PHYSICIAN FACT SHEET

Antihypertensive Medications in Chronic Kidney Disease

The goal blood pressure for cardiovascular (CVD) risk reduction in chronic kidney disease (CKD) is less than 130/80 mm Hg.[1]

ANGIOTENSIN-CONVERTING ENZYME INHIBITORS AND ANGIOTENSIN RECEPTOR BLOCKERS

Patients who have CKD and either diabetes, hypertension or albuminuria should be prescribed an angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) unless there is a contraindication.[2] These medications should be titrated up to the maximum tolerated dose.

Clinical practice guidelines note that "patients treated with ACE inhibitors or ARBs should be monitored for hypotension, decreased [glomerular filtration rate (GFR)] and hyperkalemia."[1] For most patients, if GFR decline over four months is less than 30% from baseline value and serum potassium is less than 5.5 mEq per L, the ACE inhibitor or ARB can be continued.

DIURETICS

The treatment regimen of most patients with CKD should include diuretics.[1] These agents do the following:

- Decrease extracellular fluid (ECF) volume
- Lower blood pressure
- Increase effectiveness of ACE inhibitors, ARBs and other antihypertensive agents
- Lower CVD risk for patients with CKD

Diuretic agent selection is based on the patient's GFR level and ECF volume status (*Table 1*).[1] Patients who take diuretics should be monitored for volume depletion (which can be indicated by hypotension or decreased GFR) and electrolyte abnormalities, especially hypokalemia. The monitoring interval is determined by baseline values for serum potassium concentration, GFR and blood pressure.

OTHER MEDICATIONS FOR PATIENTS WITH CKD

Other medications that can be prescribed as needed to decrease cardiovascular risk and slow disease progression in patients with CKD include the following[3,4]:

- Sodium-glucose cotransporter-2 (SGLT2) inhibitor
- Other antihypertensive medications
- Lipid-lowering medications to reduce absolute cardiovascular risk
- Medications recommended for patients with CKD and type 2 diabetes, including glucose-lowering medications (SGLT2 inhibitor, glucagon-like peptide-1 receptor agonist) and a nonsteroidal mineralocorticoid receptor antagonist

Medication management for patients with CKD involves minimizing adverse effects by adjusting doses of kidney-cleared drugs based on GFR and avoiding nephrotoxic medications when possible.[3,4]

REFERENCES

1. Kidney Disease Outcomes Quality Initiative (K/DOQI). K/DOQI clinical practice guidelines on hypertension and antihypertensive agents in chronic kidney disease. *Am J Kidney Dis.* 2004;43(5 Suppl 1):S1-290.
2. Kidney Disease: Improving Global Outcomes (KDIGO) Diabetes Work Group. KDIGO 2022 clinical practice guideline for diabetes management in chronic kidney disease. *Kidney Int.* 2022;102(5S):S1-S127.
3. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2024 clinical practice guideline for the evaluation and management of chronic kidney disease. *Kidney Int.* 2024;105(4S): S117–S314.
4. NPS MedicineWise. Medicines for chronic kidney disease: a practical guide. November 29, 2022. Accessed May 15, 2025. https://www.nps.org.au/news/medicines-for-chronic-kidney-disease-a-practical-guide

Table 1. Diuretic Options for Patients With CKD

Diuretic Type	Recommended Use
Thiazide Diuretics	Given once daily for patients with GFR ≥30 mL/min/1.73 m^2 (CKD Stages 1-3)
Loop Diuretics	Given once or twice daily for patients with GFR <30 mL/min/1.73 m^2 (CKD Stages 4-5)
Loop + Thiazide Combination	Given once or twice daily for patients with ECF volume expansion and edema
Potassium-Sparing Diuretics	Use with caution, especially if the patient has: • GFR <30 mL/min/1.73 m^2 (CKD Stages 4-5) • Concomitant therapy with ACE inhibitor or ARB • Additional risk factors for hyperkalemia

ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; CKD = chronic kidney disease; ECF = extracellular fluid; GFR = glomerular filtration rate.

Information from reference 1.

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