香港浸信會醫院
Hong Kong Baptist Hospital

Procedure Information Sheet

Introduction

Heart rhythm is mainly controlled by the conduction system of the heart. Any abnormality in the conduction system may result in abnormal heart rhythm (arrhythmia). Life-threatening arrhythmias such as ventricular tachycardia (VT) and ventricular fibrillation (VF) cause not only palpitations, dizziness and syncope but also sudden death. Implantable Cardioverter Defibrillator (ICD) is an implantable device used for treatment of VT and VF. It is essentially an implantable cardiac pacemaker which consists of a battery-powered generator and leads which connect the generator to the patient's heart. But the lead placed in the right heart has defibrillation function. As soon as a VT or VF is detected, the ICD will automatically try to correct it by anti-tachycardia pacing, cardioversion or defibrillation. It has been proven in various clinical trials that ICD is better than the best anti-arrhythmic drugs in prolonging survival among patients with a high risk of sudden cardiac death due to VT or VF. If patients refuses this procedure, the result may be detrimental or even fatal.

Indication

Abnormality in the conduction system result in abnormal heart rhythm (arrhythmia). Life-threatening arrhythmias such as ventricular tachycardia (VT) and ventricular fibrillation (VF).

The Operation / Procedure

1. This invasive procedure is performed under local anesthesia in a cardiac catheterization centre. Patient is alert during the procedure, but sedation may be given for calm down purpose.
2. Electrodes are adhered to the chest to monitor the heart rate and rhythm. Blood oxygen monitor through finger tip will be set up. Measurement of blood pressure from the arm will be taken during the examination.
3. Skin disinfection will be performed and a small skin incision (about 3-5 cm long) will be made under the left (sometimes right) clavicle.
4. Contrast may be injected intravenously to visualize the veins in the arm and needle puncture under the clavicle may be required to obtain access to the vein.
5. 1 to 2 leads will be advanced to the heart chambers through the vein under X-ray guidance.
6. The generator will be connected with the lead(s) and implanted in a pocket created under the skin or muscle.
7. VF may be induced under sedation for testing the proper functioning of the ICD.
8. The wound will be closed with suturing material and covered with pressure dressing.
9. The procedure usually takes around 2 to 3 hours.

Before the Operation / Procedure

1. Patient may be required to have special tests such as electrophysiology study (EPS), or stop some or all of the anti-arrhythmic drugs before the procedure.
2. If patient experience severe symptom during this period (e.g. palpitation or fainting attack), please seek immediate medical attendance at nearby clinic or Accident & Emergency Department.
3. Patient needs to sign an informed consent.
4. Patient needs to undergo investigations like blood tests, electrocardiogram and chest X-ray.
5. Blood thinning drugs or Metformin (for diabetes) may have to be stopped several days before the procedure. Steroid will be given if contrast injection is necessary and there is history of allergy.
6. An IV infusion will be set up and fasting for 4-6 hours is needed.
7. Shaving near the implant site may be required.
8. If patient is a female, please provide the last menstrual period (LMP) and avoid pregnancy before the procedure as this procedure involves exposure to radiation.

Patient's Label
Patient Name: _____
Hospital No:_____
Episode No:_____

香港浸信會醫院
Hong Kong Baptist Hospital

Implantable Cardioverter Defibrillator

After the Operation / Procedure

1. After the procedure, patient will be kept on close monitoring in the ward.
2. Nursing staff will check pulse and wound regularly.
3. Patient should inform nurse if blood oozing is found from the wound site.
4. Patient may resume oral diet as instructed.
5. Mild wound pain is common. Patient may take simple analgesic to relieve pain.
6. Antibiotics may be given for a few days to minimize the risk of wound infection.
7. Pre-discharge ICD testing and programming may be performed.
8. Patient may be discharged from hospital a few days after the ICD implantation.
9. The wound should be covered with light dressing. Please keep the wound site clean and avoid making the dressing wet during a bath. Always change dressing if wet.
10. Please avoid lifting the affected arm for 1 week, and avoid vigorous arm movement in the first month after the procedure.
11. Patient should have regular follow up for ICD analysis, re-programming and battery power assessment.
12. Please carry the ICD identity card at all times.
13. Follow Doctor's instructions or refer to the information booklet from the ICD company to minimize the risk of pacemaker malfunction due to electromagnetic interference. In general, strong electro-magnetic field or radiofrequency signal will interfere the ICD. Please keep a distance of >15 cm (6 inches) from an active mobile phone. Household electrical or electronic appliance usually does not affect ICD.
14. Patient should report to Doctor or nearby Accident and Emergency Department if suffering from syncope or electric shocks delivered by the ICD.
15. ICD generator will need to be replaced several years later when the battery is depleted.

Risk and Complications

1. The procedure carries certain risks.
2. Major complications include death (<1%) and serious heart or lung perforation (<1%).
3. Other potential risks include wound infection (<1%), wound haematoma (<1%), vein thrombosis (<1%), air embolism, contrast allergy, vascular injury, pneuomothorax and haemothorax.
4. Special risks related to the device include lead dislodgement, insulation break or fracture, and pocket erosion.

Alternative Treatment / Investigation

Alternative treatments include anti-arrhythmic drugs and catheter ablation.

Disclaimer

This leaflet only provides general information pertaining to this operation / procedure. While common risks and complications are described, the list is not exhaustive, and the degree of risk could also vary between patients. Please contact your doctor for detailed information and specific enquiry.

Reference

Smart Patient Website by Hospital Authority: Implantable Cardioverter Defibrillator (4/2019)

Patient's Label
Patient Name: _____
Hospital No:_____
Episode No:_____

Patient's Signature:_____ Date:_____