



Effective Health Care Program

“ACE Inhibitors” and “ARBs” To Protect Your Heart?

A Guide for Patients Being Treated for Stable Coronary Heart Disease



Agency for Healthcare Research and Quality
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Is This Guide Right for Me?

This Guide Is for You If:

- You have coronary heart disease, a disease affecting the arteries of your heart. You may have had a heart attack or suffer from chest pains with exercise, but your symptoms are not changing.
- Your coronary heart disease is in “stable” condition. This means that your symptoms have not changed or become worse.
- Your doctor recommends adding a medicine called an ACE Inhibitor or an ARB.
- You do not take medicine for high blood pressure (also called “hypertension”).

This Guide Will Not Help You If:

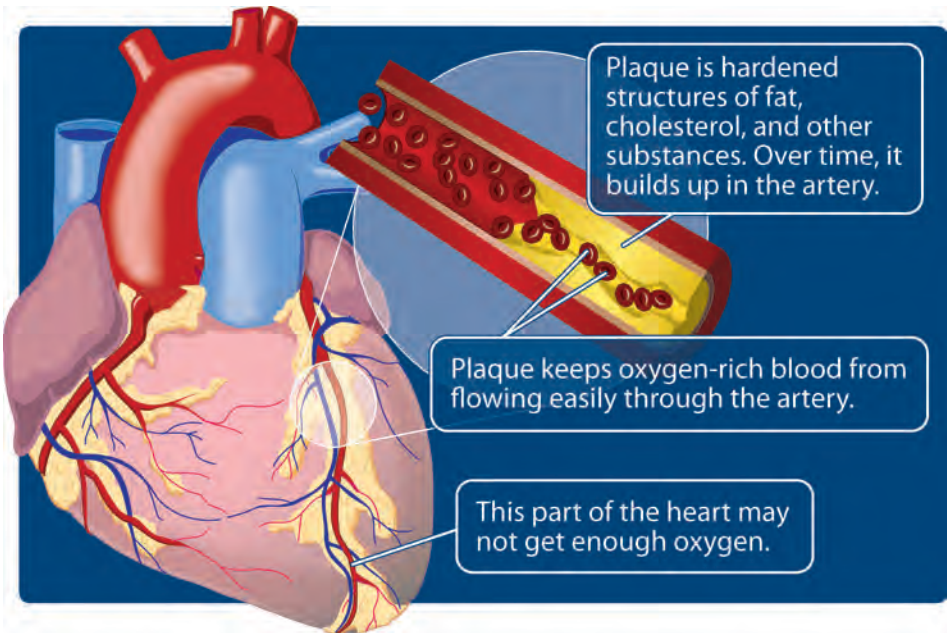
- You are making decisions about the other medicines that you may be taking for your coronary heart disease.

This guide was created by reviewing the many research studies done on this topic. The information is provided here to help you make a decision about your choices based on the available evidence.

Understanding Your Disease

What Is Coronary Heart Disease?

This picture shows what your coronary heart disease may look like. The arteries that bring blood to your heart muscle have become narrowed or blocked. When that happens, it is hard for blood and oxygen to get to your heart. When the vessel is blocked, you may feel chest discomfort (such as pain, pressure, or tightness) when you do any physical effort or exercise. Doctors call this chest discomfort “angina.”



What Are the Possible Problems?

People with coronary heart disease are at risk for serious problems, including:

- Heart attack
- Heart failure
- Stroke

Each of these problems can cause death or can take a long time for recovery and keep you from working or doing other activities.

How Can I Protect Myself From Possible Problems?

Although there is no cure for coronary heart disease, some medicines can help protect you from heart attack, heart failure, or stroke.

Your doctor may ask you to take one or several medicines, such as:

- Low-dose aspirin or drugs that keep platelets in the blood from sticking together.
- Medicines to lower your cholesterol level.
- Medicines that help reduce heart rate and blood pressure, such as beta-blockers.
- Medicines to prevent your blood from clotting, such as warfarin.
- Other medicines for high blood pressure or diabetes.

What About ACE Inhibitors and ARBs?

Two other medicines—ACE Inhibitors and ARBs—have been studied to see if they can also help people with stable coronary heart disease from developing other problems. Both of these medicines lower your blood pressure and have been used to treat heart failure.

- **ACE Inhibitors.** Your doctor may also call these medicines “angiotensin-converting enzyme inhibitors” or “ACEIs.”
- **ARBs.** Your doctor may also call these medicines “angiotensin II receptor blockers.”

