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Atrial Fibrillation and Stroke Prevention

The medicines used to prevent a stroke are called anticoagulants. These help to stop blood clots forming in your blood vessels.

Why does atrial fibrillation increase your risk of having a stroke?

The main complication of **atrial fibrillation (AF)** is an **increased risk of having a stroke**. AF can interfere with the blood flow in the heart chambers. This sometimes leads to a small blood clot forming in a heart chamber.

A clot can travel in the blood vessels until it becomes stuck in a smaller blood vessel in the brain (or sometimes in another part of the body). Part of the blood supply to the brain may then be cut off, which causes a stroke. Strokes due to AF tend to be even more serious than strokes due to other causes.

The risk of developing a blood clot and having a stroke varies, depending on several factors. The level of risk can be calculated by your doctor using a set of specific questions. This will help to decide what treatments are required. All people except those at the lowest risk will be offered medication to help prevent clots from forming.

How can the risk of stroke be reduced?

Medicines called anticoagulants can be used to reduce the risk of a blood clot and so reduce the risk of stroke. Anticoagulants work by prolonging the time it takes for blood to form a clot. Some people call anticoagulation 'thinning the blood', although the blood is not actually made any thinner.

Anticoagulants reduce the risk of stroke by nearly two thirds. In other words, these treatments can prevent about 6 out of 10 strokes that would have occurred in people with AF.

Should you take medicine to reduce your risk of stroke?

Your doctor can use a risk assessment to see if you should take medicine to reduce your risk of stroke. The most commonly used risk assessment tool is called the **CHA₂DS₂-VASc risk score**. Points are added for each of the following if they apply to you:

- **Congestive heart failure** with a recent exacerbation (1 point).
- **Hypertension** - past or present (1 point).
- **Aged 75 years or older** (2 points).
- **Diabetes** (1 point).
- Past history of a **Stroke** or **transient ischaemic attack** (2 points).
- **Vascular disease** - for example, **peripheral arterial disease**, **angina** or previous **heart attack** (1 point).
- **Age 65-74 years** (1 point).
- **Sex category** (ie female sex scores 1 point and male scores 0).

The higher the total points score, the higher the risk of stroke. Everyone with a score of 2 or more should be treated with anticoagulation. People with a risk of 1 may be offered anticoagulation.

Another risk score called the **HAS-BLED score** is used to estimate the risk of major bleeding when you are taking a medicine to reduce the risk of stroke if you have AF. This helps to decide whether or not steps should be taken to reduce your risk of bleeding if you take anticoagulation.

Which medicines help to reduce the risk of stroke?

Aspirin was used in the past for preventing strokes if you have AF but is not as effective as warfarin and is just as likely to cause problems. Aspirin is therefore no longer recommended.

The standard anticoagulant has, for many years, been **warfarin**. There are also new medicines that are as effective as warfarin and may have some advantages. These medicines are **dabigatran**, **apixaban**, **rivaroxaban** and **edoxaban**.

Warfarin can interact with some foods, alcohol and other medicines. Some of the newer anticoagulants (dabigatran, apixaban, rivaroxaban and edoxaban) have less interaction with foods, alcohol and other medicines.

If you take warfarin you will need regular blood tests (INR tests) to check how quickly your blood clots. Blood tests may be needed quite often at first but should become less often quite quickly. The aim is to get the dose of warfarin just right so your blood does not clot as easily as normal but not so much as to cause bleeding problems. Dabigatran, apixaban, edoxaban and rivaroxaban do not need regular blood tests.

What are the benefits and risks of anticoagulant medicines?

The benefit of taking warfarin or one of the newer medicines is to reduce your risk of stroke. The main side-effect of these medicines is an increased risk of serious bleeding.

Taking warfarin has a risk of bleeding and the dose of warfarin needs to be checked regularly. Therefore you will need to have regular blood tests if you are taking warfarin. If severe bleeding does happen, an injection of vitamin K will help to stop the effect of warfarin and so help to stop the bleeding.

The newer medicines (dabigatran, apixaban, rivaroxaban and edoxaban) also increase the risk of bleeding. However, they do not increase the risk of bleeding into the brain (intracranial haemorrhage) by nearly as much as warfarin. You will not need to have regular blood tests or change the dose of medicine you are taking with the newer medicines.

- Apixaban, rivaroxaban and edoxaban currently have no treatment to stop the effect of these medicines if you do have severe bleeding.
- Dabigatran can be reversed quickly with idarucizumab (Praxbind®).
- The newer agents do not stay in your body for as long as warfarin does. This means that any problem with bleeding disappears more quickly - usually in 12-24 hours.

Surgery

An operation can be used to reduce the risk of stroke for people with AF. The operation is called left atrial appendage occlusion and closes a pouch in the heart, called the left atrial appendage.

The National Institute for Health and Care Excellence (NICE) in the UK has recommended that left atrial appendage occlusion can be considered as a treatment option to reduce the risk of stroke in people with AF. However, it does carry risks. It is usually reserved for people who are at high risk of stroke and who cannot take anticoagulants.

Further reading & references

- [Management of atrial fibrillation](#); NICE Clinical Guideline (June 2014)
- [WatchBP Home A for opportunistically detecting atrial fibrillation during diagnosis and monitoring of hypertension](#); NICE Medical Technologies Guidance, January 2013
- [2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS](#); European Society of Cardiology (2016)
- [Atrial Fibrillation](#); NICE CKS, October 2015 (UK access only)
- [Thoracoscopic exclusion of the left atrial appendage in atrial fibrillation \(with or without other cardiac surgery\) for the prevention of thromboembolism](#), NICE Interventional Procedure Guideline (June 2011)
- [Isaew A, Adderley NJ, Ryan R, et al; The treatment of paroxysmal atrial fibrillation in UK primary care. Heart. 2017 Jun 1. pii: heartjnl-2016-310927. doi: 10.1136/heartjnl-2016-310927.](#)

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