



## Cardiac Medications: What Do You Need To Know?

Your doctor may prescribe medicine for you to take at home to help your heart continue to heal and function efficiently. The medication is carefully chosen to meet your needs. There are points you need to remember about taking medication. Know the name of your medicine and how you are to take it (i.e.: on an empty stomach, with food, times, frequency, how long will you be taking, etc).

Know what to do if you forget a dose of the drug. Know why you are taking the medicine, what it is supposed to do for you. Know possible problems that can be caused by the drug (side effects).

Know what to do if they occur.

Some drugs available in drug stores have warning attached against use by cardiac patients. When looking for cold or cough preparations or other medications not prescribed by your doctor, read labels carefully for warnings and avoid taking them.

- 1) Never use medications prescribed for someone else or allow others to use your medications.
- 2) It is dangerous to mix drugs or to try to prescribe medication for yourself.
- 3) Consult your doctor before making any changes in your medication plan. Do not stop taking your medication without instructions from your doctor.
- 4) Talk to your doctor or nurse if you have any questions about your medications.

Most cardiac medications have two names, which causes some confusion. There are brand names, which may be given to the same medication by several different companies. In addition, there is the generic name, which is the same name for the same medication manufactured by different companies. Pharmacies are permitted and expected to substitute less expensive generic medications for brand name medications unless otherwise specified by the physician. The active ingredients in these medications are generally the same, although other constituents may vary. In the following discussion, brand names will be listed in brackets.

**IT IS THE PATIENTS RESPONSIBILITY TO KNOW THE NAMES AND DOSES OF HIS/HER MEDICATIONS OR TO CARRY A LIST OF MEDICATIONS WITH HIM/HER.**

### Nitroglycerin

Nitroglycerin is one of the oldest medications available for the treatment of angina and heart disease. Nitroglycerin dilates blood vessels reducing the workload of the heart and improves blood flow to the heart. Nitroglycerin is used under the tongue to treat attacks of angina. Follow these directions for the use of Nitroglycerin.

#### **If you have chest pain:**

Stop what you are doing. If the discomfort does not subside within several minutes, take a Nitroglycerin under your tongue. Avoid swallowing while the tablet dissolves. When doing so you should ensure that you are sitting or lying. Nitroglycerin can lower the blood pressure and cause dizziness. Avoid standing after taking the medications for approximately 20 minutes.

There are two different sizes of Nitroglycerin tablets, 0.3 mg and 0.6 mg. Nitroglycerin is also available in spray form (0.4 mg). You may take one 0.3 mg tablet or one 0.4 mg spray every five minutes up to a total of four doses or one 0.6 mg every 10 minutes up to a total of two to three doses. You should never use Nitroglycerin while driving.



It is not possible to take too many Nitroglycerins however, if your angina has not subsided after 20 to 30 minutes, then there is a chance you may be having a heart attack and you should either contact your physician immediately or have someone take you to the nearest hospital.

Nitroglycerin must be fresh to be effective. Cap the bottle quickly and tightly after each use. Replace unopened bottle after three months even if there are tablets left. Protect tablets from light.

## Long-Acting Nitrates

Long-acting nitrates are preparations or Nitroglycerin that have been formulated for prolonged action. They may be taken in pill form (Isordil, Nitro SR, Nitrodur) or applied to the skin (Nitropaste, Transderm Nitro, Nitrodur, Minitran) or applied under the gums (Nitrogard). All of these medications provide continuous levels of Nitroglycerin in the bloodstream and are intended to prevent attack of angina. Side-effects include headache and lightheadedness. These side-effects generally wear off. If they do not, notify your physician. When taking Nitrates, avoid overly hot showers and baths as this may make you dizzy and fainting is possible. To prevent dizziness, get up slowly from a sitting or lying position.

## Anti-platelets medications

Antiplatelet agents are medications, which interfere with the action of small elements in the blood called platelets. Platelets adhere to bleeding sites and initiate the clotting process. Aspirin is the best known and most widely used antiplatelet agent. These agents are used to treat unstable angina and to prevent stroke and heart attack. Other agents include Dipyridamole (Persantine) and Sulfinpyrazone (Auran). Newer agents include Ticlopidine (Ticlid) and Clopidogrel (Plavix). Side effects include gastro-intestinal upset and bleeding. To relieve mild GI distress take enteric coated aspirin or take these medications with food or milk. Don't take aspirin with alcohol to avoid intestinal bleeding.

Plavix is administered along with aspirin to patients who have developed an ACS or undergone angioplasty and coronary stenting. In general dual anti-platelet therapy should be continued for up to a year after an episode of unstable angina, an ACS, a non-STEMI or following coronary angioplasty and stenting. In some patients with drug eluting stents (DES) it may be necessary to continue the clopidogrel (Plavix) for longer than a year. Please check with your cardiologist or internist to determine how long you should stay on this medication.

