

## Blood-thinning medication after stroke

Blood-thinning medicines are drugs that help to prevent clots forming in your blood. They are often prescribed after a TIA (transient ischaemic attack) or an ischaemic stroke. This guide explains the link between blood clots and stroke and the types of blood-thinning medication that you may be prescribed.

### What is a stroke?

A stroke is a brain attack. It happens when the blood supply to part of your brain is cut off. It can be caused by a blockage in one of the blood vessels leading to your brain or by a bleed in your brain. Blood carries essential nutrients and oxygen to your brain. Without blood your brain cells can be damaged or die.

Around 85% of strokes are caused by a blockage cutting off the blood supply to the brain. This is called an ischaemic stroke.

The blockage can be caused by a blood clot forming in an artery leading to your brain, or within one of the small vessels deep inside your brain. A clot can also form in the heart, usually related to an irregular heart rhythm known as atrial fibrillation. In arteries, these blood clots typically form in areas where the arteries have been narrowed or blocked over time by fatty deposits known as plaques. This process is known as atherosclerosis.

### What is a TIA?

A transient ischaemic attack or TIA is the same as a stroke but the symptoms last for a short amount of time. In a TIA, a blood

vessel in the brain gets blocked, but the blockage clears by itself. A TIA is a major warning sign of a stroke, and if you spot any signs of stroke or TIA you should call **999**.

### What are blood-thinning medicines?

When our blood vessels are cut or become broken a blood clot will naturally form to plug the hole until the blood vessel heals. This stops our vital organs and tissues from losing too much blood and helps prevent infection.

Sometimes, a blood clot can form in the wrong place, within a blood vessel, and cause a blockage. If this happens in the heart, or an artery leading to your brain, it can cause a stroke. Blood-thinning medication reduces your blood's ability to clot and therefore reduces your risk of having a stroke.

Some strokes (around 15%) are caused by bleeding in or around the brain. This is called a haemorrhagic stroke. Blood-thinning medicines can increase the risk of this sort of bleeding, or make it worse. If you are already taking an anticoagulant and are diagnosed with a haemorrhagic stroke, you

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should be given medication immediately to reverse its effects.

### Types of blood-thinning medication

There are two types of blood-thinning medicines: antiplatelets and anticoagulants. Both reduce the risk of clots in your blood vessels, but they work in different ways.

#### Antiplatelets

There are small cells in your blood called platelets. If you scrape or cut your skin, the platelets stick together to form a blood clot. Antiplatelet medications interfere with the binding of platelets, or the process that actually starts the formation of blood clots. This is particularly important in larger blood vessels affected by atherosclerosis ("furring up of the arteries"). Some common antiplatelet drugs are aspirin, dipyridamole and clopidogrel.

#### Anticoagulants

Anticoagulants also stop your blood from being able to clot as easily and can reduce strokes due to blood clots from the heart (usually related to atrial fibrillation). Anticoagulants interfere with the proteins in your blood that are involved with the coagulation process. These proteins are called clotting factors. Different anticoagulants interfere with different factors to prevent clotting. Some common anticoagulants are warfarin, dabigatran, rivaroxaban, apixaban and edoxaban.

### What medication will I be given?

#### Initial treatment

If you have had a TIA you are at an increased risk of having a stroke. If you are diagnosed as having had a TIA or your doctor suspects

that you may have had one, it's likely that you will be given aspirin or clopidogrel to help reduce your risk.

If you have a stroke and your brain scan confirms that it has been caused by a blood clot, you will be assessed for treatment with alteplase. Alteplase destroys blood clots, and is injected directly into a vein. For effective treatment it needs to be administered within four and a half hours of stroke onset, by experienced staff in stroke units. Within 24 hours you will probably begin a daily dose of aspirin, which you will need to take for up to two weeks.

#### Long-term treatment

In the longer term, you will usually be prescribed a different blood-thinning medicine to reduce your risk of stroke. If you have had a TIA or a stroke, the long-term treatment to reduce your risk of another stroke is the same. You could be given:

- clopidogrel
- aspirin
- dipyridamole and aspirin together
- dipyridamole alone if you can't take aspirin or clopidogrel.

Any prescribed medication, and associated risk factors for stroke or bleeding should be assessed at least once a year.

Atrial fibrillation (AF) is a type of irregular heartbeat that can increase your risk of a stroke. If you have AF you will usually be prescribed an anticoagulant.

## Antiplatelets

This guide can only give general information. You should always get individual advice about your own health and any treatment you may need from a medical professional such as a GP or pharmacist.

