

Understanding Chronic Kidney Disease in Patients with Type 2 Diabetes

Chronic kidney disease (CKD) is diagnosed by the persistent elevation of urinary albumin excretion (albuminuria), low estimated glomerular filtration rate (eGFR) or other manifestations of kidney damage. Diabetes-related kidney disease typically develops after a diabetes duration of 10 years in type 1 diabetes, but may be present at diagnosis of type 2 diabetes. In addition, among people with type 1 or type 2 diabetes, the presence of CKD markedly increases cardiovascular risk.



Top 5 CKD Treatment Recommendations:

1



Blood Glucose Management

2



Blood Pressure Management

3



Pharmacologic Interventions

4



Lifestyle Interventions

5



Nephrologist Referral

Treating Chronic Kidney Disease in Patients with Type 2 Diabetes

1 Blood Glucose Management

Optimize blood glucose management to reduce the risk or slow the progression of CKD. Goals may be less aggressive in people with prevalent CKD and substantial comorbidities to reduce the risk of hypoglycemia.

Targets are:

A1C: Less than 7%

eAG*: Less than 154 mg/dL

Before a meal: 80–130 mg/dL

1–2 hours after beginning of the meal:
Less than 180 mg/dL

2 Blood Pressure Management

Optimize **blood pressure management** to a reading of at least <130/80 mmHg and reduce blood pressure variability to reduce CVD mortality and slow progression.

3 Pharmacologic Interventions

Consider **pharmacologic interventions**, including:

Angiotensin-converting enzyme (ACE) or angiotensin receptor blocker (ARB):

Recommend for those with moderately increased albuminuria: urinary albumin-to-creatinine ratio (UACR) 30–299 mg/g creatinine.

Strongly recommended for those with severely increased albuminuria: UACR \geq 300 mg/g creatinine and/or (eGFR) of <60 mL/min/1.73 m².

Monitor serum creatinine and potassium levels periodically for the development of increased creatinine and hyperkalemia when ACE inhibitors, ARBs and mineralocorticoid receptor antagonists are used, or hypokalemia when diuretics are used.

*eAG = Estimated Average Glucose

An ACE inhibitor or an ARB is not recommended for the primary prevention of CKD in people with diabetes who have normal blood pressure, normal UACR (<30 mg/g creatinine), normal eGFR or are pregnant or plan to become pregnant.

Do not discontinue renin-angiotensin system blockade for increases in serum creatinine (\leq 30%) in the absence of volume depletion.

Glucose-lowering therapy:

Recommend a sodium-glucose cotransporter 2 inhibitor or a glucagon-like peptide 1 agonist to reduce CKD progression and cardiovascular events in patients with an eGFR \geq 20 mL/min/1.73 m² and UACR \geq 200 mg/g.

Nonsteroidal mineralocorticoid receptor antagonist:

Recommend in people with CKD and albuminuria due to the increased risk for cardiovascular events and CKD progression (if eGFR is >25 mL/min/1.73 m²).

4 Lifestyle Interventions

Discuss **lifestyle interventions**, such as nutrition, including:

Setting target for dietary protein intake of 0.8 g/kg body weight per day for people with non-dialysis-dependent stage 3 or higher CKD.

Taking in higher levels of dietary protein for patients on dialysis, since protein energy wasting is a major problem in some individuals.

5 Nephrologist Referral

Refer to a nephrologist for continuously increasing urinary albumin levels and/or continuously decreasing eGFR and/or if the eGFR is <30 mL/min/1.73 m². Also, promptly for uncertainty about the etiology of kidney disease, difficult management issues, and rapidly progressing kidney disease.

Learn more with the **Cardiovascular Disease in Type 2 Diabetes for Health Care Professionals** course.
Find out more at [KnowDiabetesbyHeart.org/CVDinType2Course](https://www.knowdiabetesbyheart.org/CVDinType2Course)