Understanding Your Choices

You and your doctor can decide whether you should add an ACE Inhibitor or an ARB to your other medicines by:

- understanding and comparing the benefits of the medicine, and
- deciding if the benefits outweigh the possible side effects from the medicine.

Is an ACE Inhibitor Right for Me?

You and your doctor might want to add an ACE Inhibitor to your other medicines for coronary disease because:

- Doctors know more about the benefits and side effects of ACE Inhibitors than ARBs.
- Most people who take ACE Inhibitors experience only minor side effects.

What Are the Benefits of Adding an ACE Inhibitor?

There are four possible benefits to patients who add an ACE Inhibitor to their other medicines for coronary disease:

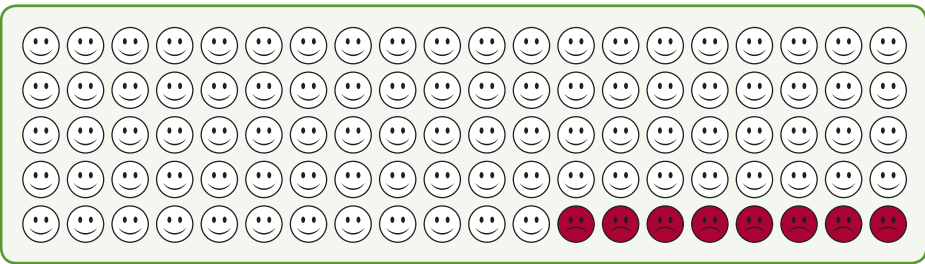
- It reduces your risk of dying from a heart attack or heart failure.
- It reduces your risk of having a nonfatal heart attack.
- It reduces your risk of being hospitalized because of heart failure.
- It reduces your risk of needing surgery or other procedures to increase blood flow to your heart muscle. This is called “revascularization” (pronounced ree-VASK-you-lar-iz-A-shun).

How Much Benefit Can I Expect?

The two charts below compare the results over a 4-year period for 100 people who did and did not add an ACE Inhibitor to their other medicines.

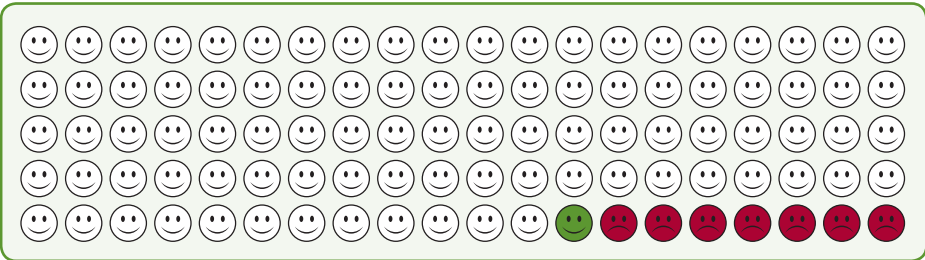
Without an ACE Inhibitor, what can I expect?

For every 100 people taking other medicines for coronary disease without an ACE Inhibitor, 92 people will *not* die from a heart attack or heart failure over 4 years (😊); 8 will die from these causes (☹).



With an ACE Inhibitor, what can I expect?

For every 100 people who add an ACE Inhibitor to their other medicines for coronary disease, 93 will *not* die from a heart attack or heart failure over 4 years (😊); 7 will die from these causes (☹).



That means that 1 additional person out of every 100 people (😊) will avoid dying of a heart attack or heart failure by adding an ACE Inhibitor to their other coronary disease medicines over 4 years. The amount of benefit is about the same for avoiding a heart attack, being hospitalized with heart failure, or needing surgery or another procedure to increase blood flow to your heart muscle.

What are the possible side effects?

Some people who take an ACE Inhibitor have these problems:

- A cough.
- Sudden fainting.
- Too much potassium in their blood. This may cause problems with the heart beat or the heart's rhythm. These problems are not common.

Some people who take an ACE Inhibitor and then have surgery to open a blocked blood vessel have more risk of:

- Another surgery to open up a different blocked blood vessel.
- Low blood pressure.

WARNING: Some studies have found that ACE Inhibitors can cause a sudden swelling of the tongue, lips, throat, hands or feet. This is called "angioedema" (pronounced an-gee-o-uh-DEE-mah). Call your doctor right away if this happens. ACE Inhibitors can also cause serious birth defects. If you are or think you may become pregnant and are taking an ACE Inhibitor, tell your doctor and ask what you should do.



