



Medicines for your heart



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About this booklet

Great improvements have been made in treating heart conditions, largely due to the research and development of new medicines.

This booklet describes **some** of the different medicines prescribed for people with a heart condition – such as angina, heart attack, heart failure, heart rhythm disorders and heart valve disease. It also covers medicines used to control high blood pressure or to lower cholesterol levels, and those used to prevent blood clots from forming. The booklet explains why you may have been given each medicine, and how it works. It also describes the most common side effects. If you are taking a medicine that is not described here, you can talk to your GP or pharmacist to get more information about it.

This booklet does not replace the advice that your doctors, pharmacists or nurses may give you based on their knowledge of your condition, but it should help you to understand what they tell you.

Information for South Asians

For people of South Asian origin, our booklet *Taking medicines for your heart – Information for South Asians* is available in Bengali, Gujarati, Hindi, Punjabi, Urdu and English. See page 53 for how to order a copy.

Why are there so many different medicines?

Successful research means there are lots of different medicines that can be used to treat diseases of the heart and circulation (cardiovascular disease). But they all belong to a few main groups.

A single medicine may have several different names. Each one has an official name, called the 'generic' or 'non-proprietary' name. It may also be prescribed under one or more brand names, or 'proprietary names'.

The medicines within each group are similar, but may have minor variations. For example, medicines for lowering blood pressure may act in different ways. Some act on the walls of the arteries (the blood vessels that take blood from the heart to other parts of the body), some act on the kidneys, and some act on the part of the brain that helps to control blood pressure.

Occasionally, two medicines may be combined into one tablet.

All this means that there is a wide variety of medicines to choose from to best meet the needs of each person. Sometimes the same medicine can even be used to treat a number of different conditions.

Why are medicines used?

Medicines are commonly used to treat the following heart conditions and heart-related conditions.

- **Angina** – pain or discomfort in the chest, or shortness of breath, caused by narrowing of the coronary arteries (the arteries that supply blood to the heart). Angina is most commonly caused by coronary heart disease, which is when there is a build-up of fatty material (atheroma) in the walls of the arteries.
- **Heart attack** – when there is a blockage in a coronary artery. This is usually caused by a blood clot that forms when fatty material breaks away or ruptures.
- **High blood pressure** – also called hypertension.
- **Heart failure** – when the main ‘pumping’ action of the heart is not working as well as it should be.
- **Arrhythmia** – a heart rhythm that may be too slow, too fast or irregular.
- **Heart valve disease** – when one or more of the four valves in the heart is diseased or damaged.
- **High blood cholesterol level** – also called hypercholesterolaemia. If left untreated, this causes fatty deposits to form on the blood vessel walls, increasing the risk of having a heart condition.

For more information on these conditions, see the booklets in our *Heart Information Series* (see page 54).

What do the medicines do?

Most medicines used to treat heart conditions change how the heart or the blood circulation works – a bit like a mechanic tuning an engine that is not working as well as it should.

Several different medicines may be available to treat your heart condition. People are all different and it can be difficult to know exactly which medicine may suit you. Your doctor will choose the one most likely to be safe and effective for your condition.

With the right medicines taken at the right doses, it is often possible to reduce the symptoms of heart-related conditions and help the heart to work better than before.

How and when are the medicines taken?

Medicines can be given in a number of different ways.

- **Orally** – Most medicines for the heart are taken by mouth, usually as tablets, capsules or liquids, which you either swallow or take dissolved in water.
- **Sublingually** – When a tablet is placed under the tongue and allowed to dissolve, or when you spray the medicine directly under your tongue.
- **Intravenously** – When a medicine is injected directly into a vein, or given in a diluted form through an intravenous drip.
- **Intramuscularly** – When a medicine is given by an injection into a muscle such as the buttock or thigh.
- **Subcutaneously** – When a medicine is given by an injection just under the skin.
- **Self-adhesive patch** – When a patch containing the medicine is placed on the skin and the medicine is absorbed over a period of time.

How often you will need to take your medicine depends on what it is, and what condition it is being used to treat. Most medicines need to be taken regularly, as prescribed by your doctor. Some medicines need to be taken only when you get a particular symptom such as angina.

Why should I take my medicines?

Your medicine has been prescribed for **you** because your doctor believes it will help to treat an existing heart condition, or prevent you from developing one. You should understand:

- what your medicine is for
- how to take your medicine safely
- the importance of taking your medicine as prescribed
- how long you have to take it for
- what side effects to look for, and
- what to do if you develop side effects.

Ask your doctor or pharmacist to explain both the risks and benefits of your medicines, and why they have been prescribed for **you**. It could be dangerous to suddenly stop taking your medicines without speaking to your doctor first. Even if you feel well, choosing not to take them might make your condition worse.

Some people sometimes forget to take their medicines. Making it a part of your daily routine, like brushing your teeth, will make it easier. If you need help with remembering to take your medicines, talk to your doctor, pharmacist or nurse.

