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AF Association

AAA
Arrhythmia Alliance

www.heartrhythmalliance.org

Atrial fibrillation (AF) patient information



Providing information, support and access to established,
new or innovative treatments for Atrial Fibrillation

www.afa-international.org

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Glossary

Antiarrhythmic drugs Medication used to restore or maintain the normal heart rhythm

Anticoagulants drugs Medication which helps to slow down the clotting process of blood

Arrhythmia An arrhythmia is an abnormality of the heart's rhythm. It may beat too slowly, too quickly, or irregularly. These abnormalities range from a minor inconvenience or discomfort to a potentially fatal problem.

Arrhythmia Nurse A nurse who is trained in heart rhythm disorders

Atrial Fibrillation (AF) A heart rhythm disorder that causes an irregular and often abnormally fast heart rate

Cardiologist A doctor who has specialised in the diagnosis and treatment of patients with a heart condition

Catheter ablation A treatment which destroys very small areas inside the heart which are causing the arrhythmias

Echocardiogram An echocardiogram (echo) uses sound waves to produce images of your heart. This common test allows your doctor to see your heart beating and pumping blood. Your doctor can use the images from an echocardiogram to identify heart disease

Electrocardiogram (ECG) An electrocardiogram (ECG) is a simple test that can be used to check your heart's rhythm and electrical activity. Sensors attached to the skin are used to detect the electrical signals produced by your heart each time it beats

Electrophysiologist (EP) A cardiologist who has specialised in heart rhythm disorders

Sinus rhythm Normal rhythm of the heart

Stroke A stroke occurs when blood supply to part of your brain is interrupted or reduced, preventing brain tissue from getting oxygen and nutrients. Brain cells begin to die in minutes. A stroke is a medical emergency, and prompt treatment is crucial

Contents

The heart during normal rhythm

What is Atrial Fibrillation (AF)?

What causes AF?

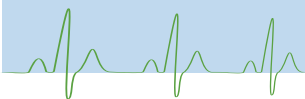
Are there different types of AF?

Tests and investigations

Treatment of AF

AF-related stroke prevention

Key questions to ask your clinicians



The heart during normal rhythm

The heart during normal rhythm

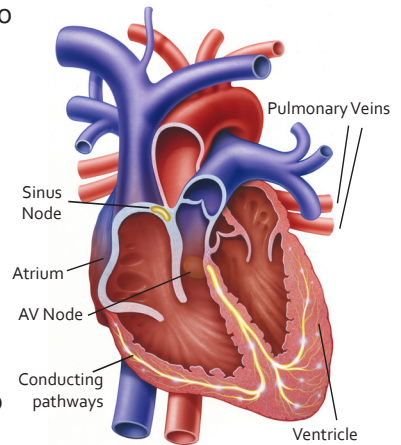
The heart is a muscular pump, which delivers blood containing oxygen to the body. It is divided into two upper chambers (atria), that receive blood from the body, and two lower chambers (ventricles), which pump blood out to the lungs and through the aorta (main artery) to the rest of the body.

Normally, the heart beats in a regular, organised way, at a rate of 60-100 beats per minute. This is because it is driven by the 'sinus node', a specialised group of cells situated in the right atrium, which emits electrical impulses that then travel through the atria, causing the muscle cells to contract.

The sinus node is sometimes referred to as the heart's natural pacemaker. These electrical impulses spread through the atria and then into the ventricles via the atrio-ventricular node (the 'AV node'). The sinus node controls the timing of the heart, according to the needs of the body.

An example of this is during exercise, when the heart rate speeds up.

The heart and normal conduction



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What is Atrial Fibrillation (AF)?

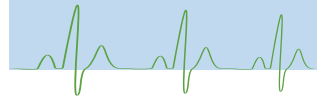
Atrial fibrillation (AF) is the most common heart rhythm disturbance encountered by doctors. It affects approximately 1.4 million people in the UK alone. It can affect adults of any age, but is more common as people get older. In the over-75 age group it affects about 10% of people. AF accounts directly for around 100,000 hospital admissions and is associated with a further 575,000 hospital admissions per year. AF consumes 1% of the NHS total budget. Left untreated or poorly monitored, AF can lead to serious complications such as heart failure and stroke.

