

Approach to chronic kidney disease in the elderly

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Clinical question

How can I improve outcomes for older adults with chronic kidney disease (CKD)?

Bottom line

Chronic kidney disease is associated with substantial morbidity and health care costs.¹ Strategies and tools to predict and delay progression to end-stage kidney disease (ESKD) are vital, especially for patients with clinical frailty or with comorbidities. For a more comprehensive summary on this topic, see the in-depth article published in the *Canadian Geriatrics Society Journal of CME*.²

Evidence

- There is physiologic decline in estimated glomerular filtration rate (eGFR) starting in one's third and fourth decades, with a loss of approximately 8 mL/min every subsequent decade.³
- A hallmark of *normal* age-related renal decline is the relative absence of proteinuria,⁴ which is associated with a better prognosis.⁵
- Hypertension, hyperglycemia, atherosclerotic disease, smoking, and hyperlipidemia are associated with accelerated renal decline.^{6,7}
- The rate of eGFR decline can guide management; older patients with slow eGFR decline (<2 mL/min/year) are unlikely to progress to ESKD.⁸

Approach

While creatinine-based eGFR is affected by age, sex, and muscle mass,⁹ eGFR combined with albuminuria is useful in predicting progression of CKD. The Kidney Failure Risk Equation (KFRE; <https://kidneyfailurerisk.com>) is a validated tool that can predict 2- and 5-year risk of ESKD. Individuals with a 5-year KFRE score of greater than 5% warrant referral to a nephrologist.¹⁰

Risk factor management. Controlling blood pressure, lipid levels, and blood glucose levels are cornerstones of CKD management (**Figure 1**).⁶ Hypertension Canada recommends a target blood pressure of less than 130/80 mm Hg in patients with diabetes and less than 120/80 mm Hg in others.^{11,12} Kidney Disease: Improving Global Outcomes (KDIGO) 2021 guidelines recommend intensive blood pressure lowering with or without diabetes¹³; however, Hypertension Canada and KDIGO acknowledge limitations of evidence for blood pressure lowering in older people,^{11,13} and patients with substantial frailty or proclivity to falling require an individualized approach.¹⁴ One example of adverse effects due to aggressively lowering

blood pressure in older patients is postural hypotension,¹⁵ which can lead to falls and trauma.

Similarly, glycemic control needs to be individualized. Canadian guidelines recommend that hemoglobin A_{1c} targets should depend on frailty or cognition, with a focus on avoiding extremes in blood glucose levels.^{16,17}

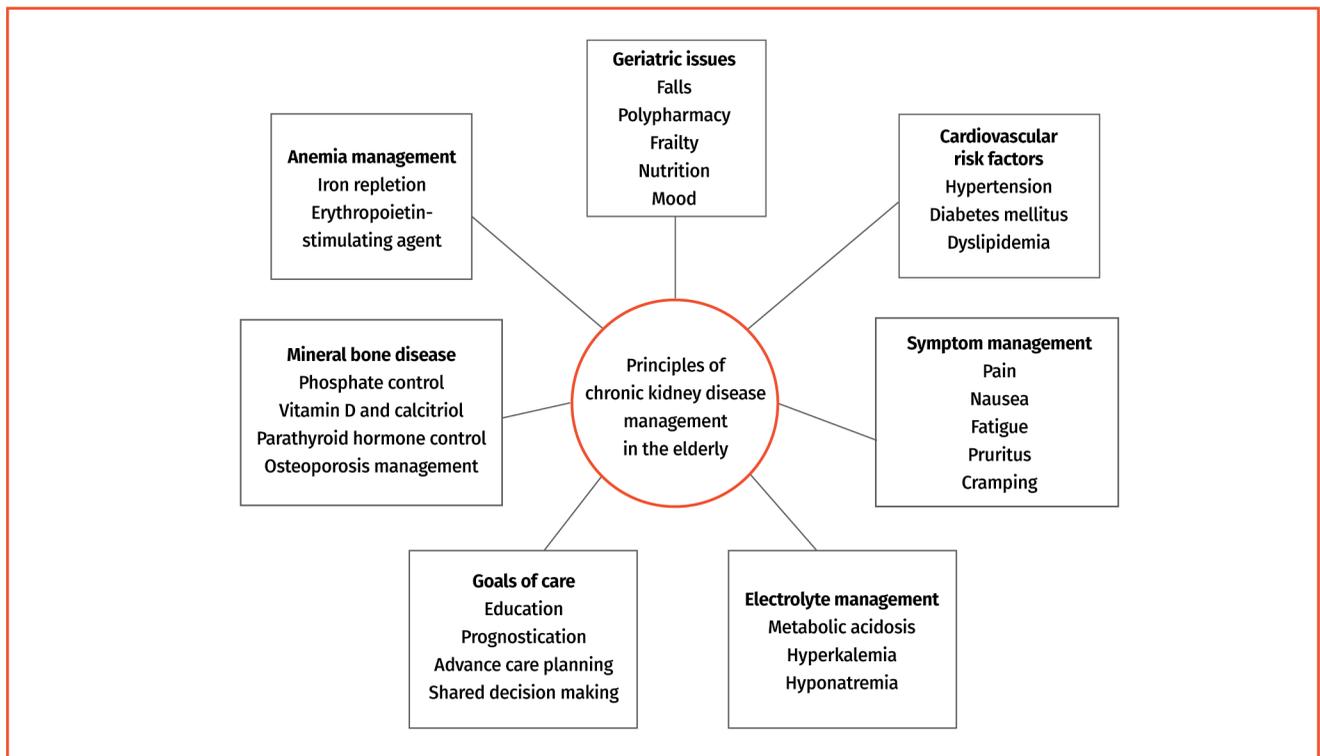
The effect of lipid management is attenuated in those older than 85 years.¹⁸ Lowering statin doses should be considered in elderly people with CKD, and patients should be monitored for myopathy.¹⁹ It may be prudent to defer statin therapy in patients who are frail with poor nutrition and risk of sarcopenia.¹⁸