Side effects

Your doctor will prescribe medicines for you, to help improve your condition or your symptoms. It is important to realise that your medicines are prescribed for your benefit and, like most people, you will probably not experience any side effects at all. If you do, they can sometimes disappear after a while.

For more information about possible side effects of the medicines that you are taking, read the information leaflet that comes with the medicine. If you're worried about side effects, speak to your doctor or pharmacist.

What to do if you get side effects

If you develop any new, persistent or troublesome symptoms or problems after starting a medicine, it is important to tell your doctor about them immediately. They may be able to reduce the dose or prescribe a different medicine instead. It is important not to stop taking your prescribed medicines without medical advice, as this could make your condition worse.

Grapefruit

Grapefruit and grapefruit juice can affect the way a number of medicines for heart conditions work. For example, they can increase the effect of the medicine, which can make you feel unwell. If you're concerned about whether it is safe for you to have grapefruit or grapefruit juice, ask your GP or pharmacist.

Salt

Some medicines contain sodium, which is found in salt. Having a large amount of salt in your diet increases the risk of having high blood pressure and therefore cardiovascular disease. To find out if your medicines contain sodium, check the information sheets that come with them. If you are worried, talk to your doctor or pharmacist.

Pregnancy and breastfeeding

There are some medicines which pregnant or breastfeeding women should not take. If you need to take medicines for a heart condition, your doctor will consider the risks to both you and your baby very carefully. Generally, medicines should only be prescribed in pregnancy if the expected benefit to the mother is thought to be greater than the risk to the baby. And, you should avoid taking any medicines during the first three months of pregnancy if possible. If you do need to take medicines, you will be given the safest one available – usually one that has been extensively tested and found to be safest for use in pregnancy.

Many medicines have side effects that are potentially harmful during pregnancy. You should always talk to your doctor or midwife before taking any medicines – even ones you can buy over the counter without a prescription.

Types of medicines

Below we describe the main categories of medicines used to treat an existing heart condition, or to help prevent you from developing one.

ACE inhibitors (angiotensin-converting enzyme inhibitors)

Examples: ramipril, perindopril

Angiotensin-converting enzyme (ACE) is an enzyme produced by the body. It has a powerful effect on blood vessels, and can lead to an increase in blood pressure that needs treatment. ACE inhibitors work by making the blood vessels relax and widen, which lowers blood pressure.

ACE inhibitors are very effective in treating high blood pressure. They can be used either on their own or with other types of medicines used to lower blood pressure. After a heart attack, many people benefit from taking an ACE inhibitor. These medicines are also very effective in treating and helping to prevent the symptoms of heart failure, and in protecting and improving how well your kidneys work.

When your doctor starts you on the ACE inhibitor, it is very important that you have regular blood tests to check your kidney function and potassium levels. Your blood pressure will also need to be monitored.

ACE inhibitors may increase the level of potassium in your blood, so you should avoid having salt substitutes as many of these contain potassium.

Having alcohol while you are taking ACE inhibitors can cause a drop in blood pressure. For more advice on this, talk to your doctor or pharmacist.

Side effects

Most people don't have any problems when taking ACE inhibitors, but these medicines can cause a marked fall in blood pressure when you first start taking them.

Fewer than 10 in every 100 people develop a persistent, dry, irritating cough that does not go away. If this happens and the cough is troublesome, you should tell your doctor, who may prescribe a different medicine for you.

More rarely, ACE inhibitors can cause a serious allergic reaction that shows as swelling around the mouth or face. If this happens you must get medical attention straight away, either from your GP or at the accident and emergency department of a hospital.

Angiotensin-II antagonists

Examples: losartan, candesartan

Angiotensin-II antagonists are sometimes called angiotensin receptor blockers, or ARBs for short. They act in a similar way to ACE inhibitors, but are much less likely to cause the persistent dry cough that ACE inhibitors can sometimes cause.

If you take angiotensin-II antagonists, you will need to have regular blood tests to check the potassium levels in your blood, as well as your kidney function.

Side effects

Side effects of angiotensin-II antagonists are not common. Some people may get low blood pressure when they first start taking this medicine, so they may feel dizzy.

Anti-arrhythmic medicines

Examples: amiodarone, flecainide

Anti-arrhythmic medicines are used to control the rhythm of the heart. Different types work in different ways. Generally, they slow the heart rate so that it can return to a normal rhythm. (The heart rate is the number of times your heart beats each minute.) In cases where it's not possible to restore the normal rhythm of the heart, certain anti-arrhythmic medicines may be used to help control the heart rate.

Amiodarone

Amiodarone is very effective in controlling some abnormal heart rhythms.

Side effects

Side effects are not common, but amiodarone can occasionally cause disorders of the thyroid gland, lungs and liver, so it is important to have regular blood checks.

Amiodarone tends to make the skin very sensitive to sunlight. So, when you are in strong daylight or bright sunshine, you should use a high-factor sunscreen or sunblock, and wear sun-protective clothing such as a hat.

