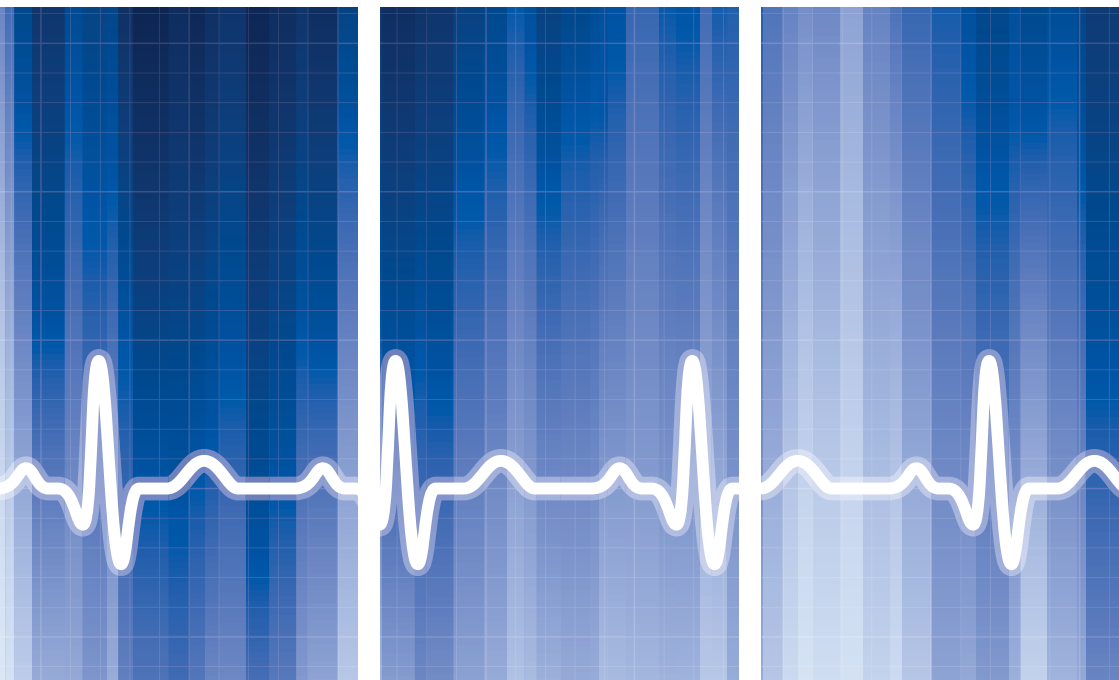


Atrial flutter patient information



Providing information, support and access to established,
new or innovative treatments for atrial fibrillation

Glossary

Antiarrhythmic drugs Drugs used to restore the normal heart rhythm

Anticoagulant A group of drugs which help to thin the blood and prevent AF-related stroke

Arrhythmia A heart rhythm disorder

Atrial flutter A rhythm disorder characterized by a rapid but regular atrial rate although not as high as atrial fibrillation

Cardioversion A therapy to treat arrhythmias which uses a transthoracic electrical shock to revert the heart back into a normal rhythm

Catheter ablation A treatment by which the small area inside the heart which has been causing atrial flutter is destroyed

Echocardiogram An image of the heart using echocardiography or soundwave-based technology. An echocardiogram (nicknamed “echo”) shows a three-dimensional shot of the heart

Electrocardiogram (EKG) A representation of the heart’s electrical activity in the form of wavy lines. An EKG is taken from electrodes on the skin surface

Heart failure The inability (failure) of the heart to pump sufficient oxygenated blood around the body to meet physiological requirements

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Introduction

Atrial flutter is a relatively common heart rhythm disturbance encountered by doctors, although not as common as atrial fibrillation (AFib). There are over 200,000 cases of atrial flutter in the US each year. It can affect adults of any age, but is more common in older patients and is also seen more often in men.

