

Cardioversion

This factsheet is for people with AF and carers. It describes different types of cardioversion, who they may be appropriate for, and what to expect from this treatment.

People with atrial fibrillation (AF) or atrial flutter may have symptoms even when their heart rate is controlled with medication. Early onset AF can be reversed with oral antiarrhythmic medications like amiodarone, sotalol, flecainide, dronedarone and propafenone. However, at normal doses, this may take several days or weeks to be effective. The drugs are not all suitable or safe for everyone and a cardiologist or arrhythmia specialist must assess the patient before prescribing such medication.

Using a higher-than-normal single dose (a 'pill-in-the-pocket' approach) can be successful, but at first this must be done in hospital to confirm patient suitability and outcome.

Alternatively, a clinician may suggest cardioversion (CV) to get the heart back to the normal ('sinus') rhythm. There are three main methods: medical, electrical, and internal.

Medical cardioversion

Who is it appropriate for?

People who have taken oral antiarrhythmics for some time, but these have not worked.

Medical cardioversion involves using injections of antiarrhythmic drugs like flecainide, sotalol, ibutilide and amiodarone. No anaesthesia or sedation is needed. Depending on the drug, the injection may be given over a period of 10 minutes (say with flecainide) or up to 24 hours, for example with amiodarone.

During this time the electrocardiogram (ECG) is monitored continuously. Usually the arrhythmia will stop within minutes or at most one or two hours after the injection, except with amiodarone. The ECG may still be monitored for up to a few hours afterwards to be sure that any abnormal rhythm is quickly detected and treated. When the

heart rhythm is stable, the patient is discharged and monitored regularly in an outpatient clinic or by their GP.

Patients with implanted devices or allergies need to report this to their doctor before undergoing any kind of cardioversion.

Electrical cardioversion

Who is it appropriate for?

Patients for whom medical cardioversion has not worked or when cardioversion is urgent.

This technique is also known as 'external' cardioversion or DCCV, and involves using an electric shock to reset the heart's rhythm. It can be highly effective in carefully chosen patients.

For at least four weeks beforehand, an AF patient will need to take an anticoagulant to reduce the risk of a stroke. Often, prescribing an antiarrhythmic drug such as amiodarone for one or more months beforehand means that the success rate of the electrical cardioversion can increase from 30 to 80% or more at one year. It is wise to discuss taking antiarrhythmic drug treatment before and after the procedure with the doctor.

Patients are required to fast before the procedure. Electrode patches or plates are positioned on the back and front of the chest, or on the upper right and lower left of the chest. The patient is linked to an ECG monitor connected to the cardioverter/defibrillator. An injection of short acting anaesthetic or powerful sedation is given so that the patient is asleep during the procedure.

The cardioverter (defibrillator) delivers a shock simultaneously with a heartbeat. Often a single shock is successful, but sometimes several are needed at increasing energy levels or with different electrode positions.

The patient wakes up within minutes and quickly regains full control. The ECG is monitored until full recovery. Patients are usually allowed to go home after a few hours. A friend or partner should come to hospital with the patient as they are advised not to drive for 24 hours after the procedure and it is best for someone to stay with them on the night after the procedure to see they are alright.

Anticoagulation is needed in most people for at least four weeks following the procedure. Antiarrhythmic drugs may also be continued for at least several months after DCCV, if already prescribed beforehand. Routine follow-up assessment may include an ECG and it may be necessary to continue with anticoagulant and antiarrhythmic therapy for the longer term.

If you have any concerns or there have been changes in your situation, you have difficulty with anticoagulant control or palpitations recur, it is important that you seek medical advice as early as possible.

Risks of electrical cardioversion may include the following:

- Onset of bradycardia (slow heart rhythm). This usually passes quickly, or at most, needs an injection with a medicine called atropine, or a short period of pacing (electrical stimulation of the heart to stimulate heartbeats).
- Ventricular tachycardia (fast heart rhythm), treatable with a follow-up shock before the patient regains consciousness.
- Stroke is very unusual if the patient has been fully anticoagulated before the procedure.
- Minor skin burns or irritation from the electrodes — less common these days with the phasing out of metal paddle electrodes.
- Reaction to anaesthetic.
- Up to 20% of people return to AF in a few days.

Internal cardioversion

Who is it appropriate for?

People for whom other kinds of CV have failed, or with higher risk or obese patients.

Patients are typically admitted to hospital as a day case. Several routine laboratory tests including blood work and an ECG may be performed before the procedure. On the day, the patient may be asked not to eat or drink anything before the test except for taking sips of water with medication. As in many hospital procedures, you will be asked to sign a consent form to permit the doctor to perform the procedure.

Afterwards, anticoagulation is continued for at least one month, but depending on other factors it may be recommended that anticoagulation continues for longer. This, will be decided by your doctor.

It is important to mention that the CV techniques are not always successful, and further cardioversions may be necessary if AF/ atrial flutter returns. If there is still no success, other treatments are available to regulate the heart's activity.

Acknowledgements: This factsheet is an amalgamation of three previous AF Association sheets on electrical, external and internal cardioversion. A more detailed booklet is still available though. AFA would like to thank all those who have helped develop this publication. Particular thanks are given to Dr Adam Fitzpatrick, Professor John Camm Dr Patrick Heck, Professor Dhiraj Gupta and Dr Charlotte D'Souza.