AF occurs when chaotic electrical activity develops in the atria, and completely takes over from the sinus node. As a result the atria no longer beat in an organised way, and pump less efficiently. The AV node will stop some of these very rapid impulses from travelling to the ventricles, but the ventricles will still beat irregularly and possibly rapidly.

This may contribute to symptoms of palpitations, shortness of breath, chest discomfort, light-headedness, fainting or fatigue. The goal of treatment in AF is to restore the heart's normal rhythm and if this is not possible, then to slow the irregular heart rate, to alleviate symptoms and to prevent complications of AF-related stroke and heart failure.

Who gets AF?

There is no 'typical' AF patient. AF occurs in men and women, of all races, and can occur at any age. While it can 'run in the family', most people diagnosed with AF will not have a family history of the condition. Some events and diseases may make AF more likely, but it can also occur without warning.



What causes AF?

AF is related to age; the older you get, the more likely you are to develop it. AF is frequently noted after an 'open heart' operation. Other conditions or diseases can also increase your risk of getting AF. This does not mean that AF always develops but the risk does increase. Below are several conditions associated with AF:

- High blood pressure
- Coronary heart disease
- Mitral valve disease (caused by rheumatic heart disease, valve problems at birth, or infection)
- Congenital heart disease (abnormality of the heart present since birth)
- Pneumonia
- Lung cancer
- Pulmonary embolism
- Overactive thyroid (hyperthyroidism)
- Carbon monoxide poisoning

In addition, alcohol and drug abuse or misuse may predispose you to AF. While your risk of AF goes up with the problems mentioned above, many people develop AF for no explainable reason.

What are the symptoms of AF?

Symptoms of AF include:

- Palpitations
- Tiredness
- Shortness of breath
- Dizziness
- Chest pain

Some people with AF do not have any symptoms, and it may only be discovered at a routine medical examination or following an admission to A&E with another condition. The easiest way to detect AF is to feel your pulse!

Are there different types of AF?

Yes, early in the disease, AF is often intermittent, meaning that it can come and go without warning and you may go long periods of time between 'spells'. When AF first occurs, the early episodes may be brief and cause very mild symptoms. In fact, some people with this early-stage AF may not even know they have it. AF falls into one of three categories that describe the progression of the disease, ranging from occasional episodes to the complete absence of a normal heart rhythm:

1. **First Diagnosed AF:** AF that has not been diagnosed before, irrespective of the duration of the arrhythmia or the presence and severity of AF-related symptoms.
2. **Paroxysmal AF** – multiple episodes that cease within seven days without treatment.
3. **Persistent AF** – episodes lasting longer than seven days, or less than seven days when treated.
4. **Long standing persistent AF:** Continuous AF lasting more than one year when it is decided to adopt a rhythm control strategy.
5. **Permanent AF** – when the presence of AF is accepted by the patient and the physician and strategies to restore sinus rhythm are not being pursued.

What are the risks of AF?

The main risk associated with AF is stroke. This occurs because the atria are fibrillating and not beating in a co-ordinated way. As a result, the blood in the atria can become stagnant and then does not flow through the heart smoothly. This causes blood cells to stick together and form a clot which can travel (embolise) to the brain and result in a stroke.

Having an uncontrolled fast heart rate for long periods of time (weeks or months) can damage the heart and you should check with your doctor that your heart rate is controlled adequately. In extreme cases, often when the rate is very fast or when it happens in a damaged heart, AF can cause heart failure, which means that the heart becomes weak as a result of the rapid rhythm. As the heart weakens, there can be a build up of pressure back into the lungs and this affects the normal breathing pattern.

In general, AF is not considered a life threatening condition as long as it is treated appropriately.

How do I get to see the right doctor to treat my AF?