Alcohol can affect the liver and increase the risk of liver damage, particularly if you are taking amiodarone.

For more advice on this, talk to your doctor or pharmacist.

Dronedarone

Dronedarone is similar to amiodarone, and can be used to treat atrial fibrillation for some people. It is usually only used if other medicines have failed to control the atrial fibrillation. (Atrial fibrillation is a common abnormal heart rhythm which makes the heart beat irregularly, and increases the risk of having a stroke.)

Side effects

Dronedarone seems to cause fewer side effects than amiodarone, but it can cause stomach upset, diarrhoea, a slow heart rate and a rash.

Flecainide

Flecainide may be used for serious heart rhythm disturbances, and is prescribed by a specialist.

Side effects

Most people don't have any problems, but flecainide can cause nausea, dizziness and double or blurred vision when people first start taking it.

Anticoagulant medicines

Examples: warfarin, rivaroxaban

Blood clots are made up of platelets (tiny blood cells clumped together) and a protein called fibrin. If a clot is not treated, it could travel to the brain and cause a stroke, or travel to the lung and block a main artery (pulmonary embolism).

Anticoagulants prevent harmful blood clots from forming. They are most commonly prescribed for people who have an abnormal heart rhythm, such as atrial fibrillation, or for those who have an artificial heart valve. Both of these conditions increase the risk of a blood clot forming inside the heart, which can then increase the risk of having a stroke.

Anticoagulants are particularly valuable for treating clots that have already formed, such as those that develop in the veins of the legs (deep vein thrombosis).

Warfarin is the most commonly prescribed anticoagulant medicine in the UK. Three new anticoagulant medicines – dabigatran, rivaroxaban and apixaban – have recently been approved for use.

Warfarin

Warfarin is the most common oral anticoagulant to be given when long-term prevention of blood clotting is needed. Vitamin K is a vitamin that helps the blood to clot. Warfarin works by interfering with the production of vitamin K, making the blood thinner so that it doesn't clot so easily.

This medicine is most often used for people with an abnormal heart rhythm, such as atrial fibrillation. It may also be given to people with heart valve disease, especially those who have had a heart valve replacement using a mechanical valve. Your doctor will talk to you about the risks and benefits of taking this medicine.

While you are taking warfarin, you will need to have regular blood tests or finger-prick tests to measure your INR, to make sure that the clotting activity of the blood is within safe but effective levels. ('INR' stands for International Normalised Ratio. It's a way of measuring the time it takes for your blood to clot.) The person who prescribes your warfarin will decide what dose to give you based on the result of your INR test. In the beginning, you may need to have your INR checked quite often but later on, as your results become more stable, it will usually be checked every four to eight weeks.

When you start taking warfarin, you will be given an

anticoagulation treatment booklet. This booklet gives you more information about anticoagulants, and the results of all your INR tests will be recorded in it. If you're taking anticoagulants, you should always carry your treatment booklet and remember to tell anyone treating you that you are taking anticoagulants. Some people choose to wear a medical alert bracelet that says which anticoagulant medicine you are taking and why.

When your INR tests are stable, you can ask the clinic staff about the option of testing yourself at home. They may teach you how to use a home testing kit.

The amount of warfarin there is in your bloodstream can change very quickly, and what you eat can have an effect on this. Avoid cranberry juice and cranberries as they can increase the effect of warfarin, and so increase the risk of bleeding.

Foods that are high in vitamin K – such as liver, Brussels sprouts and broccoli – can prevent warfarin from working as it should, if you eat them in large quantities. But it's important that you eat a variety of fruit and vegetables. So, if you're taking warfarin, don't stop eating foods that are high in vitamin K. Just try and eat a small quantity of them regularly, rather than having large quantities of them every now and again. Having a small amount regularly shouldn't make a difference to your warfarin

levels, as the amount of vitamin K in your bloodstream will stay fairly constant.

Because of the effect that vitamin K has on how warfarin works, it means that vitamin K can be given to stop any excess bleeding that does happen.

Alcohol can significantly affect the level of warfarin in your bloodstream, so it is very important to make sure that the amount of alcohol you have is within the recommended guidelines, and to avoid binge drinking. Talk to your doctor if you are worried about this. Many people choose to stop drinking alcohol when they start taking anticoagulant medicine.

If you are taking warfarin, you should check with your doctor or pharmacist before taking any other medicines – both over-the-counter and prescription medicines. Warfarin interacts with a number of other medicines including antibiotics, aspirin, ibuprofen and cimetidine, and also with some medicines used to treat arthritis, gout, epilepsy, high cholesterol and abnormal heart rhythms.

Dabigatran, rivaroxaban and apixaban

These anticoagulant medicines have been approved for use for people who have atrial fibrillation, to reduce the risk of having a stroke. Or, you might need to take one of these medicines if you can't take warfarin, or if warfarin

does not work well for you. However, you can't take them if you have a heart valve problem or if you have had heart valve surgery.