Should I Add an ARB?

You may be someone who does experience one or more of the side effects from an ACE Inhibitor. In that case, you and your doctor may decide to add an ARB to your other medicines instead.

What are the benefits of adding an ARB?

Studies show that patients who add an ARB to their other medicines (because they cannot take an ACE Inhibitor) have a lower risk of either dying from a heart-related cause or having a nonfatal heart attack or stroke.

What are the possible side effects?

Some people who take ARBs can get too much potassium in their blood. This may cause problems with the heart beat or the heart's rhythm. These problems appear to not be common. ARBs can cause angioedema and birth defects as well.

Do I need an ACE Inhibitor and an ARB?

A research study has shown that taking both of these medicines does not help you any more than taking only an ACE Inhibitor. Adding both medicines can also cause more serious side effects, including:

- Fainting.
- Low blood pressure.
- Kidney problems.

Deciding What Is Best for You

Which ACE Inhibitor or ARB Is Best for Me?

There are many ACE Inhibitor and ARB medicines. These medicines are made by different companies. There are no major chemical differences among the ACE Inhibitor medicines or among the ARB medicines, but dose amounts and costs will vary.

What Is the Cost?

The amount you will have to pay will depend on:

- Whether you are taking a generic or a brand-name medicine.
- The amount of medicine that you are taking.
- The amount of your copay through your insurance plan.

Most ACE Inhibitors and some ARBs come in a generic form. Generic medicines usually cost less than brand-name medicines.

Ask your doctor to help you choose a medicine that is most effective for you and best fits your budget.

Common Generic and Brand Names for ACE Inhibitors and ARBs

ACE Inhibitors

benazepril (Lotensin)
captopril (Capoten)
enalapril (Vasotec)
fosinopril (Monopril)
lisinopril (Prinivil, Zestril)
perindopril (Aceon)
quinapril (Accupril)
ramipril (Altace)
trandolapril (Mavik)

Angiotensin II Receptor Blockers (ARBs)

candesartan (Atacand)
eprosartan (Tevetan)
irbesartan (Avapro)
losartan (Cozaar)
olmesartan (Benicar)
telmisartan (Micardis)
valsartan (Diovan)

Your Doctor Can Help You Decide

Ask your doctor:

1. Will an ACE Inhibitor or an ARB reduce my risk of death, heart attack, or stroke?
2. Do the possible harms or side effects from taking these medicines outweigh the benefits for me?
3. Do I need to have an operation to open up the vessels around my heart? How does this change any decisions we might make about the use of these two medicines?
4. Will an ACE Inhibitor or an ARB interact with the other medicines I'm taking?

Other questions you want to ask your doctor:

Write the answers to your questions here:

Record Your Medicines

Use this chart to record the names of your medicines, the amounts, and when you take them.

Medicine Record

Name of medicine	How much I take	When I take it

Other Ways To Help Reduce Your Risk of Heart Problems

You can lower your risk of heart attack, heart failure, or a stroke, if you:

- Lose weight.
- Exercise regularly.
- Eat foods that are low in fat and cholesterol.
- Do not smoke.

Ask your doctor to help you set your goals and get started making these changes. MedLine Plus, a U.S. Government Web site, has many resources to help you. The Web site is located at:

www.nlm.nih.gov/medlineplus/heartdiseasesprevention.html

Sources

The information in this guide comes from the report *Comparative Effectiveness of Angiotensin Converting Enzyme Inhibitors or Angiotensin II Receptor Blockers Added to Standard Medical Therapy for Treating Stable Ischemic Heart Disease*. It was produced by the University of Connecticut /Hartford Hospital Evidence-based Practice Center through funding by the Agency for Healthcare and Research Quality (AHRQ). For a copy of the report, or for more information about AHRQ and the Effective Health Care Program, go to www.effectivehealthcare.ahrq.gov. Additional information came from the Medline Plus Web site, a service of the U.S. National Library of Medicine and the National Institutes of Health. This site is available at www.nlm.nih.gov/medlineplus.

Additional information came from a 2007 report titled *Comparative Effectiveness of Angiotensin Converting Enzyme Inhibitors (ACEIs) and Angiotensin II Receptor Antagonists (ARBs) for Treating Essential Hypertension*, AHRQ Pub. No. 08-EHC003-EF, November 2007.

This summary guide was prepared by the John M. Eisenberg Center for Clinical Decisions and Communications Science at Baylor College of Medicine, Houston, Texas.