Other management. Anemia is common in CKD and is often related to relative erythropoietin deficiency.²⁰ Symptoms may be magnified in elderly patients and impact quality of life. Anemia with CKD is associated with increased cardiovascular events, hospitalizations, transfusions, and death.²¹ Although ferritin levels are often elevated in CKD patients, iron deficiency is still possible: KDIGO recommends a trial of intravenous iron for patients with transferrin saturation of less than 30% and ferritin levels of less than 500 µg/L despite oral supplementation.²² According to Canadian Society of Nephrology guidelines, an erythropoietin-stimulating agent should be initiated when the hemoglobin level is between 90 and 100 g/L, with a target range of 100 to 110 g/L.²³ Dosing and monitoring should be managed by nephrologists.

There is an elevated risk of fragility fractures in patients with CKD.²⁴ Bone densitometry scans can be difficult to interpret in CKD but newer guidelines recommend using them to follow treatment effects.²⁵ As CKD progresses, the ability to hydroxylate 25-hydroxyvitamin D to 1,25-dihydroxyvitamin D wanes, and supplementation with calcitriol is often required.²⁶ More information on osteoporosis and mineral management can be found on the Canadian Geriatrics Society website.²⁷

Loss of bicarbonate and decreased excretion of acids resulting in metabolic acidosis can be found in those with CKD.²⁸ Chronic metabolic acidosis may contribute to osteopenia, muscle catabolism, and systemic inflammation, all of which contribute to frailty. There is increased mortality associated with bicarbonate levels of less than 22 mmol/L; KDIGO recommends initiating treatment with oral bicarbonate when serum levels fall below this threshold.²⁹

Patients with ESRD may experience uremic symptoms including fatigue, decreased appetite, metallic taste (dysgeusia), dyspnea, edema, and cognition changes.³⁰ Although dialysis may provide survival and symptom

Figure 1. Principles of chronic kidney disease care

improvement, these benefits are often modest in patients who are frail³¹ and can result in reduced quality of life and decreased independence.^{32,33} Elderly patients undergoing dialysis experience substantial symptom burden, with an average of 5 to 6 symptoms and the predominant being fatigue.³⁴ Home-based modalities such as peritoneal dialysis may be better tolerated and can be provided with the help of home care programs.³⁵

Implementation

Patients with a KFRE score of more than 5% over 5 years should be referred to a nephrologist, and those at higher risk of advanced progressive kidney disease (KFRE >10%) should be managed in a multi-care kidney clinic by a team that includes nurses, pharmacists, dietitians, social workers, and physicians. Management of elderly patients must incorporate geriatric competencies including evaluation of frailty, cognitive impairment, and multiple medications.

Goals of care planning

As renal function declines, it becomes imperative to discuss future planning and goals related to ESKD and renal replacement therapy.³⁶ It is important for the patient and their family to participate in shared decision making with providers and to be told potential benefits and harms or consequences of renal replacement therapy.³⁷

Conservative renal care without dialysis may be a good option in patients with comorbidities and frailty. This focuses on palliating symptoms and avoiding invasive therapies that provide little benefit in terms

of symptoms and survival.³⁸ Tools such as the Clinical Frailty Scale³⁹ can be useful to identify patients who would benefit from conservative management. Fostering partnerships between family medicine, nephrology, geriatrics, and palliative medicine would help establish a holistic approach to care and ensure that patients' goals and values are incorporated into management of CKD. 🌿

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Competing interests

None declared

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