Because blood-thinning medication affects the way your blood clots, all blood-thinning medicines increase your risk of bleeding. So if you cut or injure yourself, it may take slightly longer than usual for the bleeding to stop. This shouldn't cause too many problems for small cuts and injuries. However, you will have a slightly higher risk of having a haemorrhagic stroke (bleeding in or around the brain). So if you have any stroke symptoms, always call **999**.

## Aspirin

Aspirin is often used to treat pain and reduce fever, but it is also an antiplatelet and in low doses it can help to prevent blood clots.

After a stroke or TIA, it's likely that you'll be prescribed a daily dose of aspirin to begin with. However, in the long term, your prescription is likely to change to clopidogrel, or (less commonly) aspirin and dipyridamole together, unless there's a reason why you can't take one of them. In that case, you may be given aspirin on its own, or dipyridamole on its own.

Aspirin can sometimes irritate your stomach, but taking it with food can help to prevent this. You should also make sure that you drink plenty of water so that you don't become dehydrated. Follow the instructions

in the leaflet or label that comes with your medicine.

Aspirin is not suitable for everyone. If you have liver or kidney problems, asthma, a blood-clotting disorder or if you've ever had an ulcer in your stomach you may not be able to take it. It's not usually prescribed if you're pregnant and you won't be able to take it if you're allergic to other nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or naproxen.

The most common side effects that aspirin causes are indigestion and bleeding. Less common side effects include wheezing or breathing difficulties, nausea, rashes and dizziness. Unusual bleeding, such as blood when you go to the toilet, is a symptom of bleeding in the stomach. If you have any stroke symptoms, call **999**.

Some people develop ulcers when they take aspirin for a long time because it damages the lining of your stomach. If you have a burning or gnawing pain in your stomach this could be a sign that you have an ulcer and you should see your doctor.

## Clopidogrel

Clopidogrel is an antiplatelet drug, and is the one most commonly prescribed for long-term use following a stroke or a TIA. It can be taken with or without food, and you should take it at the same time each day.

Clopidogrel is not suitable for everyone. It is not recommended if you are pregnant or breastfeeding. You also need to tell your doctor if you have liver or kidney problems, a bleeding disorder, a stomach ulcer, or if you are taking other medicines. Clopidogrel interacts with other medicines such as aspirin, and proton pump inhibitors.

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The main side effects of clopidogrel are bleeding and bruising. Like aspirin, there is a very small risk of bleeding in the brain. Some people experience diarrhoea, stomach pain, indigestion or heartburn when taking clopidogrel. Other side effects include nausea, vomiting, headaches, dizziness, constipation, itching and sore throat.

### Dipyridamole (Persantin)

Dipyridamole is also known by the brand name Persantin. It is an antiplatelet drug that is often prescribed with aspirin. You may be given a tablet called Asasantin, which combines both aspirin and dipyridamole.

If you cannot take aspirin, you will probably be given dipyridamole to take on its own. If you are taking medicine for indigestion, do not take it at the same time as your dipyridamole prescription.

Dipyridamole is not suitable for everyone, especially people with heart problems. If you've had a heart attack, have heart disease, angina or heart valve problems you may not be able to take it. It can also react with other medicines such as anticoagulant, antiplatelet and blood pressure drugs. So it's important that your doctor knows your full medical history, including all the medication that you're taking, before you start taking dipyridamole.

You should also tell your doctor if you are pregnant, planning on becoming pregnant, or breastfeeding, as you should only take dipyridamole in these circumstances if it's essential for you to do so.

Common side effects of dipyridamole include nausea and an upset stomach, dizziness, indigestion and headaches. Other,

less common side effects, include diarrhoea, bleeding, rashes, muscle pain and fainting.

### Anticoagulants

Warfarin is the most common type of anticoagulant medication used to reduce your risk of stroke if you have atrial fibrillation (AF). There are also other anticoagulants which work differently to warfarin, such as dabigatran, rivaroxaban, apixaban and edoxaban, that require less blood monitoring. Your doctor should talk to you about all the available options, along with their risks and benefits. You should then decide together which anticoagulant would be the most suitable for you.

### Warfarin

If you have been diagnosed with AF or other heart problems, warfarin is the most common medicine prescribed to help reduce your risk of having a stroke. It works by changing the way your liver uses vitamin K.

Vitamin K plays an important role in the blood-clotting process. It helps to produce a protein called prothrombin, which helps your blood to clot. Warfarin slows down the way vitamin K is made, which increases the time it takes for your blood to clot.

Warfarin is given in tablet form and the dose needs to be tailored to you individually. This is because people respond to warfarin differently and it is not easy to predict. It should be taken at the same time every day.

