



University of California
San Francisco

ACE and ARB Medicines

Introduction on Chronic Kidney Disease

- Certain common health conditions can damage the kidneys permanently. For example, high blood pressure, diabetes, and related conditions can damage the kidneys.¹
- Some people call damaged kidneys “weak kidneys.” Doctors call damaged kidneys *chronic kidney disease*.
- Chronic kidney disease can be hard to recognize because there are no clear signs or symptoms in the early stages.
- Chronic kidney disease can range from mild to severe.
- We can prevent mild chronic kidney disease from getting worse by protecting the kidneys from further damage.
- Certain medicines can help protect people with chronic kidney disease and their kidneys.
- Chronic kidney disease increases a person’s chance of having a heart attack or stroke.²
- Chronic kidney disease increases a person’s chance of needing dialysis or a kidney transplant.²

ACE and ARB Medicines and People with Chronic Kidney Disease

- Angiotensin-converting enzyme inhibitors (ACE inhibitors) or Angiotensin II Receptor Blockers (ARBs) are medicines that help protect the kidneys.
- Having high pressure causes an increase of pressure in the blood vessels of the kidneys. These blood vessels cannot work properly. This causes damage to the kidneys.
- ACE and ARB medicines lower the pressure inside of the kidneys to a better level.
- They are especially helpful for kidneys that are letting protein leak into the urine. Kidneys are not supposed to release protein into the urine.
- ACE and ARB medicines also can lower the blood pressure in the rest of the body by relaxing the blood vessels.
- For people with chronic kidney disease, taking ACE and ARB medicines reduces their chance of needing dialysis or a kidney transplant.^{3,4}
- People who take these medicines are also less likely to have a heart attack and stroke.⁵



University of California
San Francisco

Names of Common ACE Medicines

- Benazepril (Lotensin®)
- Captopril (Capoten®)
- Enalapril (Vasotec®)
- Fosinopril
- Lisinopril (Prinivil®, Zestril®)
- Moexipril
- Perindopril (Aceon®)
- Quinapril (Accupril®)
- Ramipril (Altace®)
- Trandolapril (Mavik®)

Names of Common ARB Medicines

- Candesartan (Atacand®)
- Eprosartan (Teveten®)
- Irbesartan (Avapro®)
- Losartan (Cozaar®)
- Olmesartan (Benicar®)
- Telmisartan (Micardis®)
- Valsartan (Diovan®)

Potential Side Effects of ACE and ARB Medicines

- Most people do not experience side effects when they take an ACE or ARB medicine.
- But some people do have side effects. Side effects can be a cough, high potassium level in the blood, low blood pressure, dizziness, headache, and drowsiness.
- Doctors may want to monitor their patients to see how they respond to starting an ACE or ARB medicine.

Medical References That Your Doctor Might Want to Read

1. Centers for Disease Control and Prevention (CDC). Prevalence of chronic kidney disease and associated risk factors--United States, 1999-2004. MMWR Morb Mortal Wkly Rep. 2007 Mar 2;56(8):161-5.2.



University of California
San Francisco

2. Sarnak MJ, Levey AS, Schoolwerth AC, et al. Kidney disease as a risk factor for development of cardiovascular disease: A statement from the American Heart Association councils on kidney in cardiovascular disease, high blood pressure research, clinical cardiology, and epidemiology and prevention. *Circulation*. 2003;108(17):2154-2169.
3. Agodoa LY, Appel L, Bakris GL, et al. Effect of ramipril vs amlodipine on renal outcomes in hypertensive nephrosclerosis: A randomized controlled trial. *JAMA*. 2001;285(21):2719-2728.
4. MacGregor MS, Taal MW. Renal association clinical practice guideline on detection, monitoring and management of patients with CKD. *Nephron Clin Pract*. 2011;118 Suppl 1:c71-c100.
5. Jun M, Lv J, Perkovic V, Jardine MJ. Managing cardiovascular risk in people with chronic kidney disease: A review of the evidence from randomized controlled trials. *Ther Adv Chronic Dis*. 2011;2(4):265-278.

Information Provided as part of a UCSF Study:

Care For Your Kidneys

<http://ckdstudy.ucsf.edu/ace-and-arb-medicines>

Principal Investigator:

Veronica Yank, MD

veronica.yank@ucsf.edu

(415)476-9654