Victorian Heart Centre

Implantable Cardioverter Defibrillator

A guide for patients

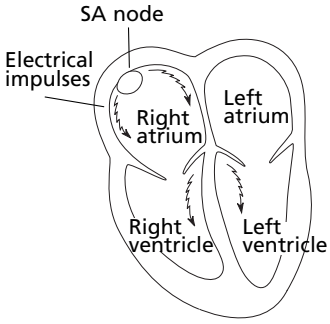
The heart generates electrical impulses that control and coordinate the pumping of the atria and ventricles. During a normal heartbeat, the electrical impulse begins in the SA node in the right atrium and progresses to the left atrium, right ventricle and left ventricle, as shown in the illustration. The SA node is known as the heart's pacemaker.

If the impulses become irregular due to heart disease, heart attack, ageing or other causes, an abnormal heartbeat or "arrhythmia" may result. Arrhythmias prevent the heart from working as an efficient pump and can cause fatigue, dizziness, fainting and unconsciousness. In some cases, an arrhythmia can be life threatening.

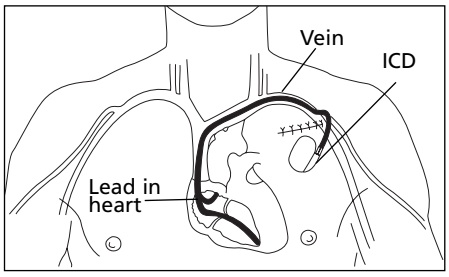
The implantable cardioverter defibrillator (ICD) is a battery-operated computer that continuously monitors the heart's rhythm and rate. The ICD can detect an arrhythmia and then deliver shocks to interrupt abnormal impulses. This allows the SA node to take over and restore a normal rhythm. An ICD can correct:

- tachycardias (conditions where the heart beats too fast but pumps less blood)
- bradycardias (conditions where the heart beats too slowly)
- fibrillation (when a ventricle or atrium contracts so rapidly that its coordinated pumping action is lost).

ICDs have been used in hundreds of thousands of patients since the early 1980s and have been life saving in many cases. Not all types of arrhythmias require treatment with an ICD.



Each heartbeat starts at the SA node.



The ICD detects abnormal rhythms and then delivers impulses from the pulse generator to correct the arrhythmia.

The Procedure

The implantation of an ICD is performed in the Cardiac Catheter Lab by a cardiologist and a specialised team of nurses and technicians. The procedure is performed under local anaesthesia and often with a sedative to help the patient relax.

The cardiologist makes a small cut near the collarbone and inserts one or two leads into a vein. Under X-ray imaging, the leads are guided along the vein and positioned against the wall of the right atrium and right ventricle. (Some patients need only one lead, which is placed in the right ventricle.)

Once the leads are in position, they are tested to make sure the ICD will reliably detect and correct an abnormal rhythm.

The leads are then connected to the pulse generator, which is usually implanted under the skin below the collarbone. The incision is closed. The procedure generally takes one to two hours.

TALK TO YOUR DOCTOR OR NURSE

This leaflet is intended to provide you with information and is not a substitute for professional advice. It does not contain all of the known facts about ICDs. There may be other possible complications that are not listed in this leaflet.

If you are not certain about the benefits, risks and limitations of treatment, be sure to ask your doctor or nurse.

It is important that you have enough information about benefits and risks so you can make an informed decision about having treatment.

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Recovery

After the procedure, you are moved to the Cardiac Unit. For several hours, a nurse will check your blood pressure, heart rate, skin incision and general well-being. You may be in hospital for two days. Before you are discharged from hospital, the ICD is tested again. This will give you an idea of how it feels when the ICD corrects an abnormal rhythm.

Limit your activities for the first few weeks. Your cardiologist will tell you when you can safely drive.

How ICD therapy feels

Most patients report that the rapid pacing impulses used to treat most arrhythmias are painless. They feel a fluttering in the chest or nothing at all.

For more serious arrhythmias that require a low-energy shock, the feeling is like being thumped on the chest.

When a high-energy shock is used to treat fibrillation, the feeling is stronger, like being kicked. While this can be upsetting for some patients, it is important to remember that the ICD is used to correct a life-threatening condition. If you have any concerns, speak with your cardiologist.

After discharge from hospital, you should report any activations of the device to your cardiologist. Your cardiologist can also give you details of a support group for people with an ICD.

Possible complications

As with all procedures, the insertion of an ICD does have risks, despite the highest standards of practice. Most people do not have complications. If a complication occurs, it is usually temporary. However, some complications may have permanent effects or even be life threatening. Possible complications include:

- infection of the chest wound; it may need treatment with antibiotics
- rarely, profuse bleeding or haemorrhage may occur because of damage to a blood vessel, the heart wall, or other organ
- uncommonly, the ICD may not be able to treat the arrhythmia and, in rare cases, may make it worse.