The main benefit of these three anticoagulant medicines is that you don't need to have the regular blood tests that you would need if you were taking warfarin.

These medicines are not affected by the amount of vitamin K in your diet. This means that vitamin K will not reverse the effects of any bleeding that may occur. If there is any bleeding, your doctor will tell you to stop taking the medicine, in order to reduce the level of the medicine in your blood.

These medicines may affect the way that other medicines you are taking work. Your doctor should discuss this with you.

It is important that your doctor discusses with you the risks and benefits of taking any of these three medicines rather than warfarin.

For information about the possible side effects of these medicines, see the next page.

Dabigatran

Dabigatran helps to reduce the risk of blood clots forming by thinning the blood. It does this by working

on an enzyme called thrombin. Dabigatran needs to be taken twice a day as its effects wear off quickly. This means that missing a dose increases the risk of having a stroke.

Rivaroxaban

Rivaroxaban causes your blood to become thinner by affecting the blood clotting process. It needs to be taken once a day. Its effect wears off quickly, so it is important not to miss a dose.

Apixaban

This works in a similar way to rivaroxaban, but it has to be taken twice a day or its effects will quickly wear off.

Side effects of anticoagulants

The main side effect of taking any anticoagulant medicine is bleeding. This happens because the anticoagulant affects the blood-clotting process, helping to prevent blood clots from forming. The anticoagulant may cause internal bleeding, or make bleeding from a minor injury worse.

Any of the following symptoms could mean that your dose of anticoagulant may need to be checked.

- Cuts which bleed for longer than usual.

- Bleeding that does not stop by itself.
- Nose bleeds that last for more than a few minutes. **(If a nose bleed lasts for more than 20 minutes, you must go to your GP surgery or to the accident and emergency department of a hospital.)**
- Bleeding gums.
- Severe bruising.
- Red or dark-brown urine.
- Red or black bowel movements.
- For women, heavier bleeding during periods, or other vaginal bleeding that is not caused by periods.

If you receive a hard blow to the head or to another part of the body, you should seek medical help without delay to make sure you don't have internal bleeding, which may not be noticeable straight away. If you are worried, contact your GP or anticoagulant clinic, or go to the accident and emergency department at your local hospital. Take with you your anticoagulation treatment booklet and any other medicines you are currently taking.

Side effects of dabigatran, rivaroxaban and apixaban

The most common side effects of these medicines are bruising and bleeding (as with warfarin – see above). These medicines can also cause nausea.

Anti-platelet medicines

Examples: aspirin, clopidogrel

Aspirin

Aspirin helps to prevent the blood from clotting. It achieves this by reducing the 'stickiness' of platelets – the small blood cells that can clump together to form a clot. The dose you need for this effect is smaller than the dose you would need to relieve a headache.

Aspirin reduces the risk of having a heart attack or stroke because it helps prevent harmful blood clots from forming. It is also useful for people with angina, and is used to help prevent blood clotting in the grafts used in coronary artery bypass surgery. As a result, it is used for most people with known coronary heart disease.

Clopidogrel

Clopidogrel is another anti-platelet medicine. It is sometimes given alongside aspirin, but usually only for a set period of time.

It is useful for people with unstable angina or for those who have recently had a coronary angioplasty with stenting (a procedure which helps to keep a narrowed coronary artery open). Sometimes, clopidogrel is used for people who cannot tolerate aspirin. There are other

medicines in the same group as clopidogrel – such as prasugrel and ticagrelor – that also give similar benefits. These need to be prescribed by a specialist.

Dipyridamole

Dipyridamole is another anti-platelet medicine that may be prescribed for people who have recently had a stroke or transient ischaemic attack (a mini-stroke). It reduces the risk of blood clots forming, which may cause a stroke.

Side effects of anti-platelet medicines

Anti-platelet medicines can cause stomach aches, nausea and vomiting. To help prevent these side effects, always take the medicine after a meal and never on an empty stomach.

More seriously, anti-platelets can lead to or worsen bleeding from the stomach. To help prevent this, your doctor may also prescribe a medicine to reduce the acid your stomach produces. This makes it less likely that the anti-platelet will cause irritation.

On rare occasions, aspirin can bring on an asthma attack if the person is allergic to it.

People taking anti-platelet medicines are more likely to show bruising if they injure themselves, but this bruising will resolve in time.

Treatment with anti-platelet medicines is not recommended for people who don't have diseases of the heart and circulation or who are not at high risk of developing them. We now know that, for healthy people, the side effects from taking anti-platelet medicines outweigh the potential benefits.

Beta-blockers

Examples: bisoprolol, sotalol

Beta-blockers act by slowing the heart rate and lowering the blood pressure, reducing the amount of work the heart has to do. This means that beta-blockers are very effective in preventing episodes of angina. Taking beta-blockers can also help improve the amount of exercise you are able to do, as you can carry on doing your activity for longer without getting angina symptoms. However, beta-blockers work too slowly to be useful in relieving an episode of angina once it has started.

