





**GENERIC NAME:** ramipril

#### **DRUG CLASS AND MECHANISM**

Ramipril belongs in a class of drugs called angiotensin converting enzyme (ACE) inhibitors. ACE inhibitors are used for treating high blood pressure, heart failure and for preventing kidney failure due to high blood pressure and diabetes. Other ACE inhibitors are enalapril (Vasotec), quinapril (Accupril), captopril (Capoten), fosinopril (Monopril), benazepril (Lotensin), lisinopril (Zestril, Prinivil), moexipril (Univasc) and trandolapril (Mavik).

ACE is important because it is an enzyme responsible for producing the chemical, angiotensin II. Angiotensin II causes muscles in most arteries, including the arteries of the heart, to contract, thereby narrowing the arteries and elevating blood pressure. ACE inhibitors such as ramipril lower blood pressure by reducing the production of angiotensin II, thereby relaxing arterial muscle and enlarging arteries. When the blood pressure is lower, the heart - including the failing heart - does not have to work as hard to pump blood. The arteries supplying the heart with blood also enlarge during treatment with ACE inhibitors. This increases the flow of blood and oxygen to the heart, further improving the ability of the heart to pump blood.

The effects of ACE inhibitors are particularly beneficial to people with congestive heart failure. In the kidneys, the narrowing of the arteries by angiotensin II decreases blood flow. ACE inhibitors enlarge and reduce the blood pressure in the arteries going to the kidney. This reduces damage to the kidneys caused by high blood pressure. The FDA approved ramipril in 1991.

**PRESCRIPTION:** Yes

**GENERIC AVAILABLE:** Yes

PREPARATIONS: Capsules or tablets: 1.25, 2.5, 5 and 10 mg

## USES

This drug belongs to a group of medications called ACE inhibitors. It is used to treat high blood pressure (hypertension). It works by relaxing blood vessels, causing them to widen. Lowering high blood pressure helps prevent strokes, heart attacks and kidney problems. This medication is also used to prevent heart problems (such as heart attacks) and/or strokes in certain high risk patients, and with other drugs (e.g., "water pills"/diuretics, digoxin) to treat congestive heart failure.

## **OTHER USES**

This medication may also be used to help protect the kidneys from damage due to diabetes.

## **HOW TO USE**

Take this medication by mouth, usually once or twice a day; or as directed by your doctor. You may take this drug with or without food. Use this medication regularly in order to get the most benefit from it. Remember to use it at the same time(s) each day. Swallow the capsule whole. If you cannot swallow the capsule, open it and sprinkle the contents on a small amount (4 oz.) of applesauce or mix with apple juice or water. Swallow or drink the entire mixture. Do not take potassium supplements or salt substitutes containing potassium without talking to your doctor or pharmacist first. This medicine can raise your potassium levels, which rarely can cause serious side effects such as muscle weakness or very slow heartbeats. Tell your doctor immediately if these effects occur. The dosage is based on your medical condition and response to therapy. For the treatment of high blood pressure, it may take several weeks before the full benefit of this drug occurs or several weeks to months when used for congestive heart failure. It is important to continue taking this medication even if you feel well. Most people with high blood pressure do not feel sick.

# PRESCRIBED FOR

Ramipril is used for the treatment of congestive heart failure (CHF) and hypertension (high blood pressure). Ramipril also prevents heart attacks, strokes and deaths due to heart disease in patients who have risk factors for such events. After a heart attack, ramipril reduces progression to severe or

resistant heart failure, hospitalization related to heart failure, and heart diseaserelated death. Like other ACE inhibitors, ramipril may slow the progression of kidney failure in patients with hypertension or diabetes by reducing the damage to the kidneys caused by high blood pressure.

#### **DOSING**

The usual dose of ramipril is 2.5-20 mg a day as a single dose or two divided doses. Patients taking diuretics or who have renal artery stenosis (narrowing of the arteries going to the kidney) may require lower doses.

#### **DRUG INTERACTIONS**

The use of ACE inhibitors with potassium supplements, salt substitutes or diuretics [for example, spironolactone (Aldactone) that increase potassium in the blood may lead to excessive potassium levels. Potassium levels should be monitored whenever ACE inhibitors are used in combination with these drugs.

There have been reports of increased lithium (Eskalith, Lithobid) levels when lithium is used in combination with ACE inhibitors. The reason for this interaction is not known.

There have been reports that aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDS) such as ibuprofen (Advil, Children's Advil/Motrin, Medipren, Motrin, Nuprin, PediaCare Fever etc), indomethacin (Indocin, Indocin-SR), and naproxen (Anaprox, Naprelan, Naprosyn, Aleve) may reduce the effects of ACE inhibitors.

#### SIDE EFFECTS

Ramipril generally is well tolerated, and side effects are usually mild and transient. A dry, persistent cough has been reported with the use of ramipril and other ACE inhibitors. Coughing resolves after discontinuing the drug. Other side effects include abdominal pain, constipation, diarrhea, rash, dizziness, fatigue, headache, loss of taste, loss of appetite, nausea, vomiting, fainting and numbness or tingling in the hands or feet.

Ramipril and other ACE inhibitors also may cause kidney failure and increased levels of potassium in the blood. The most serious but, fortunately, very rare side effects are liver failure and angioedema (swelling of lips and throat that can obstruct breathing).

## **STORAGE**

Tablets and capsules should be stored at room temperature between 15-30 C (59-86 F).

### WARNING

This drug can cause serious fetal harm (possibly death) if used during the last 6 months of pregnancy. If you become pregnant or think you may be pregnant, contact your doctor immediately.



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