## Beta-Blockers

Beta-blockers are medications that can lower your blood pressure, reduce the frequency of angina attacks, control rapid heart rate and reduce the risk of complications after a heart attack by making the heart's workload easier.

Beta-blockers may have side effects, which include fatigue, difficulty concentrating, insomnia, nightmares, impotence and alterations of peripheral circulation. Beta-blockers may also worsen asthma and you should not be taking these drugs if you have this condition. Despite this list of side effects, most patients tolerate Beta-blockers without significant problems.

Several studies have shown that, after a heart attack, Beta-blockers reduce the risk of another heart attack or sudden death. This is likely the reason that you would be prescribed a Beta-blocker while in hospital after your heart attack.

Some Names of Beta-blockers include:

**Acebutolol (Sectral, Monitan)**

**Atenolol (Tenormin)**

**Bisoprolol (Monocor)**

**Carvedilol (Coreg)**

**Metoprolol (Lopresor, Betaloc)**

**Nadolol (Corgard)**

**Propranolol (Inderal)**

**Sotalol (Sotacor)**

**Timolol (Blocardren)**



If you are to take one dose of this type of drug each day, and you miss a dose, take the missed dose within eight hours. If you take two or more doses each day, take the missed dose as soon as possible. Never take a double dose to make up for a missed dose.

Suddenly stopping these drugs can cause serious problems. They must be tapered off gradually. Some patients may have difficulty in getting to sleep when starting on these drugs. Taking the drug no later than two hours before bedtime can help with this.

## Calcium Blockers

Calcium channel blockers are an entirely different group of medications from beta-blockers.

These agents reduce the flow of calcium into cells, which produces relaxation of blood vessel walls. These agents increase blood flow to the heart, and as well, reduce the work of the heart. They may also relax the walls of other arteries and lower blood pressure.

Calcium blockers are used for the treatment of angina and hypertension. One of the calcium blockers is also used for the treatment of arrhythmias. There has been news media attention in recent years to the question of safety of calcium channel blockers in patients with coronary artery disease and hypertension. These concerns pertain to short acting agents. There have been many studies with all classes of calcium channel blockers. In general, when used in patients who do not have congestive heart failure, the heart rate limiting calcium channel blockers ( verapamil and diltiazem) are safe to use in Coronary Artery Disease (CAD) patients. Non heart rate limiting calcium channel blockers (nifedipine, amlodipine and felodipine) are safe to use in hypertension but are best avoided in CAD patients unless they are given with a Beta-blocker or unless the patients heart rate is naturally slow.

Side effects include headache, flushing, dizziness, lightheadedness, swelling of ankles and constipation.

Take a missed dose of this drug within four hours but do not take a double dose to make up for a missed dose. To minimize dizziness, rise slowly from a sitting or lying position. Alcohol intake can make dizziness worse. Foods and drinks containing calcium can still be included in your diet in reasonable amounts. Prevent constipation by increasing your fluid and fiber intake.

Currently available calcium blockers:

**Amlodipine (Norvasc)**

**Felodipine (Plendil, Renedil)**

**Nifedipine (Adalat XL)**

**Diltiazem (Cardizem CD, Tiazac ER)**

**Verapamil (Isoptin SR, Chronovera)**

## Digoxin (Lanoxin)

Digoxin is a drug that acts to strengthen your heart contractions. It also regulates heart rhythm and is used to control heart rate in certain types of arrhythmias. If taken in excess, Digoxin may cause excessive slowing of heart rate.

Symptoms of Digoxin excess include:

- loss of appetite, nausea or vomiting
- palpitations,
- visual disturbance (blurring, yellow or green tinge),
- increased shortness of breath, increased fatigue or swelling of ankles
- Sudden weight gain of more than three pounds.

If these symptoms occur, contact your physician.

Take this medication at a regular time each day. Take a missed dose within 12 hours but do not take a double dose to make up for a missed one. Report a very high, low or irregular heart rate to your doctor.



## Diuretics

Diuretics are medications, which help your kidneys to clear your body of excess fluid. They are used in conditions such as congestive heart failure and high blood pressure.

When taking a diuretic, you should avoid drinking unusually large amounts of liquids as this can counter the effect of the diuretic and lead to dilution of the body's natural salts.

Diuretics may also result in a loss of potassium\*, which should be replaced by including potassium containing foods in your diet. Bananas and citrus fruits are rich in potassium, as are raisins, dates and green leafy vegetables. Your doctor may also prescribe a potassium supplement in form of liquid or tablet.

Examples of diuretic medications include hydrochlorothiazide and furosemide (Lasix). Take a missed dose of these drugs as soon as possible or within eight hours if on a single daily dose, within four hours if on twice daily. Otherwise, skip the missed dose. Take your second dose of the day in late afternoon to minimize having to get up during the night to pass urine.

