Management of the Chronic Kidney Disease Patient

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KEYWORDS

• Chronic kidney disease • Primary care • Angiotensin-converting enzyme inhibitor
• Angiotensin receptor blocker • Antihypertensive • Albuminuria

KEY POINTS

- Chronic kidney disease (CKD) is a deadly and progressive disease.
- Effectively treating CKD and reducing cardiovascular mortality is a challenging task that cannot be done by a sole provider. It requires a team effort in which the patient plays a large role.
- Screening all at-risk patients is paramount.
- As the number of nephrology providers decrease along with increase rates of incident CKD, the primary care clinician can be confident in modifying the disease progression and limiting cardiovascular mortality through: (1) aggressive hypertension treatment with multiple medications and intentional lifestyle changes to achieve recommended blood pressure targets; (2) using angiotensin converting enzyme inhibitor or angiotensin receptor blocker as the initial medication of choice in patients with albuminuria; (3) reduction in proteinuria through renin-angiotensin-aldosterone system blockade, along with adherence to reduction in dietary sodium intake; and (4) reduction of both traditional and nontraditional risk factors for cardiovascular disease.

The incidence of end-stage renal disease (ESRD) is increasing rapidly and resulting in more patients requiring renal replacement therapy (RRT), defined as kidney transplant, hemodialysis, and peritoneal dialysis. For patients who decline interventions, medical management is indicated.[1] Nearly 1 in 6 Americans will develop stage 3 to 5 kidney disease in their lifetime; by comparison, lifetime risk for diabetes, myocardial infarction, or invasive cancer is about 4 in 10.[2,3]

Although only 1% of the Medicare population has ESRD, this diagnosis accounted for 8.1% of the Medicare budget and $49.3 billion in total costs in 2011.[1] Diabetes is the leading cause of ESRD in patients in the United States, followed by hypertension (**Fig. 1**).[1]

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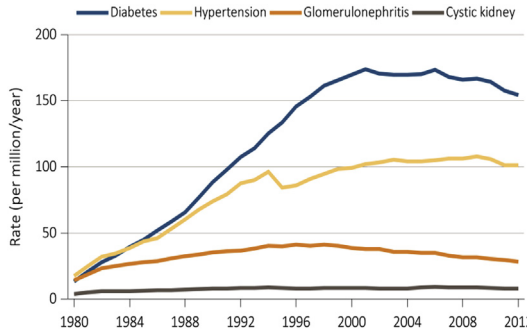

Fig. 1. CKD and diabetes, 1980 to 2012. Incident counts ESRD, by primary diagnosis. USRDS ESRD 2014. (*From* Saran R, Li Y, Robinson B, et al. US Renal Data System 2014 annual data report: epidemiology of kidney disease in the United States. Am J Kidney Dis. 2015;66(1)(suppl 1):S1–S306.)

Knowing this, clinicians should evaluate each at-risk patient for the potential development of chronic kidney disease (CKD), the precursor to ESRD. Although kidney transplant is the preferred treatment of patients with ESRD, with more than 100,000 people on the transplant list, dialysis or medical management is the answer for most patients. Dialysis treatments have made tremendous advances in prolonging the lives of patients with ESRD but take a physical, financial, and emotional toll on most patients, their families, and loved ones. For these reasons, evaluating kidney function is critical, especially in patients with CKD risk factors.

STEP 1: IDENTIFY PATIENTS AT RISK

Risk factors for developing CKD include[4]

- Age greater than 60 years
- Diabetes
- Hypertension
- Cardiovascular disease (CVD)
- Family history of CKD
- History of autoimmune disease
- History of recurrent urinary tract infections
- Nephrolithiasis
- Kidney cancer
- Systemic infections
- Abnormal serum creatinine (SCr), low glomerular filtration rate (GFR), or previous acute kidney injury (AKI)
- Transplant of any organ (due to the use of antirejection drugs, which are nephrotoxic).[2]

STEP 2: DIAGNOSIS

Using the accepted international definition developed by Kidney Disease Improving Global Outcomes (KDIGO) 2012 guidelines, CKD is present if 1 or more of the following criteria occur for more than 3 months:[2]

- A persistent and usually progressive reduction in GFR to less than 60 mL/min/1.73 m^2