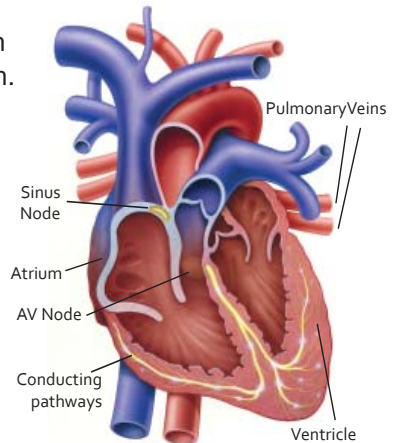
Atrial flutter has many clinical aspects that are similar to AF and the two arrhythmias often occur in the same patient. However, there are important differences with respect to the electrical origins of these rhythm disturbances, and this can have a bearing on the treatment.

The heart during normal rhythm (sinus rhythm)

The heart is a muscular pump, which delivers blood containing oxygen to the body. It is made up of two (right and left) upper chambers or atria, and two lower chambers or ventricles. The left ventricle pumps blood out through the aorta (main artery). The atria receive blood returning via the main veins and the lungs. Normally, the heart beats in a regular, organized way, at a rate of 60-100 beats per minute at rest.

This is because it is driven by the sinus node, a specialized group of cells situated in the right atrium, which emits electrical impulses. 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 a connecting cable (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 flutter?

Atrial flutter is an abnormality in the rhythm of the heart (arrhythmia). In this arrhythmia, the atria beat very rapidly. Unlike AF, atrial flutter is a more organized electrical disturbance which originates in the right atrium in the majority of patients. The atria beat very quickly and regularly, at around 300 beats per minute, and hence take over from the sinus node in controlling the heart rate. The AV node will not conduct all of these atrial beats to the ventricles but tends, instead, to only allow every second, third or fourth beat through, creating an often-regular heart rate of around 150, 100 or 75 beats per minute. Other ratios can occur, and often the ratio changes.

This increased heart rate may contribute to symptoms of palpitations, shortness of breath, chest discomfort, light headedness, or fatigue when atrial flutter occurs.

As with AF, there are two main goals in the treatment of atrial flutter.

First is the control of the rhythm itself, either by restoring normal heart rhythm or normal heart rate and hence reducing the majority of the symptoms caused by the arrhythmia.

Second is to prevent complications of atrial flutter, which are mainly due to an increased risk of stroke.

What causes atrial flutter?

As atrial flutter and AF share many similarities and can occur in the same patient, the two arrhythmias share many causes. Atrial flutter is more likely to occur as one gets older, and is more common in patients who have a history of previous heart disease. Men are more than twice as likely to get atrial flutter as women. Often there is no single factor that causes atrial flutter; rather there are a number of factors and conditions that increase the likelihood of atrial flutter.

Some of the risk factors for developing atrial flutter are shown below:

Conditions predisposing to atrial flutter

- | | |
|---|---|
| <ul style="list-style-type: none">• High blood pressure• Ischemic heart disease• Disease of the heart valves• Cardiomyopathy• Pneumonia• Cardiac surgery | <ul style="list-style-type: none">• Congenital heart disease (abnormality of the heart present since birth)• Pericarditis (inflammation of the heart lining)• Over active thyroid• Chronic airways disease (COPD)• Excess alcohol• Pulmonary embolism (clot on the lung) |
|---|---|

However, these are not the only causes for developing atrial flutter and for some there may appear to be no obvious reason.

What are the symptoms of atrial flutter?

Some people with atrial flutter experience no symptoms and the arrhythmia can be a chance finding on a routine EKG. Common symptoms are:

- Palpitations (awareness of rapid or irregular heart rate)
- Fatigue or poor exercise tolerance
- Mild shortness of breath
- Dizziness
- Less common symptoms include chest pain and fainting

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

Initially you will usually consult your primary care physician (PCP) who may arrange some investigations before possibly referring you to a Cardiologist (heart specialist) – who may or may not have a specialist interest in heart rhythm disorders. After appropriate diagnosis, some patients will respond to medication and, in this case, it may be that no further treatment will be required. You may be referred to a Cardiologist who specializes in heart rhythm disorders, usually called an Electrophysiologist (EP) – this type of doctor may offer cardiac ablation treatment.

