

Atrial Fibrillation (AF) Patient Information



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

Glossary

Antiarrhythmic drugs a group of drugs used to restore the normal heart rhythm.

Anticoagulant a group of drugs that help to thin the blood.

Arrhythmia Heart rhythm disorder.

Arrhythmia Nurse Specialist A nurse who is trained in heart rhythm disorders.

Atrial fibrillation (AF) Irregular heart rhythm.

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

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

Cardioversion A therapy to treat atrial fibrillation or atrial flutter that uses a transthoracic electrical shock to revert the heart back into a normal rhythm.

Catheter ablation A treatment which destroys small areas inside the heart that are causing the AF.

Dyspnea A medical term for shortness of breath.

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

Electrocardiogram or 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.

Contents

Introduction

The heart during normal rhythm (“sinus rhythm”)

What is atrial fibrillation?

Who gets atrial fibrillation?

What causes atrial fibrillation?

What are the symptoms of atrial fibrillation?

Are there different types of atrial fibrillation?

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

What are the risks of atrial fibrillation?

Tests/Investigations

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

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

Rate control of AF A medical approach to treating atrial fibrillation which does not treat the AF itself, but rather attempts to slow the rapid ventricular response to the fibrillating atria (increased heart rate). Since a fast rate is what is most associated with symptoms, this provides symptomatic relief.

Rhythm The pattern of cardiac activity. Strictly speaking, the heart has both a rate (how fast it beats) and a rhythm (the pattern of activity). Rhythm includes the ratio of atrial to ventricular activity.

Sinus rhythm Normal rhythm of the heart.

Stroke A medical condition which is now referred to as a “brain attack” where the brain is deprived of oxygen. Blockage of blood flow can occur when a blood clot breaks free, travels through the circulatory system to the brain and gets lodged in a blood vessel long enough to cause damage to a section of the brain. Strokes can vary in severity from transient (TIA) to very severe.

Syncope A medical term for passing out from lack of oxygen going to certain areas of the brain.

Treatment of atrial fibrillation

Drug treatments

Non-drug treatments

Stroke prevention

What blood thinning options are available for doctors to use?

Anticoagulants

Warfarin

Antiplatelets

Which drug is best for me?

Arrhythmia Nurse Specialists

AF and driving

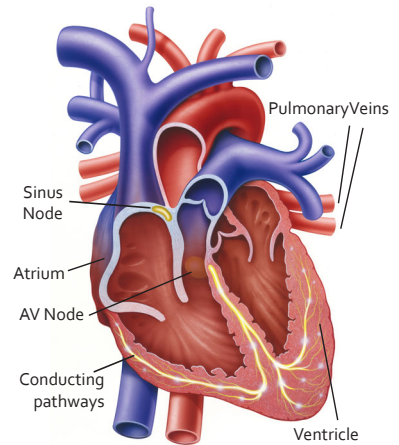
Introduction

Atrial fibrillation (AF) is the most common heart rhythm disturbance encountered by doctors. It affects approximately six million people in the USA 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 over 96,000 hospital admissions and is associated with a further 575,000 hospital admissions per year. Left untreated or poorly monitored, AF can lead to serious complications such as heart failure and stroke.

The heart during normal rhythm (sinus rhythm)

The heart is a muscular pump that delivers blood containing oxygen to the body. It is divided into two upper chambers (atria) that collect blood returning via two large veins, and two lower chambers (ventricles) that 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, organized way at a rate of 60-100 beats per minute. This is because it is driven by the "sinus node," which is a specialized group of cells situated in the right atrium that 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 body's needs.

The heart and normal conduction



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(Figure 1)

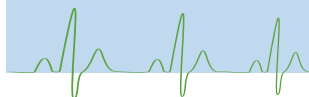
An example of this is during exercise, when the heart rate speeds up. When the heart is beating normally like this, we refer to it as “sinus rhythm,” or “normal sinus rhythm.”

What is atrial fibrillation?

Atrial fibrillation (AF) occurs when chaotic electrical activity develops in the upper chambers of the heart or atria, and completely takes over from the sinus node. As a result the atria no longer beat in an organized 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 for AF is to restore the heart’s normal rhythm, but if this is not possible then it’s to slow the irregular heart rate in order to alleviate symptoms and prevent complications of AF related to stroke and heart failure.

Who can get atrial fibrillation?

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



What causes atrial fibrillation?

Atrial fibrillation is related to age; the older you get, the more likely you are to develop it. Men and women are equally susceptible to the disease. Atrial fibrillation is frequently noted after an “open heart” operation. Other conditions or diseases can also increase your risk of getting atrial fibrillation. This does not mean that atrial fibrillation always develops but the risk does increase. Below are several conditions associated with atrial fibrillation:

- 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
- Carbon monoxide poisoning

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

What are the symptoms of atrial fibrillation?

Some patients with AF do not experience any symptoms; however, for those who do common symptoms include:

- Palpitations (or awareness of the heartbeat, which may be rapid)
- Tiredness
- Shortness of breath
- Dizziness
- Chest pain

Some people with AF have no symptoms at all and it is only discovered at a routine medical examination. The easiest way to detect AF is to feel your pulse!

