

## Internal Cardioversion - A Treatment For Atrial Fibrillation

### Introduction

Internal Cardioversion is a growing treatment for Atrial Fibrillation which is now being offered at more than 40 hospitals in the United Kingdom. Internal Cardioversion is particularly useful for patients where other treatments have failed, or where there is a poor probability of success such as in the overweight or obese patient, and for those in Atrial Fibrillation for greater than six months.

### What is the treatment for Atrial Fibrillation?

If you have been diagnosed with Atrial Fibrillation, your doctor has decided that your condition requires treatment to change your irregular heartbeat back to its normal rhythm. There are numerous ways to do this. Your doctor may give you a medication that can convert your heart rhythm back to normal. However, if this is not successful then your doctor may propose a procedure known as 'Cardioversion'.

There are two common forms of Cardioversion; External and Internal. External Cardioversion involves providing an electrical shock of around 200J through two patches placed on your chest after first being given a general anaesthetic. Although External Cardioversion is generally very effective, not all patients with this type of irregular heartbeat can be restored to a normal rhythm with this treatment.

Another method of treating Atrial Fibrillation is the delivery of a low energy shock through a special catheter placed inside your heart to convert your heart back to a normal rhythm. This is known as Internal Cardioversion.

### What is the Internal Cardioversion system?

The Internal Cardioversion system consists

of a catheter (long flexible tube containing wires for electrical conduction) and an Energy Delivery Device which is a piece of equipment placed by the bedside and connected to the catheter to deliver the shock energy to stop your irregular heartbeat.

### Tell me about the Internal Cardioversion procedure

The catheter is temporarily inserted into your heart through a vein, in your groin, neck or arm. X-rays will be taken to guide the proper placement of the catheter in your heart. After the catheter is correctly positioned, the catheter is connected to the Energy Delivery Device, and one or more low energy shocks of less than 30J will be given to convert your heart into a normal rhythm.

The whole procedure takes place in about 30 minutes and do not usually require a general anaesthetic though heavy sedation is required.

### What can I expect?

Unless you are already hospitalised you will be admitted to the hospital for the Internal Cardioversion procedure. Several routine laboratory tests including blood work and an ECG (electrocardiogram recording of your heart rhythm) may be performed sometime prior to the procedure.

On the day of the procedure you may be asked not to eat or drink anything before the test but you may take sips of water with your medications. The doctor or nurse specialist will review your medical history and examine you. He will explain the procedure, its' purpose, potential benefits and possible risks. This is a good time to ask questions, and, most importantly share any feelings or concerns that you may have



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about the procedure. As in many procedures done in the hospital, you will be asked to sign a consent form that gives the doctor permission to perform the procedure. You may be asked to change into a hospital gown and taken to a special room or laboratory where the procedure will be performed. There is a chance that this procedure may need to be repeated in the future.

### Who should not have Internal Cardioversion?

Internal Cardioversion should not be used on patients who can not have temporary pacing leads inside the heart, and/ or have internal low energy shocks. Your doctor will also make the decision if they feel you are not suitable for this procedure. You should let your doctor know if you have an implanted device (such as a pacemaker), a mechanical heart valve or have a known allergy to latex. Cardioversion should always be undertaken with at least six weeks prior treatment with Warfarin which is usually continued for a further month following successful cardioversion.

### What are the benefits of Internal Cardioversion to me?

Internal Cardioversion is used when it is decided that it is important to restore the normal rhythm of your heart and external cardioversion has failed. In these circumstances it is hoped that successful cardioversion would bring relief from the symptoms associated with these irregular heartbeats. It is possible that Internal Cardioversion may be able to stop irregular heartbeats in patients who cannot be successfully treated with external high energy shocks. Patients treated with Internal Cardioversion do not generally require general anaesthetic and do not experience skin burns which are a potential side effect of External Cardioversion.

### GLOSSARY:

**Atrial Fibrillation** – Irregular rapid heartbeat in which the upper chambers of the heart (the atria) beat irregularly, very quickly and ineffectively.

**Cardioversion** – The conversion of an irregular heartbeat to a normal rhythm.

**Catheter** – Long flexible tube containing wires for the electrical conduction which is inserted into the heart.

**Defibrillator** – External energy source that is applied to the heart, either through skin patches or paddles on the chest or internally through a catheter, to convert irregular heart rates (fast) to a normal rhythm.

**ECG** – Electrocardiogram recording of the heart rhythm using patch electrodes applied to the patient skin.

**External Cardioversion** – A method of converting an abnormally fast heart rate to a normal rhythm using high energy shock (200 joules and above) applied through electrode patches or paddles placed over the chest.

**Fluoroscopy** – Real time x-radiographic images of the heart that may be used to guide a catheter into the main heart chamber(s).

**Internal Cardioversion** – A method of converting an abnormally fast heart rate to a normal rhythm using low energy shocks (1-30 joules) applied through a catheter inserted into the main chamber(s) of the heart.

**Pharmacological Cardioversion** – A method of converting an abnormally fast heart rate to a normal rhythm using medication that slows the heart rate.

**Pulmonary Infarct** – An area of damaged tissue in the lung typically as a result of a blood clot.

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