Beta-blockers are often used to reduce the risk of a further heart attack in people who have already had one. Certain beta-blockers are also used to help control abnormal heart rhythms and the symptoms of heart failure.

Beta-blockers are not usually suitable for people with asthma but can be used for people with some lung conditions and diseases, under close supervision. If you have diabetes, your doctor may prefer not to give you beta-blockers, as they may mask (hide) the symptoms of low blood glucose levels. However, there are some 'selective' beta-blockers which have fewer of these effects and which may be suitable for people with lung disease or diabetes (but not for people with asthma).

Drinking alcohol while you are taking beta-blockers may cause your blood pressure to drop too low, which may make you feel dizzy, light-headed or faint. For more advice on this, talk to your doctor or pharmacist.

Side effects

Serious side effects are rare if beta-blockers are used carefully. There may be some minor side effects but they tend to lessen as time goes by. These include tiredness or even exhaustion, cold hands and feet, erectile dysfunction (impotence), dizziness, disturbed sleep and nightmares.

Beta-blockers reduce the rate at which your heart beats, and the higher the dose the more they reduce your heart rate. If the dose is too high for you, your heart may beat too slowly, which may make you feel dizzy or faint. If this happens, your GP may reduce the dose. This should then increase your heart rate and make the symptoms go away.

You should not stop taking beta-blockers suddenly without getting medical advice, as coming off them too quickly could make your condition worse. If you do need to stop taking the medicines, your doctor may want to reduce the dose gradually.

Leo's story

Leo Fernandes, a plasterer, had a heart attack five years ago. He is now 51.

"I had a heart attack when I was 46 and had to have bypass surgery. Before that, I didn't take any tablets. Now I take three every morning after breakfast, one after dinner and two before I go to bed, but I'm used to it.

They've been changed around a bit. After a while on the beta-blocker I started to get aches and pains, but then they changed me to a different beta-blocker and now it's fine. I also take candesartan and my heart failure nurse has been slowly increasing the dose. I take it in the evening as it was causing headaches earlier in the day.

I have forgotten to take my tablets a few times but I just take them the next day. In all honesty, I feel I have to rely on tablets for the rest of my life. It's better than not being here though. I try not to think about it. I'm back to normal really."

Calcium-channel blockers

Examples: amlodipine, diltiazem

You need a regular flow of calcium into the cells of your heart muscle for the heart to contract normally.

Calcium-channel blockers reduce the amount of calcium entering the muscle cells of the arteries (including the coronary arteries), causing them to relax and widen. As a result, the heart receives a better blood supply and has to do less work to pump enough blood around the body.

Every calcium-channel blocker acts differently, and which one you are prescribed will depend on the condition it is being used to treat.

Side effects

Serious side effects are uncommon, but you may experience flushing, headache, dizziness and swollen ankles. These side effects may settle down after a few weeks and will then usually go away.

Cholesterol-lowering medicines (lipid-lowering medicines)

Examples: simvastatin, ezetimibe

'Blood lipids' is the name for all the fatty substances in the blood, including LDL cholesterol (the 'bad' type of cholesterol), HDL cholesterol (the 'good' type of cholesterol), and triglycerides.

Cholesterol-lowering medicines are used to lower the total amount of cholesterol in the blood, particularly the LDL cholesterol. They are given to people who have high cholesterol levels, especially if they also have other risk factors for developing cardiovascular disease, such as smoking. (A risk factor is something that increases the risk of getting a disease. Cardiovascular disease means diseases of the heart and circulation.)

Most people who are at high risk of cardiovascular disease are prescribed cholesterol-lowering medicine, even if they have a normal cholesterol level. For example, your doctor may prescribe cholesterol-lowering medicine for you if you have diabetes, as diabetes greatly increases your risk of developing cardiovascular disease.

Statins

Statins are the most commonly prescribed medicines in the UK and most people are able to take them without any side effects. Statins work by reducing the amount of cholesterol produced by the liver. Before you start taking statins, you may need to have a blood test to check your liver function. This test may be repeated a few months later and then every year. In some rare cases the liver cannot tolerate any statins. If your liver function is affected, your doctor may swap you to a different medicine to lower your cholesterol.

Check with your doctor or pharmacist about the best time to take your statin. Some work better when taken in the evening, while others can be taken at any time of the day.

Other cholesterol-lowering medicines

Although statins are the medicine of choice for treating cholesterol levels, there are other types of medicines – including fibrates and ezetimibe – that can be used to lower cholesterol levels for people who have problems taking statins. These act by preventing the intestine (gut) from absorbing cholesterol.

Fibrates are useful for people who have a high level of both blood cholesterol and triglycerides. It is possible to take a fibrate as well as a statin but this is not common and must be carried out under strict medical supervision.

