

## Blood-thinning medication after stroke

Blood-thinning medicines are drugs that help to prevent blood clots forming. They are often prescribed after a transient ischaemic attack (TIA) or a stroke caused by a blockage (an ischaemic stroke). This factsheet explains the link between blood clots and stroke and the blood-thinning medication that is commonly prescribed to reduce your risk of a TIA or stroke.

### What is a stroke?

A stroke happens when there is a problem with the blood supply to the brain. There are two ways in which a stroke can occur. It can happen because of a **blockage** in one of the arteries to the brain (an ischaemic stroke) or it can happen because of **bleeding** in or around the brain (called a haemorrhagic stroke).

Ischaemic strokes are far more common than haemorrhagic strokes, around 80 per cent of strokes happen in this way. They can be caused by:

- a blood clot (thrombus) forming in a main artery to the brain
- a blockage in the tiny blood vessels deep within the brain
- an embolism - something travelling within the bloodstream which should not be present, such as a blood clot, that travels to the brain causing a blockage.

A **transient ischaemic attack** (TIA) is often called a mini-stroke. The symptoms are the

same as those of a full-blown stroke, but they do not last as long (usually from a few minutes to 24 hours). As with an ischaemic stroke, TIAs occur when the blood supply to the brain is interrupted. If you have had a TIA or a stroke you are more likely to have another stroke in the future.

**Both ischaemic strokes and TIAs are most often caused by blood clots.**

### What are blood-thinning medications?

Blood clotting is a natural and essential part of life, helping to prevent the loss of too much blood from vital organs and tissues following an injury. If a blood clot forms within an artery however, it can cause a blockage and if this happens in an artery leading to the brain, it could cause a stroke.

Blood-thinning medications reduce your blood's ability to clot and therefore reduce your risk of a stroke.

**Blood thinners should not be prescribed after a haemorrhagic stroke** as they can make this type of stroke worse. However if

## Blood-thinning medication after stroke

---

you have had a haemorrhage but also have a very high risk of ischaemic stroke, your consultant may decide that the benefit of taking blood-thinning medication would outweigh the risk.

There are two types of blood thinners, **antiplatelets** and **anticoagulants**, and they work at different stages of the blood-clotting process.

### Antiplatelets

These drugs work by preventing the platelets in the blood from sticking together. Commonly prescribed antiplatelets are:

- aspirin
- dipyridamole
- clopidogrel.

### Anticoagulants

Anticoagulants are blood thinners that work at a different stage of the blood-clotting process by preventing the production of a protein called fibrin. Anticoagulants also make existing blood clots more stable and less likely to break off and travel in the bloodstream. Examples of anticoagulants are:

- warfarin
- dabigatran etexilate
- rivaroxaban.

## Which medication will I have?

### Initial treatment

After a **TIA** your risk of stroke is highest within the first 7 to 14 days. If you have a suspected TIA, you should be diagnosed as quickly as possible. If a brain scan or other

tests show that you could benefit from **aspirin**, you will be started on a daily dose of 300mg (milligrams) immediately.

If you had a **stroke** and a brain scan confirms it is ischaemic, you may be given 300mg of **aspirin** initially, which you will need to take for two weeks.

### Long-term treatment

In the longer term you will usually be prescribed a different blood-thinning medication to reduce your risk of stroke. You will usually have to continue taking this medication forever.

Recent guidelines from the National Institute for Health and Clinical Excellence (NICE) outline which medication you should be taking. These guidelines apply to the whole of the UK.

If you have had a **TIA**, you will usually be given:

- dipyridamole and aspirin, or
- dipyridamole alone if you cannot take aspirin.

If you have had a **stroke**, you will usually be given:

- clopidogrel, or
- dipyridamole and aspirin if you are unable to take clopidogrel, or
- dipyridamole alone if you cannot take clopidogrel or aspirin.

If you have **atrial fibrillation** (a type of irregular heartbeat) and have had a stroke or TIA you will usually be prescribed an **anticoagulant medication** instead.

### Types of blood-thinning medication

This section contains information about the following medications:

- clopidogrel
- dipyridamole
- aspirin
- warfarin
- dabigatran etexilate
- rivaroxaban.

#### Clopidogrel

Clopidogrel (brand name Plavix) is an antiplatelet that works by blocking a chemical called ADP, which acts on the platelets in the blood.

Usually the dose prescribed after stroke is 75mg. It can be taken with or without food, and you should take this medication at the same time each day.

