

Patient information sheet – Atrial fibrillation (AF)

Atrial fibrillation (AF) is cardiac arrhythmia characterised by disorganised and chaotic electrical activity within the atria (top chamber of the heart). This causes the ventricles (bottom pumping chamber) to beat/pump in a fast and irregular manner. Such heart irregularity can cause symptoms.

What are the symptoms of AF?

The most common symptoms associated with AF include – palpitations, heart fluttering, irregular heart rhythm, shortness of breath, dizziness, chest pain, lack of energy and tiredness, as well as other potential symptoms. In some patients the fast and irregular heart rhythm can cause angina, heart failure (weak heart) and black outs. In other patients, AF can exist without any symptoms at all and patients may be completely unaware of it. AF is the most common cause of strokes and therefore this may also be the first time that AF is recognised or diagnosed.

How common is AF?

AF is the most common cardiac arrhythmia. It occurs in people of all ages, though it is much more common as people get older.

Why does AF occur?

In the majority of cases AF originates from abnormal electrical overactivity in the pulmonary veins. Pulmonary veins drain blood carrying oxygen from the lungs and connect to the left atrium, before it is pumped by the heart around the body. Parts of these veins can become electrically overactive, causing abnormal electrical impulses to spread to the left atrium and subsequently through the heart, resulting in fast irregular heart rates. Over time, parts of the atria themselves can also become electrically overactive due to microscopic electrical short circuits. AF can cause abnormal scarring in the atria, which promotes more electrical abnormalities, making AF more difficult to treat, especially if it present for long periods of time.

The most common factors predisposing to AF include high blood pressure, sleep apnoea, obesity, heart valve problems and other heart conditions such as heart attacks. New risk factors are continually being recognised. In some, especially younger patients, AF can also occur without obvious evidence of other heart or medical conditions. In many patients the exact cause of AF is not known. AF can be unpredictable and can occur at any time, though some patients may become aware of particular factors that repeatedly initiate the irregular heart rhythms (e.g. drinking alcohol).

What happens to patients with AF over time?

In the majority of patients, AF initially occurs in short bursts (lasting from seconds to hours), referred to as “paroxysmal AF”. Over time these bursts become longer lasting and can last days or weeks, often referred to as “persistent AF”. In some patients AF can become long lasting and even permanently replacing the normal regular heart rhythm, this is referred to as “permanent AF”. The most worrying complication of AF is the risk of strokes, though in the majority of patients this can be reduced with appropriate treatment

How is AF treated?

The treatment approach to AF is generally similar regardless of its cause. There are two main aspects relevant to the treatment of AF. These include 1 - blood thinning to reduce strokes and 2 - regulating the heart rate/rhythm to reduce symptoms associated with a

fast/irregular beating heart. There is no single “right way” to treat AF and treatment will be individualised to your condition.

1. Thinning of the blood. This is referred to as “anticoagulation”. During AF, the normal pumping action of the left atrium (top part of the heart) is grossly disturbed resulting in blood stasis within the top chamber of the heart. This can cause blood clots to form within the left atrium. If these blood clots are released from the heart, they can lodge within an artery anywhere in the body, causing a variety of potential symptoms. If they lodge in the brain, they can result in strokes, which is the most feared complication. Medications that thin the blood, can help prevent blood clots forming within the heart and reduce the risk of strokes. The risk of strokes persists whether you have AF all the time or just sometimes. Blood thinners do not affect the heart rate and do not reduce your symptoms of AF, but they do help to reduce your risk of strokes. Your doctor may recommend warfarin or other blood thinners, depending on your overall risk of strokes.

2. Regulating your heart rate/rhythm. There are two main therapeutic strategies

- Rate control strategy:

- Use of medications: Symptoms of AF are often due to a rapid heart rate. In many patients, if the rapid heart rate can be controlled, symptoms can be improved or eliminated even if the heart rhythm remains irregular. Medications can be used to reduce the heart rate (without resolving the AF) and prevent the heart from racing too fast. In the “rate control” treatment strategy, a decision is made to accept an irregular heart rhythm (due to AF), but medications are given to ensure that the heart rate is prevented from racing too fast. In the majority of cases, rate control can be achieved with one or more medications. The most common medications used include: beta blockers (metoprolol, atenolol and others), calcium channel blockers (verapamil, diltiazem) and digoxin either alone or in combination.
- “Pace and ablate”: In some patients who remain symptomatic with rapid heart rates despite medications, a pacemaker may be implanted and the AV node ablated. The AV node is a “central fuse box” in the heart. Ablating the AV node prevents the electrical signals from the atria (top part of the heart) reaching the ventricles (pumping chambers). AV node ablation is irreversible and will permanently prevent the heart from racing again. It will however also result in a very slow heart rate, which is corrected/treated with an implantation of a pacemaker. It is generally only recommended if all other treatments have been unsuccessful in controlling your symptoms.

- Rhythm control strategy:

Some patients remain symptomatic of AF (even if the heart rate is well controlled) due simply to the heart rate being irregularity. In these patients, treatment is used to restore and maintain a normal regular heart rhythm. Various methods can be used to restore and maintain a normal heart rhythm.

- DC cardioversion: This is a procedure performed under a short general anaesthetic, during which an electric shock is delivered to the heart which can restore a normal heart rhythm. It is generally the most effective method of stopping AF and restoring normal heart rhythm. The procedure is quite safe. The risk of complications is low. You will need to be admitted to hospital (usually just for a few hours) to have it performed.
- Use of medications: Various medications can be used to restore and maintain a normal heart rhythm. A single medication or a combination of medications can be

used. In many cases a number of medications may need to be tried before identifying ones that work best for you, as the effectiveness of each medication varies between patients. Medications can prevent or reduce the number of times you develop AF, or reduce the severity of symptoms associated with AF if it recurs. However, over time, the medications may become less effective due to the progressive nature of AF. The most common medications used include: Sotalol, Flecainide and Amiodarone used either alone or in combination with other medications.

- *Ablation of AF*: This is a procedure used to treat patients with AF who remain symptomatic despite medications, or those who are not able to tolerate medications (it is very different to the AV node ablation described earlier). The procedure is known as a “pulmonary vein isolation (PVI)”. It is associated with an approximately 70% success rate in improving patients symptoms, and relatively low risk of complications. It is described in more detail elsewhere – See *Patient information sheet – Ablation of atrial fibrillation*”

More information:

There are many good sources of information on the internet and these include:

www.atrialfibrillation.org.uk

www.heartfoundation.com.au