Nicotinic acid medicines help to lower LDL cholesterol, and increase HDL cholesterol. They may not be suitable for you if you have diabetes, unstable angina, stomach ulcers, or liver or kidney problems.

Ezetimibe helps to lower blood cholesterol levels by preventing cholesterol from being absorbed into the small intestine. It can help reduce LDL cholesterol and, if combined with a low-dose statin, it can be even more effective.

Side effects of cholesterol-lowering medicines

The side effects of all cholesterol-lowering medicines, including statins, are tiredness, disturbed sleep, feeling sick, vomiting, diarrhoea, headache and muscle weakness.

A rare side effect of statins is inflammation of the muscles (myositis). If you have any unexpected muscle pain, tenderness or weakness, you should tell your doctor immediately.

Medicines which reduce triglyceride levels (fish oils)

If you regularly eat oily fish, control your weight and limit how much alcohol you have, and yet you still have a high triglyceride level, your doctor may prescribe fish oil supplements for you.

If you're taking fish oil supplements which you have bought over the counter, make sure you tell your doctor about them. This is because they can interfere with other medicines you may be taking, such as warfarin.

Digoxin

Digoxin is most commonly used to treat atrial fibrillation, an abnormal heart rhythm. It can be prescribed along with other medicines to treat this. Digoxin slows the heart rate and increases the force of contraction of the heart, but does not restore the normal heart rhythm. Digoxin may help to relieve the symptoms of atrial fibrillation, such as breathlessness and palpitation, but other treatment may be needed to return your heart rhythm to normal.

Side effects

Digoxin may occasionally cause loss of appetite, palpitations, fainting, nausea and vomiting. It can also cause painful or enlarged breasts, for both women and men, but this happens only rarely. Too much digoxin can make everything you see look yellowish. If you get any of these symptoms, tell your doctor immediately. You may need to have blood tests to make sure you have the correct level of digoxin in your blood.

Diuretics

Diuretics act on the kidneys to increase the output of water and salt in the urine. They are commonly called 'water tablets' as they remove excess water from the body, and make you pass more urine for a few hours after you take them.

Diuretics are particularly valuable in treating the symptoms of heart failure, a condition in which the body holds too much water and salt. They remove excess fluid from the blood circulation, which means that the heart doesn't have to work as hard to pump the blood around the body.

Certain diuretics given at a lower dose can also help to lower blood pressure.

If you're taking a diuretic, it's important not to have too much salt in your food, as the salt will counteract the effect of the diuretic. Don't add any salt to food, either during cooking or at the table. Try to avoid salty foods. (Many processed foods and ready meals contain a lot of salt.) It's also important to avoid using salt substitutes.

There are three main types of diuretic – thiazide diuretics, loop diuretics and potassium-sparing diuretics.

Thiazide diuretics

Examples: bendroflumethiazide, indapamide

Thiazide diuretics act within one to two hours of taking them and the effects can last for up to 24 hours. Your doctor may have prescribed a low dose of thiazide diuretic for you, to help lower your blood pressure. In higher doses they are used to treat the effects of heart failure.

Loop diuretics

Examples: furosemide, bumetanide

Loop diuretics are used to remove the build-up of fluid in the body, which is usually caused by heart failure. They act within one hour of taking them and the excess fluid is usually removed within six to eight hours.

Potassium-sparing diuretics

Examples: spironolactone, eplerenone

Potassium-sparing diuretics are used to treat the build-up of water in the body associated with heart failure. Some people who suffer from heart failure after a heart attack may be given a potassium-sparing diuretic along with other medicines. These weak diuretics should increase the output of water, but prevent too much potassium being lost at the same time. This helps to maintain the balance of salts within the blood.

Side effects of diuretics

Diuretics may put a strain on your kidneys and cause you to lose too much potassium or sodium. Your doctor will arrange a blood test soon after starting your tablets to check this and can adjust your dose if necessary. You may have to have a repeat test from time to time. Monitoring of your kidneys is very important so, although blood tests may be inconvenient, they are a vital part of your care.

If you have diabetes, taking diuretics can increase your blood glucose level. Diuretics can also be a cause of gout, or worsen its symptoms.

If you have an illness that involves vomiting or diarrhoea, or have an illness where you can't drink enough fluid (such as a viral illness), you may need to temporarily stop taking your diuretic tablet, so that you don't become dehydrated. It's important to tell your doctor if you have any symptoms such as diarrhoea, vomiting or a high temperature – so that he or she can adjust your medicine if necessary.

Spironolactone may cause the breasts to become larger and painful, for both women and men. It may also cause diarrhoea. It is important to tell your GP if this happens.

Nitrates

Nitrates relax the muscles in the walls of the blood vessels, including the coronary arteries. This causes them to dilate (widen), which improves the amount of oxygen-rich blood that is supplied to the heart.

Nitrates also make it easier for the heart to pump blood around the body, so they help to reduce the workload of the heart.