Initially your general practitioner (GP) may arrange some investigations if you consult them about your symptoms. Depending on the results of these investigations you may be referred to a cardiologist (heart specialist). After appropriate diagnosis, some patients will respond to medication and therefore will only require routine follow-up appointments. However, for some, cardioversion or catheter ablation may be a more appropriate treatment option. You should always discuss with your doctor all available treatment options and which might be best for you. Together you should make a shared decision between you and your healthcare professional.

You may be referred to a cardiologist who specialises in heart rhythm disorders usually called an electrophysiologist (EP) – this type of doctor may offer ablation treatments. If you are seen by a general cardiologist you may be referred on to see an electrophysiologist, but if this is not offered you can request specialist referral from either your GP or cardiologist. The outcomes from AF ablation, as with many other procedures, are generally better in more experienced hands. Before proceeding with ablation you should ask the electrophysiologist about their personal level of experience and results.

A team approach to AF ablation is important and you should also ask about the number of cases performed in the hospital where you will have the procedure. An electrophysiologist who has a specialist interest in AF ablation will usually perform over 50 procedures of this type per year. For further information on local EPs contact AF Association.

To summarise, these are the services typically offered by each type of doctor:

- (1) General Practitioner - overall responsibility for patient care and prescription of medication. May offer simple investigations and monitoring of anticoagulation therapy.
- (2) General Physician / Cardiologist - investigation of heart disease, initiation and monitoring of drug treatment, cardioversion.
- (3) Electrophysiologist - all aspects of heart rhythm diagnosis and treatment, including ablation procedures.

Tests and investigations

First, it is important to check that you do actually have AF. This is confirmed by a heart tracing called an electrocardiogram (ECG). The ECG may be a simple recording made at the time of your visit to your doctor, or a continuous monitor, worn for 24 hours or more, to look for episodes of AF. Heart monitors are non-invasive and painless and allow your doctor to record your rhythm for several days during various activities in an attempt to diagnose the condition of AF. You may need to have an echocardiogram (an ultrasound scan of the heart) which can assess the structure and overall function of the heart and you may also need to have blood tests.

Many factors can influence the best therapy for your individual case. The good news for people with AF is that there are a greater range of treatments and more effective treatments than ever before.



Treatment of AF

Drug treatments

Currently, drugs are the most common treatment for AF, and have the aim of restoring the normal sinus rhythm, alleviating symptoms and reducing the likelihood of stroke. Commonly prescribed medicines include bisoprolol, verapamil, diltiazem, flecainide, sotalol, amiodarone, dronedarone and digoxin. These drugs are used in two different ways. Some are used to restore the normal heart rhythm, these are known as antiarrhythmic drugs. They work by blocking specific channels in the cardiac cells. Others aim to control the rate of your heart beat whilst it still continues in an irregular manner.



Beta blockers are commonly used to slow the heart rate and are effective in active patients with better exercise capacity. In some patients with infrequent sustained episodes of AF, flecainide or propafenone may be given as a single dose at the beginning of the attack. This is known as the 'pill in the pocket' method. However, this is only safe when patients are carefully trained to undertake this procedure and practice it first in the hospital setting.

A booklet entitled Atrial Fibrillation (AF) drug information is available from AF Association. This gives much more information on different medication available in greater detail.

The National Institute of Health and Care Excellence (NICE) AF Guidance published in June 2014, recommends that drug therapies for symptom control are reviewed for effectiveness and any side effects within four weeks of being prescribed.

Non-drug treatments

In some individuals the episodes of AF are both severe and frequent, affecting their quality of life. If drug treatments do not work or cause unpleasant side effects, it may be necessary to try a different solution.

Physicians may elect to perform a cardioversion, a procedure in which an electric current is delivered through special gel pads positioned on the chest wall. This is done with the patient under either sedation or general anaesthetic. Cardioversion aims to 'shock' the heart back into its regular rhythm. This is often done for patients with persistent AF.