Are there different types of atrial fibrillation?

Yes, early in the disease atrial fibrillation is often intermittent, meaning that it can come and go without warning, and you may go long periods of time between “spells.” When atrial fibrillation first occurs, the early episodes may be brief and cause very mild symptoms. In fact, some people with this early-stage atrial fibrillation 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. Paroxysmal AF – multiple episodes that cease within seven days without treatment,
2. Persistent AF – episodes lasting longer than seven days, or less than seven days when treated,
3. 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.

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

Initially, your primary care provider may arrange for 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) – 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 will offer ablation treatments, and some will perform large numbers of ablation procedures for atrial fibrillation. If you are seen by a general cardiologist you may be referred to an electrophysiologist, but if this is not offered you can request a specialist referral from either your primary care provider or cardiologist. The outcomes from atrial fibrillation ablation, as with many other procedures, are generally better in more experienced hands. Before proceeding with ablation, you should ask the electrophysiologist about his or her personal level of experience and results.

A team approach to atrial fibrillation 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 with a special interest in atrial fibrillation ablation will usually perform over 50 procedures of this type per year. For further information on local EPs contact the Atrial Fibrillation Association.

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

- (1) Primary Care Physician – overall responsibility for patient care and prescription of medication. May offer simple investigations and monitoring of anticoagulation therapy.
- (2) General 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. Some electrophysiologists perform a high volume of ablation procedures for atrial fibrillation.

What are the risks of atrial fibrillation?

The main risk associated with AF is stroke. This occurs because the atria are fibrillating and not beating in a coordinated 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 (embolize) to the brain and result in a stroke.

Having an uncontrolled (high) heart rate for long periods of time (weeks or months) can damage the heart and you should have your doctor check 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. With the passage of time, AF is also associated with an increased risk of death; however, in general AF is not considered a life-threatening disease in its own right.

Tests/investigations

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

Treatment of atrial fibrillation

Many factors can influence the best therapy for your individual case. The good news for people with atrial fibrillation is that there is a greater range of treatments, as well as more effective treatments, than ever before.

Drug treatments

Currently, drugs are the most common treatment for AF, and have the aim of 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 within the cardiac cell.

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 the Atrial Fibrillation Association.

Non-drug treatments

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

Physicians may elect to perform a cardioversion. This is 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 anesthetic. 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 that are inserted into the vein at the top of the leg. Areas of the heart giving rise to atrial fibrillation can be ablated (cauterized) in order to restore normal (sinus) rhythm. Cauterization or ablation eliminates the electrical signals generated by the tissue thus preventing them from triggering AF. Catheter ablation can successfully cure AF in up to 80-90% of patients, although more than one procedure may be required to achieve this.

The booklet “Catheter Ablation for Atrial Fibrillation” is available from the Atrial Fibrillation 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.

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 jello. 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 (regular heart rhythm). This is why people with AF need to have their blood thinned to reduce the risk of clots forming and thus reduce the risk of strokes.

What blood thinning options are available for doctors to use?

Clots are formed by two main components of 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

Of the available oral anticoagulants warfarin is by far the most commonly used. 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 visit the anti-coagulant clinic weekly as they adjust your dose to suit you. Most people find that once they are established on warfarin their INR is relatively stable and they only need to visit the clinic every six-eight weeks. However, 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 medications (including cough remedies, herbal cures, and many other over-the-counter drugs). If you are unsure of whether you can take a particular medication you should seek the advice of your doctor or local pharmacist.

Dabigatran

Dabigatran is a relatively new drug that works to inhibit thrombin, which is a factor contributing to the formation of fibrin. Dabigatran was approved for stroke prevention in AF. This does not require monitoring with regular blood tests but has the downside that currently there is no specific way to reverse its effect.

Information about other new anticoagulants is now available from the AF Association. Please contact us for further details.

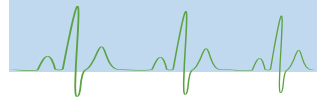
Antiplatelets

Aspirin and clopidogrel act in slightly different ways to prevent the activation of platelets. As they affect the platelets that are circulating in the blood, they are effective almost immediately. However, as platelets are not that vital for clot formation in the atria, they are less effective than anticoagulants at preventing strokes since they reduce the stroke risk in AF by 20%. Aspirin and clopidogrel are no longer recommended for AF management for people who are at very low risk of stroke.

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) whether any intervention like cardioversion or ablation are planned.

A more detailed booklet "Blood thinning (anticoagulation) in atrial fibrillation (AF)" is available from the Atrial Fibrillation Association.



Arrhythmia Nurse Specialists

Many hospitals now employ Arrhythmia Nurse Specialists (ANS). The ANS is a dedicated point of contact and is available to offer you and your family support and guidance throughout the treatment of your arrhythmia. They work within local and national frameworks to deliver the highest quality of care providing patients with the appropriate information about their condition and the best way to manage it. For further information contact your local hospital.

AF and driving

Up-to-date guidance on this can be found on the American Heart Association website: <http://circ.ahajournals.org/content/94/5/1147.long>

Notes

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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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AF Association, P.O. Box 5507
Hilton Head Island, SC 29938



(843) 415 -1886



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