Nitrates are also valuable in preventing angina in the long term, but they may become less effective if they are used continuously over a long period.

If you find you're having to take your nitrate medicines more often than usual, you should speak to your doctor.

Nitrates should generally be avoided by people who have certain other medical conditions. These include very low blood pressure, an inherited cardiomyopathy (disease of the heart muscle), and aortic or mitral stenosis (a type of heart valve disease).

If you're taking a long-acting nitrate such as isosorbide mononitrate or isosorbide dinitrate, you should not take medication such as Viagra – a medicine commonly used to treat erectile dysfunction (impotence). Speak to your doctor if you're unsure about this.

Glyceryl trinitrate

*Also called **GTN***

Glyceryl trinitrate medicines that are taken sublingually (under the tongue) either as a spray or tablet are used to provide quick relief of your angina symptoms. The effects usually last for about 20 to 30 minutes.

GTN is also useful for preventing 'predictable' angina episodes. This means that you can take it just before doing something that usually brings on an angina episode. This is known as using GTN as a preventer. You should only use it in this way if your doctor or nurse has told you to do this and if you know which activities bring on your angina, such as walking up a flight of stairs.

GTN spray

Glyceryl trinitrate can be given in an aerosol spray (GTN spray). You need to take one or two doses under your tongue and close your mouth after each dose. You don't need to shake the canister before spraying.

The spray has the advantage of having a longer shelf life than GTN tablets. You can usually keep it for up to two years, but check the use-by date that is printed on the outside of the bottle or canister. If you use a GTN spray after this date, it is unlikely to have any effect.

GTN tablets

Glyceryl trinitrate tablets (GTN tablets) are particularly effective in preventing a predictable angina episode.

But, as mentioned on page 44, you should only take them as a preventer if your doctor or nurse has advised you to do this and you know which activities bring on your angina.

Keep your tablets in the container in which they are given to you. The tablets lose their strength quite quickly and you should replace them with a fresh supply after eight weeks once the container has been opened.

You should let the tablets dissolve under your tongue. They are not effective if you swallow them.

Oral nitrates

Examples: isosorbide mononitrate, isosorbide dinitrate

Isosorbide mononitrate and isosorbide dinitrate are effective in preventing angina. They usually need to be taken either once a day (as a slow-release preparation) or twice a day. If you take nitrates twice a day, it is important to take the two doses about six hours apart – usually at breakfast and after lunch. This means that the medicine will be more effective. If you find that the tablets become less effective, or that you start having more episodes of angina than usual, tell your doctor as soon as possible.

Side effects of nitrates

All nitrates can sometimes cause side effects such as headache, flushing, dizziness and feeling faint. Some people may get a throbbing headache when they first start taking a nitrate, but this usually lessens or disappears after taking the medicine for a short while. It is advisable to sit down when using a GTN spray or tablet, to avoid feeling dizzy or faint.

Other medicines for angina

Potassium-channel activators

Examples: nicorandil

Potassium-channel activators are a type of medicine given to prevent and treat angina. They have a similar effect to nitrates, as they relax the walls of the coronary arteries, improving the flow of blood to the heart. Unlike nitrates, they do not appear to become less effective with continued use.

If you're taking a potassium-channel activator, you should not take certain medications such as Viagra – a medicine commonly used to treat erectile dysfunction (impotence). Speak to your doctor if you're not sure about this.

Side effects

When you first start taking potassium-channel activators, they may cause a headache. They may also cause flushing, indigestion and dizziness. These effects lessen over time.

Ivabradine

Ivabradine is another type of medicine that can be used to treat angina. It can also be used to help with the symptoms of heart failure. Ivabradine slows your heartbeat so that your heart does not have to work as hard. You can't take it if you have an abnormal heart

rhythm or if your heart beats at less than 75 beats a minute. If you're taking other medicines to treat either your angina or heart failure but you still get symptoms, your cardiologist may prescribe ivabradine for you.

Side effects

Possible side effects of ivabradine include a slow heart rate that makes you feel tired and unwell, and problems with your eyesight. If you get either of these side effects, let your doctor know.

Herbal medicines

By 'herbal medicines' we mean medicines containing herbal preparations, that have not been prescribed or recommended by your doctor. They may also be sold as 'herbal supplements' or 'herbal remedies'.

Before taking any form of herbal medicine, you should talk to your doctor or pharmacist about whether it is safe to take it alongside any other medicines your doctor has prescribed for you. In particular, you should not take St John's wort, as this can interact with a number of medicines prescribed for heart conditions. Some herbal medicines may be taken in small amounts, but many are powerful substances that could affect the way your prescribed treatment works.

Unlike prescribed medicines, some herbal medicines have not been tested through rigorous research trials, so they are not licensed. Also, the strength of herbal medicines can vary from one manufacturer or brand to another.

The Medicines and Healthcare Products Regulatory Agency (the organisation that regulates medicines for human use in the UK) gives the following safety advice for using herbal medicines.