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

- (1) Primary Care Physician (PCP) – overall responsibility for patient care and prescription of medication. May offer simple investigations and monitoring of anticoagulation therapy.
- (2) Specialist / 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.

What are the risks of atrial flutter?

The main risk associated with atrial flutter, like AF, is the increased risk of stroke. The atria are beating rapidly but ineffectively and this can result in the blood in the atria becoming stagnant. Stagnant blood has an increased risk of forming clots, which might then leave the heart and travel to the blood vessels in the head, blocking them and causing a stroke. A much less common risk of atrial flutter can occur if the heart rate remains uncontrolled (high) for extended periods of time, normally weeks or months. In extreme cases this constant rapid heart rate can damage the heart muscle, weakening it such that it no longer pumps effectively, causing heart failure.

Diagnosis and treatment

The diagnosis of atrial flutter can usually be made from a standard heart rhythm recording (electrocardiogram or EKG) made during the arrhythmia. If the arrhythmia is intermittent (called paroxysmal), then a 24-hour continuous EKG recording may be needed. These are simple monitors that can be worn continuously for up to one week at a time. Many PCP practices have access to both EKGs and 24-hour monitors (see AF Association booklet 'The heart, the pulse and the EKG', for further details on these). Where these tests are not available at your PCP, they are readily available by referral to your local cardiologist. Doctors often also request echocardiograms as well, which are simple ultrasound scans of the heart, used to look for any structural abnormalities as well as to assess the function of the heart and its valves. Very few additional tests are required, but routine blood tests are also performed including tests for an overactive thyroid gland.

Treatment of atrial flutter

The treatment of atrial flutter follows similar lines to the treatment of AF. Treatment is centered around reducing symptoms and reducing the risk of stroke, so the treatment for individuals may vary depending upon their symptoms and their stroke risk.

Drug treatments

There are a variety of drugs that can be used in the treatment of atrial flutter. Different drugs are used to achieve different treatment goals, and often two or more drugs are used in combination.

Drugs such as flecainide, amiodarone, dronedarone, sotalol or propafenone may be prescribed to restore and maintain a normal heart rhythm and are referred to as antiarrhythmic drugs (see AF Association factsheets for further information on individual medications). They work by altering the electrical properties of the

heart cells in order to reduce the likelihood of the arrhythmia occurring. Drugs such as beta blockers, calcium channel blockers or digoxin are used in atrial flutter in order to slow the heart rate by reducing the number of atrial flutter beats that are conducted via the AV node from the atria to the ventricles. As the majority of symptoms experienced by people with atrial flutter are due to the fast heart rate, these drugs can be very effective at controlling symptoms.

Stroke prevention

The final types of drug that are used in the treatment of atrial flutter are ones that thin the blood and reduce the risk of stroke.

The risk of stroke in atrial flutter is thought to be similar to that for AF and is five times greater than in the normal sinus rhythm (regular heart rhythm). However, the stroke risk varies significantly from person to person and therefore people with atrial flutter need to have their risk of stroke assessed by their doctor who uses scoring charts to estimate the risk. This determines if blood thinning medication (anticoagulation) is required. Anticoagulation is always required for a period before and after a cardioversion.

What blood thinning options are available for doctors to use?

Clots are made up of two main components from the blood.

These two components are: -

- i) **fibrin**, a long protein that binds together to form a mesh and
- ii) **platelets**, small cell particles that stick to the mesh and help to hold it together once they become active.

The blood can be thinned to different degrees by attacking each of these components. Drugs like warfarin and heparin act to stop the formation of fibrin and are known as anticoagulants, while aspirin and clopidogrel are drugs that stop the activation of platelets and are known as antiplatelet agents.

Anticoagulants

By inhibiting the formation of the fibrin network, warfarin and heparin act to thin the blood very efficiently and can reduce the risk of stroke by up to 60%.