Reactions to these medications may occur and those which should be reported to your physician include: excessive thirst, fever, irregular heart rate, lethargy, mouth dryness, muscle cramps, skin rash, urgent or burning on urination, weakness or weak pulse.

## Angiotensin Converting Enzyme Inhibitors (ACE-inhibitors)

**Captopril (Capoten)**

**Cilazapril (Inhibace)**

**Enalapril (Vasotec)**

**Fosinopril (Monopril)**

**Lisinopril (Prinivil, Zestril)**

**Perindopril (Coversyl)**

**Quinapril (Accupril)**

**Ramipril (Altace)**

**Trandolapril (Mavik)**

These agents are members of a special group of vasodilators known as ACE Inhibitors. These agents block the conversion of angiotensin I to angiotensin II which is an intrinsic (natural) substance that causes constriction of blood vessels and can lead to fluid retention. In addition to their use in the treatment of hypertension and congestive heart failure, these agents have been shown to reduce hospitalization and improve prognosis in patients with weakened hearts after a heart attack or from other causes.

The major side effect of ACE inhibitors is a dry non-productive cough. Sometimes these agents can cause swelling of the throat and if this occurs, stop the medication and contact your physician. As these medications lower blood pressure (BP), dizziness can occur. If this happens, contact your physician.

## Angiotensin II Receptor Blockers (ARB's)

**Candesartan (Atacand)**

**Eposartan (Teveten)**

**Irbesartan (Avapro)**

**Losartan (Cozaar)**

**Telmisartan (Micardis)**

**Valsartan (Diovan)**

These agents act further down the "angiotensin" pathway than the ACE inhibitors and block the effects of angiotensin II on the cells of the blood vessel wall. These agents are used in hypertension. Studies are underway on their use in heart attack patients and patients with congestive heart failure.

ARB's tend to have fewer side effects than ACE inhibitors in terms of cough. They are equally effective in terms of blood pressure control.



## Vasodilators

Vasodilators are medications, which dilate or open up blood vessels. They are used to treat high blood pressure and congestive heart failure. Side-effects include dizziness, due to excessive lowering of blood pressure and occasionally flushing or palpitations.

Examples of vasodilators include:

**Hydrazine (Apresoline)**

**Doxazosin (Cardura)**

**Prazosin (Minipress)**

**Terazosin (Hytrin)**

## Anti-arrhythmic medications

Anti-arrhythmic agents are medications, which are used to regularize the heart beat and to treat rhythm disorders.

They are complicated medications with significant side-effects. They are best administered under close supervision by your physician as, on occasions, these medications can worsen an arrhythmia.

Examples of anti-arrhythmic agents include:

**Amiodarone (Cordarone)**

**Quinidine (Biquin Durules)**

**Disopyramide (Rythmodan, Norpace)**

**Propafenone (Rhythmol)**

**Mexilitine (Mexitil)**

**Sotalol (Sotacor)**

**Procainamide (Pronestyl)**

Speak with your doctor or nurse about each of these drugs individually to learn of specific points to be aware of.

## Anti-coagulants

Warfarin (Coumadin) is the most commonly administered anticoagulant. This medication interferes with normal blood clotting mechanisms by reducing certain circulating blood proteins, which normally act to form blood clots. Warfarin may be used in patients with atrial fibrillation (a cardiac arrhythmia) to prevent stroke or embolism.

Warfarin may be given to patients with vein thrombosis (DVT, phlebitis) and in pulmonary embolism, which is a condition where blood clots travel from the veins in the legs to the lungs producing chest pain. Warfarin is also administered when blood clots form in the heart after a heart attack. On occasion Warfarin is also recommended in patients with severe blockages of coronary arteries.

While taking Warfarin the patient is at increased risk of bleeding. It is therefore necessary to monitor by a blood test called the prothrombin time, often referred to as PT. The PT is standardized between laboratories and reported as the INR (International Normalized Ratio). The INR is maintained between 2 and 3 to prevent clotting in atrial fibrillation, phlebitis and other conditions. With mechanical heart valves the INR is maintained between 2.5 and 3.5. The INR should be maintained within a narrow range in order to ensure that the blood is neither too thin nor too thick. Excessive thinning of the blood can lead to bleeding. Based on INR determinations, your physician should advise you as to your dose of Warfarin you should be taking. Often the dose of warfarin is not stable and may have to be adjusted frequently to keep the INR in the therapeutic range.

Take a missed dose of Warfarin within eight hours but never take a double dose to make up for the missed dose. Be aware that you have a risk of bleeding. Being careful can reduce this risk. Never walk about barefoot, use an electric razor for shaving, use a soft toothbrush, and wear gloves to protect your hands when doing heavy work. Limit alcohol consumption (1-2 drinks/day).

There are many drugs, which interact with Warfarin and alter its effect. While taking Warfarin, do not take any new medications without the advice and knowledge of your physician.