Clopidogrel is not suitable for everyone. It is not recommended for women who are pregnant or breastfeeding because of a lack of research in this area. It also **interacts** with other medications such as aspirin, dipyridamole, warfarin and proton pump inhibitors (see section on aspirin).

It is also not recommended if you have severe liver impairment or a bleeding disorder.

The main **side effect** of clopidogrel is unwanted bleeding. More rarely, nausea, vomiting, headache, dizziness, constipation, itching and sore throat can occur.

#### Dipyridamole

Dipyridamole is also known by the brand

name Persantin. It is an antiplatelet medication often prescribed together with aspirin. If this is the case you will usually be prescribed a total daily dose between 50-300mg of aspirin and 400mg dipyridamole. A drug which combines both aspirin and dipyridamole in one tablet is available and called Asasantin.

If you are taking dipyridamole alone, for example if you cannot take aspirin, it is usually given as a 200mg tablet taken twice a day.

**There are many medical conditions that might mean this drug is unsuitable for you.** These include severe coronary artery disease or if you have recently had a heart attack. It is important to make sure your doctor is aware of your full medical history before starting this treatment.

It is not recommended during pregnancy because it can lead to complications. It can also react with anticoagulant, antiplatelet and blood pressure medicines to name just a few (check the patient information leaflet or speak to your doctor for more information).

There are some very common **side effects** of dipyridamole such as an upset stomach, nausea, dizziness, indigestion and headaches which can affect as many as one in ten people. Headaches can sometimes be improved by having the dose of dipyridamole reduced for a period of time (e.g. a month), after which it is then raised back to the full dose.

Contact your doctor at once if you have an allergic reaction such as runny nose, itchy skin, swelling in the face or severe breathing difficulties.

There are other complications that are less

## Blood-thinning medication after stroke

---

common like bleeding, rashes, muscle pain and fainting.

### Aspirin

Aspirin is a painkiller which belongs to a class of medicines called NSAIDs (non-steroidal anti-inflammatory drugs). It is also an antiplatelet.

If you are prescribed aspirin to reduce your risk of stroke, you may be given between 75mg and 300mg depending on your individual circumstances.

It is advisable to **take aspirin with food** to reduce any stomach irritation which is its main side effect.

Aspirin is not suitable for people who have an allergy to aspirin or other similar medications, asthma, kidney disease, or bleeding disorders. It is not usually prescribed during pregnancy.

The main **side effect** of aspirin is irritation of, and/or bleeding from, the lining of the stomach. For this reason, aspirin is not suitable for people who have peptic ulcers. Other side effects can include indigestion, nausea and vomiting.

Some people develop indigestion when taking aspirin because the protective lining of the stomach is weakened and stomach acid begins to damage it. This can lead to abdominal pain, vomiting and changes to your appetite. A **proton pump inhibitor (PPI)** is an anti-ulcer drug. It is usually given to people who have previously taken aspirin and developed indigestion. The following is a list of PPIs:

- esomeprazole

- lansoprazole
- omeprazole
- pantoprazole
- rabeprazole.

If you develop indigestion whilst taking aspirin you may be prescribed a PPI along with two antibiotics: this is known as **triple therapy**. Relief from symptoms is usually felt within two hours and the course lasts for one to two weeks. Unfortunately, PPIs can have side effects, too, which can include constipation and diarrhoea.

### Warfarin

Warfarin is commonly prescribed to reduce the risk of stroke if you have **atrial fibrillation** (a type of irregular heartbeat), rheumatic heart disease, or after you have had artificial heart valves inserted.

It works by changing the way your liver uses **vitamin K**. Vitamin K is an important vitamin in the blood-clotting process. The less vitamin K you have the longer it takes for the blood to clot. Our livers remove warfarin from our bodies but because we are all different, the dose needed varies from person to person.

**Warfarin tablets should be taken at the same time each day** and are available in different strengths, colour-coded as follows:

- 1mg - brown tablets
- 3mg - blue tablets
- 5mg - pink tablets

If you are taking warfarin, you will need to have blood tests to make sure that your blood does not become too thin as it could increase your risk of bleeding. The blood test compares how quickly your blood clots at a

particular stage in the process and compares it to the **International Normalised Ratio (INR)**. INR is expressed as a value. A normal INR value for blood that is not anticoagulated is 1. Depending on your health condition, different INR levels will be sought. For example, if you have atrial fibrillation your blood should be two to three times thinner, so an INR value of 2 to 3 is aimed for.