You need to have regular blood tests if you take warfarin, to make sure that your blood is not becoming too thin. The test checks how quickly your blood clots at a particular stage in the process and compares it to a normal

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sample. The result is called the international normalised ratio (INR). INR is expressed as a number. A normal INR value for blood (when you are not taking anticoagulants) is around one. If you have AF and are on warfarin your blood should be two to three times thinner than normal, so you should have an INR value of between two and three.

You will need to have a blood test at least every week when you first start taking warfarin, as your dose will need to be adjusted to suit you. When your INR is stable, you will probably need a blood test every six to eight weeks.

When you are first prescribed warfarin you may receive a pack from your GP or hospital which contains a credit card-sized alert card, a yellow booklet called Oral Anticoagulant Therapy, and a record card.

Warfarin is not suitable for everyone and should not be taken if you have very high blood pressure or stomach ulcers. It should also be avoided if you are pregnant. The main side effect of warfarin is bleeding. The most serious type of bleeding is in the brain, though this is very rare. If you experience symptoms of another stroke, you should call **999**. Less common side effects of warfarin include rashes, vomiting and diarrhoea.

Some medicines and supplements such as St John's wort can interact with warfarin and affect your INR. Always tell your doctor or pharmacist if you are on warfarin before taking any new medication, particularly antibiotics, antidepressants, aspirin, statins, ulcer medicines, or herbal supplements.

### Warfarin and food

If you are taking warfarin, you need to be mindful of the foods you are eating. Your warfarin dose is usually adjusted to the level of

vitamin K in your diet. So you shouldn't make sudden changes to the amount of vitamin K that you eat, as this could affect your INR.

This doesn't mean that you should avoid foods that are high in vitamin K, as these are an important part of a healthy diet. Equally, you shouldn't change the amount you eat without talking to your anticoagulant specialist first.

Foods that are very high in vitamin K and are most likely to affect your INR are green, leafy vegetables such as spring greens, broccoli, spinach and kale. Olive oil, rapeseed oil, soya oil and soya flour are also high in vitamin K. These can be found in salad dressings, mayonnaise and pre-cooked foods. Keep your intake of vitamin K from these products stable.

It's best to avoid cranberries and cranberry juice because they can affect the way that warfarin works. Some natural health food products and herbal remedies can also affect warfarin, so check with your pharmacist or doctor before taking anything like this.

Alcohol can increase your INR, so you need to keep within the recommended limits. See our guide F11, *Alcohol and stroke* for more information.

When you're taking warfarin, the main things to remember are:

- eat a healthy diet
- keep the amount of vitamin K in your diet the same from week to week
- talk to your anticoagulant specialist about any changes you want to make to your diet or weight.

### Other types of anticoagulant

Like warfarin, the anticoagulants listed here carry a small risk of bleeding. This means you have a slightly higher risk of having a haemorrhagic stroke (bleeding in or around the brain). So if you have any stroke symptoms, always call **999**.

#### Dabigatran etexilate (Pradaxa)

Dabigatran etexilate attaches itself to a protein (called thrombin) in your blood, making your blood less likely to form a clot. You should take dabigatran exactly as your doctor prescribes.

If you take dabigatran etexilate, you do not need to have regular blood tests, as it works in a different way to warfarin. However, you may need to have occasional blood tests. Your doctor will tell you when these tests should take place. Dabigatran etexilate is not usually prescribed if you are pregnant or breastfeeding.

Some types of medication can interact with dabigatran etexilate. Check with your doctor if it is safe to take any other prescribed or herbal remedies, such as anti-inflammatory medication or St John's wort. Aspirin and ibuprofen should not be taken with dabigatran etexilate.

Side effects of dabigatran etexilate include bleeding, diarrhoea, indigestion, nausea and stomach pain. You should seek urgent medical attention if you experience any unusual bleeding. If you are having an operation or dental treatment, ensure the medical professionals are aware that you are taking dabigatran etexilate.

#### Rivaroxaban (Xarelto)

Rivaroxaban makes the blood less likely to clot by blocking a protein (Factor Xa) in the blood. This protein plays a key role in the blood clotting process. It works in a different way to warfarin so you will not need to have regular blood tests. Rivaroxaban should be taken exactly as prescribed by your doctor. If you have kidney problems, you will usually be given a reduced dose.

Rivaroxaban is not usually recommended to be used if you are pregnant or breastfeeding. Ask your doctor whether it is safe to take Rivaroxaban with any other prescribed medicines or herbal remedies you may be taking.

Side effects of rivaroxaban include bleeding, constipation, diarrhoea, dizziness and fainting. You should seek urgent medical attention if you experience any unusual bleeding, high temperature or rash.

#### Apixaban (Eliquis)

Similar to rivaroxaban, apixaban makes the blood less likely to clot by blocking a protein (Factor Xa) in the blood. You will not need to have regular blood tests.

