomerular capillary ultrafiltration coefficient.
- Patients older than 65 years with an eGFR of 45 to 59 mL per minute per 1.73 m^2 and no or mild albuminuria have a low risk of progressing to more serious kidney disease.
- eGFR should not be used alone to diagnose chronic kidney disease in patients who are at risk.

eGFR = estimated glomerular filtration rate.

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Foundation's guidelines have resulted in overestimating the burden of CKD in older adults, often leading to escalating health care costs, increased worry, and potentially unnecessary interventions.[8]

Most epidemiologic studies on CKD are based solely on eGFR. Few studies have included albuminuria. A cohort study of adults with CKD suggests that the current criteria for CKD that use the same eGFR threshold for all ages may result in an overestimation of the CKD burden in an older population.[9] In that study, patients older than 65 years with an eGFR of 45 to 59 mL per minute per 1.73 m^2 and no or mild albuminuria had a higher risk of death than developing kidney failure, and the risks of kidney failure and death were similar in magnitude to those observed in people without CKD over a five-year study period. The five-year risks of kidney failure and death among these patients were similar to those in a control group without CKD. The study concluded that the CKD diagnostic criteria have led to overdiagnosis and unnecessary testing and treatment in people with an age-related decline in eGFR.[9]

A similar study in Iceland found a significant overestimation of CKD, especially in the older population.[10] Labeling people older than 65 years as having CKD did not predict who would progress to end-stage kidney failure. The development of age-appropriate criteria for the diagnosis of CKD is essential to avoid medicalizing the normal age-related decline in eGFR.[11,12]

Approximately one-half of adults older than 75 years meet the criteria for CKD based on decreased eGFR,[9] and few progress to end-stage kidney disease. No intervention based strictly on a CKD diagnosis has shown value in improving outcomes in these patients. This "epidemic" of CKD diagnoses has nothing to do with the increased incidence or prevalence of genuine disease but reflects flawed diagnostic criteria, making people believe they are sick when they are simply getting older.[1,2,13] Labeling older patients as having CKD leads to unnecessary interventions, diagnostic procedures, more laboratory testing, referral to nephrology, escalating health care costs, and worry. These potential harms are not offset by improved prevention of kidney failure, symptoms, or death.[14] Most older adults with CKD die with, not from, abnormal kidney function.

Patient Perspective

As people age, they may become increasingly fearful of developing a life-threatening disease. More and more of our older friends have developed heart disease, cancer, diabetes, or CKD. Is our turn coming next for one or more of these diagnoses? This case scenario seems to involve two principles that can be shared with this patient to reassure and guide him. The first is that his clinical laboratory values do not suggest impending kidney failure. A gradual decline in eGFR with age is expected, and his albuminuria levels are normal. With exercise, a Mediterranean diet, and a normal body mass index, he is already doing the right things to preserve his health.

The second principle involves explaining why kidney function tests are performed and how they should be interpreted. Most patients welcome an explanation of the thinking behind diagnostic decisions. This may be especially true of a health-conscious individual like this patient, who is trying to follow the best advice to live a long and active life. A broad understanding of how thinking on CKD has evolved and a discussion of the rationale for regular tests to follow his trajectory of eGFR changes may give him a sense of control over his care and provide further reassurance.

Resolution of Case

The patient's physician discussed the studies on the overdiagnosis of CKD in older adults and noted that because he does not have albuminuria, he is unlikely to progress to significant kidney disease. A patient-centered discussion led the patient to agree to a closer follow-up of his kidney function. The patient decided that additional testing and referral would be unlikely to improve his quality of life or well-being. He continues to do well on his medications and lifestyle modification.

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