When you first start taking warfarin you may need to attend an **anticoagulation clinic** weekly as they adjust the dose to suit you. When it is stable, you will probably need to attend every six to eight weeks for blood tests.

It is also possible to **monitor your own INR** with a machine you can keep at home. Your GP will provide you with test strips to use in it, though you will have to buy the machine yourself. Their cost varies from £400 to £800. Research shows that self monitoring may be more beneficial than having your INR tested at a clinic. However it is **not suitable for everyone**; about half of all people taking warfarin are able to do these blood tests at home. You will need some initial training in how to test your own INR levels and arrange with your clinic what to do if your INR is outside the recommended range for you, and how you can contact them if needed.

When you are first prescribed warfarin you should be given a pack from your GP or hospital which contains a credit-card sized alert card, a yellow patient information booklet titled 'Oral Anticoagulant Therapy', and a record card.

Warfarin should not be taken if you have severe hypertension, peptic ulcers or bacterial endocarditis. It should also be avoided if you are pregnant.

Warfarin also **interacts with other medicines** which can increase its effect. This means that your INR level will increase. Some medicines that have this effect are:

- antibiotics
- antidepressants
- aspirin
- clopidogrel
- dipyridamole
- NSAIDs
- statins
- ulcer medicines.

There are also medicines, including herbal remedies that reduce the effects of warfarin. **Always check the medicines with your GP and pharmacist and read the patient information leaflets.**

Minor side effects of this drug include rashes, nausea, vomiting and diarrhoea. The main side effect of warfarin is bleeding. **Anyone experiencing bleeding should seek medical attention and have an urgent blood test.**

### Warfarin and food

Because warfarin affects vitamin K, which is contained in some foods, you need to be careful what you eat.

Foods that have high levels of vitamin K include pine nuts, fruit such as kiwi, blueberries and blackberries, mature cheese, blue cheese, egg yolks, chick peas, liver, olive oil, cereals containing wheat bran and oats, and green leafy vegetables .

These foods are healthy for us and can help to reduce your risk of stroke and heart attack. Your warfarin levels are usually adjusted to balance out any high levels of

## Blood-thinning medication after stroke

---

vitamin K from your diet.

**Cranberry juice is an exception and you should not drink it if you are taking warfarin.**

If you wish to change your diet suddenly, you should **consult a doctor and your anticoagulation clinic** so that the effects of warfarin can be monitored more closely and changed if necessary.

It is also advisable to **keep alcohol to a minimum** whilst taking warfarin as this will increase your INR value and the risk of having a serious bleed. Binge drinking is particularly dangerous and should be avoided.

### Dabigatran etexilate

Dabigatran etexilate (brand name Pradaxa) is a newer anticoagulant. It belongs to a group of medicines called direct thrombin inhibitors. Thrombin is a clotting agent in our blood and dabigatran etexilate works by attaching itself to the thrombin so it is less likely to form a clot. It is usually prescribed at a dose of 150mg or 110mg, and then twice daily taken with or without food.

It is not usually prescribed if you are pregnant or breastfeeding. Dabigatran etexilate can also **interact with other medication**, for example aspirin, clopidogrel, heparin, rivaroxaban and verapamil. It also interacts with the herbal remedy St John's Wort.

**Side effects** of dabigatran etexilate include bleeding, anaemia, diarrhoea, indigestion, nausea and stomach pain. You should **seek medical attention** if you have severe or uncontrollable bleeding, unusual bruising, unexpected pain, or headaches

accompanied by dizziness or weakness.

### Rivaroxaban

Rivaroxaban (also known by the brand name Xarelto) is also a new type of anticoagulant. It belongs to a group of medicines called antithrombotic agents. It works by blocking a specific protein in the blood, Factor Xa, which plays a key role in the blood-clotting process.

Rivaroxaban is usually prescribed at a dose of 20mg and must be taken with food. If you have kidney problems, you will usually be given a reduced dose of 15mg. It is also advisable to take it at the same time each day.

Rivaroxaban is not usually recommended to be used in pregnancy or while breast feeding. It **interacts** with other medications such as aspirin, clopidogrel and warfarin and the herbal remedy St John's Wort.

**Side effects** of rivaroxaban include bleeding, constipation, diarrhoea, dizziness and fainting. You should **seek medical attention** if you notice any of the following symptoms: unexplained dizziness or weakness, swelling and discomfort, sudden, severe headache, unusual bruising, nosebleeds, bleeding gums or cuts that take a long time to heal.