- Never buy herbal medicines abroad or by mail order, especially if they come from Asia, Africa or South America. You have no guarantee of the quality or safety.
- Only buy a herbal medicine if it states clearly which herbs it contains.
- Stop using herbal medicines if you experience any side effects.
- Don't take more than the stated dose.
- Remember that different brands have different concentrations of ingredients, so always check this first.
- In general we recommend that people with heart conditions do not take herbal medicines, because these have not been tested in the same way conventional medicines are. However, you may want to discuss this further with your GP or pharmacist.

For more information

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Phone: 01582 408675

Website: www.britishhomeopathic.org

How your support can help

For over 50 years the BHF has pioneered research that's transformed the lives of people living with heart and circulatory conditions. For example, after years of research, we showed that ACE inhibitor medicines improve the outcome of people who get heart failure following a heart attack, and these medicines are now helping to reduce some of the symptoms of heart failure in many thousands of people in the UK.

We aim to play a leading role by continuing to support vital research. The number of people dying from heart and circulatory disease each year in the UK is falling. But this means that more people are living with the disease, so there is still a great deal to be done.

Our next big challenge is to discover how to help the heart muscle repair itself, and find a cure for heart failure. Visit our website [bhf.org.uk/findthecure](https://www.bhf.org.uk/findthecure) to find out about our Mending Broken Hearts Appeal and see how your support can help make a difference.

For more information

British Heart Foundation website

bhf.org.uk

For up-to-date information on heart disease, the BHF and its services.

Heart Helpline

0300 330 3311 (a similar cost to 01 and 02 numbers)

For information and support on anything heart-related.

Genetic Information Service

0300 456 8383 (a similar cost to 01 and 02 numbers)

For information and support on inherited heart conditions.

Booklets and DVDs

To order our booklets or DVDs:

- call the BHF Orderline on **0870 600 6566**, or
- email **orderline@bhf.org.uk**, or
- visit **bhf.org.uk/publications**

You can also download many of our publications from our website. For a list of resources available from the BHF, ask for a copy of our catalogue *Take heart*. Our booklets are free of charge, but we would welcome a donation. (See page 2 for how to make a donation.)

Heart Information Series

This booklet is one of the booklets in the *Heart Information Series*. The other titles in the series are as follows.

Angina

Atrial fibrillation

Blood pressure

Cardiac rehabilitation

Caring for someone with a heart condition

Coronary angioplasty

Diabetes and your heart

Having heart surgery

Heart attack

Heart rhythms

Heart transplantation

Heart valve disease

Implantable cardioverter defibrillators (ICDs)

Keep your heart healthy

Living with heart failure

Medicines for your heart

Pacemakers

Peripheral arterial disease

Physical activity and your heart

Primary angioplasty for a heart attack

Reducing your blood cholesterol

Returning to work with a heart condition

Tests for heart conditions

Our services

For more information about any of our services, contact the **Heart Helpline** on **0300 330 3311** or visit **bhf.org.uk**

Emergency life support skills

For information about Heartstart – a free, two-hour course in emergency life support skills, including what to do if someone seems to be having a heart attack – call the **BHF Helpline** on **0300 330 3311** or visit **bhf.org.uk**

Heart Matters

Heart Matters is the BHF's **free**, personalised service that provides support and information for people who want to improve their heart health. Join today and enjoy the benefits, including *heart matters* magazine and an online members' area. Call the **Heart Helpline** on **0300 330 3311**, or join online at **bhf.org.uk/heartmatters**

Heart support groups

Local heart support groups give you the chance to talk about your own experience with other heart patients and their carers. They may also include exercise classes, talks by guest speakers, and social get-togethers. To find out if there is a heart support group in your area, contact the **Heart Helpline** on **0300 330 3311**.

Make yourself heard – Heart Voices

Heart Voices gives you the skills, confidence and knowledge you'll need to influence health services for the benefit of heart patients and their families across the UK. It aims to develop a nationwide network of representatives to speak out on behalf of heart patients and their carers, and to provide them with training and opportunities to have their say and get involved.

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Have your say

We would welcome your comments to help us produce the best information for you. Why not let us know what you think? Contact us through our website at [bhf.org.uk/contact](https://www.bhf.org.uk/contact). Or, write to us at the address on the inside cover.

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**British Heart
Foundation**

Coronary heart disease is the UK's single biggest killer.

For over 50 years we've pioneered research that's transformed the lives of people living with heart and circulatory conditions. Our work has been central to the discoveries of vital treatments that are changing the fight against heart disease.

But so many people still need our help.

From babies born with life-threatening heart problems to the many Mums, Dads and Grandparents who survive a heart attack and endure the daily battles of heart failure.

Join our fight for every heartbeat in the UK. Every pound raised, minute of your time and donation to our shops will help make a difference to people's lives.

**FIGHT
FOR EVERY
HEARTBEAT**

bhf.org.uk