Warfarin

Warfarin 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 that last a few days, warfarin will only start to thin the blood efficiently after a few days. When you first start taking warfarin you will attend the anticoagulant clinic weekly as they adjust your dose to suit you. Most people find once they are established on warfarin their International Normalized Ratio (INR) is pretty stable and they need only attend the clinic every six to eight weeks. However, you must watch out for things that can affect your warfarin level to keep it stable, such as alcohol, certain food items which contain vitamin K, and some medications, including cough remedies, herbal cures and many other over-the-counter medications. In short you are fine to have a couple of Tylenol for a headache but anything else you should seek the advice from your doctor or pharmacist.

Non-vitamin K antagonist oral anticoagulants

Drugs like dabigatran, rivaroxaban, apixaban or edoxaban have become available and offer an alternative to warfarin based anticoagulation. Unlike warfarin these drugs do not have any effect on vitamin K which is important for the production of several functioning clotting factors but inhibit directly specific steps in the clotting mechanism. One advantage of these drugs is that no blood monitoring is required and the dose does not need to be changed. They also act quickly (within hours) and are not affected by food and most medications (there are still some drug interactions). However, the effect of these drugs wear off much quicker than warfarin which will quickly result in a patient being at risk of stroke should they forget to take the medication. All the above-mentioned drugs have been shown to be at least as effective as warfarin in preventing strokes and at least as safe.

Antiplatelets

Aspirin and clopidogrel act in slightly different ways to prevent the activation of platelets in that they affect those that are circulating in the blood. Their effect is almost immediate. However, as platelets are not so vital for clot formation in the atria they are far less effective than anticoagulants at preventing strokes caused by atrial flutter. Hence, they are not regarded as a true treatment alternative anymore and are only reserved for patients who decline any form of anticoagulation.

Which drug is best for me?

The choice of which drug is best for you depends on:

- i) your personal risk of stroke and circumstances, and
- ii) if any intervention like cardioversion or ablation is planned.

A more detailed fact sheet on Preventing AF-related stroke: anticoagulation is available from the AF Association and the contents apply equally for atrial flutter.

A booklet entitled Drug information for atrial fibrillation is available from the AF Association and it describes all the drugs currently used in the treatment of atrial flutter.

Non-drug treatments

Cardioversion

A cardioversion is the conversion of an abnormal heart rhythm (in this case atrial flutter) to normal rhythm. This can occasionally be accomplished by medications, but for atrial flutter an electrical cardioversion is usually required. Under a general anesthetic or heavy sedation, an electrical current is used to restore normal heart rhythm. This is a simple and highly effective treatment that is used for both AF and atrial flutter. For more information see the AF Association booklet Cardioversion for atrial fibrillation.

Catheter ablation




Catheter ablation treatment should be considered if atrial flutter recurs following a cardioversion. Sometimes, your doctor may even recommend a catheter ablation as the first treatment, rather than perform a cardioversion. The procedure involves passing wires (catheters) into the heart, usually via the groin or neck veins. One of these wires is then used to apply heat to (radiofrequency ablation), or sometimes freeze (cryo-ablation) a small area of the heart to prevent atrial flutter recurring. This is a highly effective treatment for atrial flutter. The procedure can be undertaken as a day case in some centers and is usually performed using a combination of local anesthesia and light sedation. It takes on average one to one and a half hours and is generally very well tolerated by patients. At present, a catheter ablation procedure for atrial flutter is shorter, safer and more successful than a catheter ablation procedure for AF. (For further information on catheter ablations, contact the AF Association).



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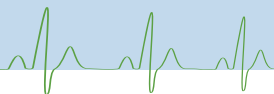
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AF Association
PO Box 5507
Hilton Head Island,
SC 29938

 (843)415-1886
 info@afa-us.org
 www.afa-us.org

Non-profit organization 501(c)(3)

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Please remember that this publication provides general guidelines only. Individuals should always discuss their condition with a healthcare professional.

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Founder & CEO:

Trudie Lobban MBE, FRCP (Edin)

If you would like further information or feedback please contact AF Association.

This booklet is intended for individuals affected by atrial fibrillation.
Information within this booklet is based upon clinical research and patients' experiences.