### Which anticoagulant medication should I take?

The most commonly prescribed anticoagulant is warfarin, but it does require careful monitoring. The advantages of the newer medications (dabigatran etexilate and rivaroxaban) are that their effect on your blood is more stable and they are not affected by any foods that you eat, so they

do not need to be monitored as carefully as warfarin. Your doctor will decide which type of anticoagulant medication is most suitable for you.

### Other new anticoagulants

There is currently more research underway on other new anticoagulants for reducing the risk of stroke in people with atrial fibrillation. Of these, **apixaban** is in the most advanced stages of development, but additional drugs are likely to be available in time.

### What else do I need to know?

Please note that we have not provided an exhaustive list of side effects and drug interactions. Always refer to the patient information leaflet that comes with your medication for a full list.

Tell your doctor about any new medication you are taking. Your pharmacist may also be able to give you advice about your medications.

When starting an anticoagulant medication you will be given a **patient alert card** which you should carry with you at all times. Tell your dentist you are taking an anticoagulant medication before you have any treatment.

Never stop taking your medication if you feel unwell. Always contact your GP for advice – stopping medication suddenly can be dangerous. In a medical emergency, always call 999.

### Useful organisations

All organisations listed are UK wide unless otherwise stated.

#### **Stroke Association**

**Stroke Helpline:** 0303 3033 100

**Website:** [stroke.org.uk](http://stroke.org.uk)

**Email:** [info@stroke.org.uk](mailto:info@stroke.org.uk)

Contact us for information about stroke, emotional support and details of local services and support groups.

#### **Anticoagulation Europe**

**Tel:** 020 8289 6875

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

Support and information for anyone taking anticoagulant medication.

#### **Arrhythmia Alliance**

**Tel:** 01789 450 787 (24 hour)

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

Supports people with all types of heart arrhythmias.

#### **Atrial Fibrillation Association (AFA)**

**Tel:** 01789 451837

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

Supports people with atrial fibrillation offering a range of leaflets on treatments and medication plus details of specialists.

#### **British Heart Foundation (BHF)**

**Tel:** 0300 330 3311

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

Provides information and support on heart issues, including atrial fibrillation, and some blood-thinning medications.

#### **NHS Choices (England and Wales)**

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

For general information on all aspects of health including stroke, as well as information on the different types of blood-thinning medicines.

# Blood-thinning medication after stroke

## NHS Scotland

**NHS Inform Helpline:** 0800 22 44 88

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

Information on health conditions, treatments and health services in Scotland.

## Northern Ireland (NI) Direct Government services website:

[www.nidirect.gov.uk/index/information-and-services/health-and-well-being.htm](http://www.nidirect.gov.uk/index/information-and-services/health-and-well-being.htm)

Information on health and well-being.

**Disclaimer:** The Stroke Association provides the details of other organisations for information only. Inclusion in this factsheet does not constitute a recommendation or endorsement.

## Glossary of terms

**Anticoagulant** = a type of blood thinner usually prescribed if you have atrial fibrillation, a type of irregular heartbeat

**Antiplatelet** = a type of blood thinner

**Atrial fibrillation** = type of irregular heart beat

**Embolism** = something travelling within the bloodstream which should not be present, such as a blood clot, air bubble or fat globule

**INR** = international normalised ratio

**Ischaemic stroke** = interruption to blood flow caused by a blockage

**NSAIDs** = anti inflammatory drugs

**Platelets** = small blood cells that stick together to form a blood clot

**PPI** = proton pump inhibitor (an anti-ulcer drug)

**Thrombus** = blood clot

**TIA** = transient ischaemic attack

Produced by the Stroke Association's Information Service.

For sources used, visit [stroke.org.uk](http://stroke.org.uk)

© Stroke Association

Factsheet 11, version 01 published April 2012, (next revision due September 2014).

Item code: **A01F11**



**The Stroke Association is a charity. We rely on your support.**

Text **STROKE 5** to **70300** to donate £5. 100% of your donation goes to the Stroke Association. Find out how your support helps at [stroke.org.uk/savelives](http://stroke.org.uk/savelives)

The Stroke Association is a company limited by guarantee, registered in England and Wales (No 61274). Registered office: Stroke Association House, 240 City Road, London EC1V 2PR. Registered as a charity in England and Wales (No 211015) and in Scotland (SC037789). Also registered in Northern Ireland (XT33805), Isle of Man (No 945) and Jersey (NPO 369).