For some, an additional procedure called catheter ablation may be performed to treat AF. This is done by passing long electrical wires to the heart via small tubes which are inserted into the vein at the top of the leg. Areas of the heart giving rise to AF can be ablated (cauterised) in order to restore normal (sinus) rhythm. Cauterisation or ablation eliminates the electrical signals of the tissue thus preventing them triggering AF. The NICE guidance for AF clearly outlines the position of catheter ablation for those who have symptomatic AF where the symptoms are not adequately controlled on medication. Catheter ablation can successfully cure AF in up to 80-90% of patients, although more than one procedure may be required to achieve this. A booklet entitled Ablation for AF is available from AF Association.

If open heart surgery is required for a structural problem, such as an abnormal heart valve in someone who also has AF, then it is possible to perform ablation for AF at the time of surgery.

For more information on ablation and other treatment options, please contact AF Association for 'Treatment options for atrial fibrillation'

AF-related stroke prevention

In AF the chaotic electrical activity means that the atria (top chambers of the heart) no longer contract together, but instead the muscle quivers like a bag of worms. A lack of efficient contraction means the blood within the atria can become stagnant and form clots. These clots can travel anywhere in the body, but most worryingly, they can travel to the brain and cause a stroke. Indeed the risk of stroke in AF is five times greater than in the normal sinus rhythm.

The 2014 & 2021 NICE guidelines recommend that all people with AF, except those with no stroke risk factors (see below), should be offered anticoagulation therapy to reduce this risk of stroke. The CHA₂DS₂-VASc score allows you to understand your risk of stroke due to your AF. If you have a score of zero (or one due to gender alone) then national and international guidelines suggest you do not require any intervention. If you have a score of one due to anything other than gender then we should consider an oral anticoagulant to reduce the risk of AF related stroke. If you have a score of two or greater then oral anticoagulation is recommended to reduce the stroke risk due to your AF.

CHA₂DS₂-VASc scoring criteria to determine need for blood thinning based on AF-related stroke risk

CHA ₂ DS ₂ -VASc scoring criteria to determine need for blood thinning based on AF-related stroke risk		score	risk level	necessity for anticoagulant
Congestive heart disease Hypertension Age (75 years +) Diabetes Stroke or previous TIA Vascular heart disease Age (65-74 yrs) Sex (female)	1 point 1 point 2 points 1 point 2 points 1 point 1 point 1 point	0	low risk	anticoagulant not suggested
SCORE <input type="text"/>		1	at risk	anticoagulant suggested dependent on personal preferences
		2+	at risk	

Antiplatelets

For many years it was thought that low dose aspirin, or other medication that affects the sticky clot-forming cells called platelets, could reduce the risk of clots forming in the atria and causing AF-related stroke. It was thought that aspirin would cause less bleeding than an anticoagulant. However, as platelets are not so vital for clot formation within the atria, antiplatelets are far less effective than anticoagulants at preventing AF-related stroke, only reducing the stroke risk in AF by 20%.

It is now clear that if aspirin reduces AF-related stroke, it does this at very low levels. Furthermore, the bleeding risks of aspirin are very similar to the bleeding risk of an anticoagulant. It is for this reason that the 2014 NICE AF Guideline

removed any recommendation for the use of aspirin to reduce the risk of AF-related stroke. The new guideline clearly states: 'Do not offer aspirin monotherapy solely for stroke prevention to people with atrial fibrillation'. If a person is unable to tolerate an anticoagulant safely, their clinician may consider either the procedure known as 'left atrial appendage occlusion' (see AF Association factsheet Transcatheter closure of the left atrial appendage) or 'dual antiplatelet therapy', which involves taking aspirin and clopidogrel (another anti-platelet medication) together. Dual antiplatelet therapy only reduces the risk of AF-related stroke by up to 22% and it also has a higher bleeding risk than if a person were to take aspirin as a monotherapy. It is important for you to discuss the most appropriate therapy with your clinician. Aspirin may still be prescribed for another, non-AF-related condition, such as a past heart attack or other problem with the circulation.

Anticoagulants are far better than antiplatelets in reducing the risk of AF-stroke, and are as safe. Anticoagulants can reduce the risk of AF-stroke by at least 65%.