Apixaban can be taken with or without food. If you have kidney problems, you will usually be given a reduced dose. Apixaban is not usually recommended if you are pregnant or breastfeeding. If you are taking any other prescribed medicines, or herbal remedies, please check with your doctor whether it is safe to continue doing so.

The main side effects of apixaban are bleeding and anaemia. Seek urgent medical attention if you experience any unusual bleeding.

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### Edoxaban (Lixiana)

Edoxaban, like apixaban and rivaroxaban, makes the blood less likely to clot by blocking a blood protein called factor Xa. You will not need to have regular blood tests.

Edoxaban is taken once a day, either with or without food. The drug is not used if you are pregnant or breastfeeding. It can interact with other medicines, although always check with your doctor whether it is safe to continue taking other prescribed medicines or herbal remedies.

The main side effect of edoxaban is bleeding, but patients may also experience nausea, or itchiness. Seek urgent medical attention if you experience any unusual bleeding.

### What else do I need to know?

#### Read the patient information

Always read the patient information leaflet that comes with your medication, as this will have a full list.

#### Talk to your doctor

Tell your doctor about any new medication you are taking if you are on anticoagulants. Your pharmacist may also be able to give you advice. Never stop taking your medication if you feel unwell. Always contact your GP for advice – stopping medication suddenly can be dangerous. If you have any stroke symptoms, always call **999**.

You should also tell your dentist you are taking anticoagulant medication before you have any treatment.

### Alert card

You should be given a patient alert card before you start taking an anticoagulant. You can get an alert card from the Hearth Rhythm Alliance website, [www.hearthrhythmalliance.org](http://www.hearthrhythmalliance.org).

Always carry your alert card with you in case of an emergency.

## Where to get help and information

### From the Stroke Association

#### Talk to us

Our Stroke Helpline is for anyone affected by a stroke, including family, friends and carers. The Helpline can give you information and support on any aspect of stroke.

Call us on **0303 3033 100**, from a textphone **18001 0303 3033 100** or email [info@stroke.org.uk](mailto:info@stroke.org.uk).

#### Read our publications

We publish detailed information about a wide range of stroke topics including reducing your risk of a stroke and rehabilitation. Read online at [stroke.org.uk](http://stroke.org.uk) or call the Helpline to ask for printed copies.

#### My Stroke Guide

My Stroke Guide is the online stroke support tool from the Stroke Association. Log on to find easy-to-read information, advice and videos about stroke. And our chat forums can connect you to our online community, to hear how others manage their recovery. Log on at [mystrokeguide.com](http://mystrokeguide.com).

Our dedicated Enquiry Line is on hand to support you with using My Stroke Guide. Call **0300 222 5707** or email [mystrokeguide@stroke.org.uk](mailto:mystrokeguide@stroke.org.uk).

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## Other sources of help and information

### Anticoagulation Europe

**Website:** [www.anticoagulationeurope.org](http://www.anticoagulationeurope.org)

**Tel:** 020 8289 6875

They provide information and support for people on anticoagulant medication.

### Arrhythmia Alliance

**Website:** [www.heartrhythmalliance.org](http://www.heartrhythmalliance.org)

**Helpline:** 01789 867 501

They support people with all types of heart arrhythmias.

### Atrial Fibrillation Association

**Website:** [www.heartrhythmalliance.org](http://www.heartrhythmalliance.org)

**Tel:** 01789 867 502

A charity that supports people with AF.

### NHS Choices

**Website:** [www.nhs.uk](http://www.nhs.uk)

This website covers all aspects of health including information on different types of blood-thinning medicines.

### NHS Inform (Scotland)

**Website:** [www.nhsinform.scot](http://www.nhsinform.scot)

**Tel:** 0800 22 44 88

Provides information on health conditions, treatments and health services in Scotland.

## About our information

We want to provide the best information for people affected by stroke. That's why we ask stroke survivors and their families, as well as medical experts, to help us put our publications together.

### How did we do?

To tell us what you think of this guide, or to request a list of the sources we used to create it, email us at [feedback@stroke.org.uk](mailto:feedback@stroke.org.uk).

### Accessible formats

Visit our website if you need this information in audio, large print or braille.

### Always get individual advice

Please be aware that this information is not intended as a substitute for specialist professional advice tailored to your situation. We strive to ensure that the content we provide is accurate and up-to-date, but information can change over time. So far as is permitted by law, the Stroke Association does not accept any liability in relation to the use of the information in this publication, or any third-party information or websites included or referred to.

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We rely on your support to fund life-saving research and vital services for people affected by stroke. Join the fight against stroke now at [stroke.org.uk/fundraising](http://stroke.org.uk/fundraising).  
**Together we can conquer stroke.**

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