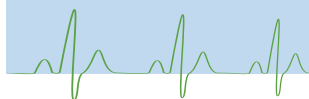
Anticoagulants

For a long time, warfarin was the main anticoagulant available. It acts on the liver to prevent the formation of the proteins that go on to create fibrin. As our bodies have stores of these proteins, warfarin will only start to thin the blood efficiently after a few days. When you first start taking warfarin you will attend an anticoagulant clinic frequently so that your dose can be adjusted to your own

Which drug is best for me?

The choice of which drug is best for you depends on: (i) your personal risk of stroke and (ii) if any intervention like cardioversion or ablation are planned.

A more detailed booklet Preventing AF-related stroke: anticoagulation, is available from AF Association.



needs. Most people find that once they are established on warfarin, their blood clotting potential, reflected as international normalised ratio (INR), remains relatively stable, and they need only attend the clinic every six or eight weeks.

In order to keep your warfarin level stable, you have to watch out for certain things that may affect it. This includes alcohol, certain food items and other medication, including antibiotics, cough remedies, herbal cures and many other over-the-counter medications. If you are unsure of whether you can take a particular medication when on warfarin, you should seek advice of your doctor or local pharmacist.

Since 2012, new approved anticoagulants have become widely available: dabigatran, rivaroxaban, apixaban and edoxaban, work to inhibit thrombin, which is a factor contributing to the formation of fibrin. These have been approved by NICE since 2012 for stroke prevention in AF. They do not require monitoring with regular blood tests, and there are far fewer interactions with food and other medications than with warfarin. At present, not all of these drugs have a method to reverse their effects. Having said this, the time that they are effective in the bloodstream is much shorter than for warfarin, and so a bleed would not last indefinitely.

If you have an upcoming procedure such as a dental extraction, medical procedure or surgery, ask your prescribing clinician for advice about whether you should discontinue your anticoagulant beforehand. Remember that bleeding is normal and anticoagulation slows down but does not stop your blood from clotting.

For patients who are unable to tolerate anticoagulation for medical reasons, there is a procedure called transcatheter closure of the left atrial appendage. For more information please see the AF Association Transcatheter closure of the left atrial appendage factsheet.

If you have any questions or concerns please contact our Patient Services Team on +44 (0)1789 867 502 or email info@afa.org.uk.

Key questions to ask your clinicians

Causes of AF

- What is the cause of my AF? Do I need treatment for the causes and will it stop the AF?
- Is there anything I can do to stop it or reduce the episodes?

Lifestyle

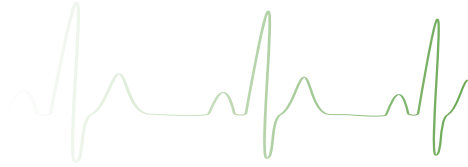
- Can I exercise safely? What exercises will be most beneficial to me?
- Do I need to change my diet? Are there certain foods or drinks I should avoid?
- What do I need to tell the DVLA & insurance companies?
- How will taking an anticoagulant affect my lifestyle, work or other commitments?

Medication

- Do I need to take an anticoagulant? Which anticoagulant would be best for me – why is this?
- How will my AF drugs interact with my other existing medications?
- Are there any alternatives to the medications you are prescribing, and if so what are they? How can I be assessed for these?

Outlook

- What happens if I still feel unwell? When should I see or talk to my GP?
- If I feel very unwell I normally go to A&E. Is this the appropriate thing to do?
- Is there an operation to repair my heart and stop the AF?
- Should I consider cardioversion or a procedure such as ablation? What are the risks and benefits to the procedure?
- What should I expect during the recovery period?



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Finger on your Pulse: is our new library of educational video resources. Medical Experts share their knowledge and address specific concerns and patients share their experience living with the various conditions and treatments.

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"every phone call and booklet is making a huge difference in someone's life and that's special"

Zena, Worcestershire

Please remember that this publication provides general information. You should always discuss and seek advice from your healthcare professional what is most appropriate for you.

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