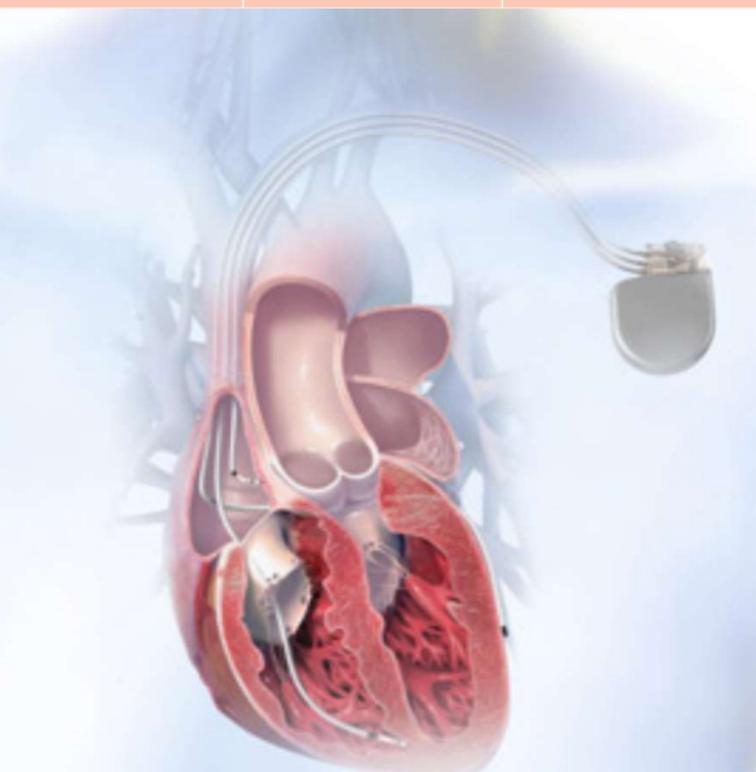


PACEMAKER IMPLANTATION



**P. D. HINDUJA HOSPITAL
& MEDICAL RESEARCH CENTRE**

Pacemaker Implantation

Pacemaker Implantation is a procedure to put a small battery-operated device called a pacemaker under the skin of your chest, just below your collarbone (clavicle), to help your heart beat regularly.

Usually this is a minor surgical procedure performed under a local anaesthetic. Occasionally, it may require general anaesthesia.

About a Pacemaker

The pacemaker is a small metal box weighing 20-40g, which contains a pulse generator (usually a lithium battery) attached to one or more wires/ leads that run to your heart. The pacemaker also contains a computer circuit that converts energy from the batteries into electrical impulses, which flow down the wires and stimulate your heart to contract.



Why do I need a pacemaker?

When you're resting, your heart normally beats (or contracts) 50 to 80 times a minute. If you exert yourself or feel anxious or stressed your heart can beat at two or three times this rate to pump blood faster around your body. This beating of the heart is a result of generation of electrical current in the SA node which is situated in the right upper chamber of the heart. This current then gets transmitted through

a special tissue called AV node and His-Purkinje system to the lower chambers. Once the current reaches the lower chambers, they pump blood to the whole body. Any problem with either the generation or conduction of electrical impulses of the heart gives rise to Slow Heart Rates (Bradycardia). This can give rise to dizziness, lightheadedness, fatigue, breathlessness or episodes of fainting. The pacemaker is implanted to correct this problem.

What will be done once I get admitted?

Patient will be admitted one day prior or early morning on the day of the procedure. Current medications and symptoms (if any) will be examined by one of the nurses and the doctors.

What preparation do I need before the pacemaker implantation?

Our doctor will explain the detailed procedure of pacemaker in advance. He will also inform whether to stop taking any of your medications.

Before the procedure

- A written consent, will be taken from you after explaining the procedure, its details and risk (if any).
- 6 hours fasting is required before the procedure starts.
- The left or right side of your chest will be cleaned and shaved.

- An intravenous cannula will be inserted in one of your hands/ arms before the start of the procedure to give you fluids and medications.
- Inform the doctor if you have any allergies or reactions to any drugs.



Where are these procedures performed?

The procedure will be performed in the Cath Lab, 2nd Floor, Param Anand Tower. It has a moveable procedure table on which the patient lies down and an X-ray machine is suspended over the table. This X-ray machine guides the doctor in placing the wires or leads within your heart. In addition, there are monitors which will monitor your heart rate and blood pressure.

What kind of anaesthetic will be given?

The procedure is done under local anaesthetic with intravenous sedation. A medication will be given through your IV line to relax you and it will make you feel drowsy, but you won't be asleep during the procedure.

Pacemaker Implantation

After you have been adequately sedated and relaxed, the doctor injects local anesthesia at the site of pacemaker implantation. Once the effect of the anesthesia has taken place, the cardiologist makes a small incision of 5-6 cm (2-3 inches) below the collarbone and makes a small 'pocket' to insert your

pacemaker. He then inserts the pacing lead into a vein. He then guides this into the correct chamber of your heart using X-ray guidance. The pacing lead is connected to the pacemaker and the pacemaker is fitted. The cardiologist then tests how much

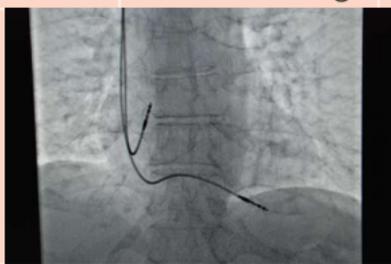


fig. no.2

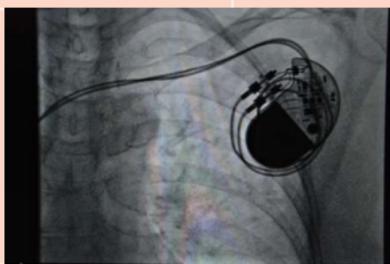


fig. no.1

electrical energy is needed to stimulate your heartbeat and adjusts the pacemaker accordingly. Some patients may need 2 leads to be implanted which will be told before the procedure. The procedure usually takes between 60 and 120 minutes or longer if you're having a bi-ventricular pacemaker or other heart surgery at the same time. You'll usually need an overnight stay in hospital and a day's rest after the procedure. After the pacemaker has been implanted, the doctor uses an external device (programmer) to program the final settings based on your response to the procedure.

Will I feel anything?

You'll feel an initial burning or pricking sensation when the cardiologist injects the local anaesthetic. You'll soon become numb, but you may feel a pulling sensation as the cardiologist makes the pocket in the tissue under your skin for the pacemaker. When

the leads are being tested, you may feel your heart rate increase or your heart beat faster. However, no pain will be felt.

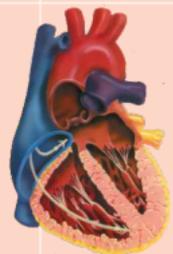
Risks of pacemaker implantation

- **Infection:** may occur at the site of the implant.
- **Loosening of pacing leads:** There is about 1% chance that the leads might move out of position which is why you're advised to avoid vigorous exercise for a few weeks.
- **Air trapped in the chest (pneumothorax):** There's a small risk of air leaking from the lungs to the chest during the procedure. The doctor will check this on your chest X-rays before you leave hospital.
- **Death:** This is very rare with pacemaker implantation
- **The operation can't be performed:** For about one in 100 people the operation is too difficult and the doctor has to stop without fitting the pacemaker on the first occasion.

Post procedure care

After the procedure the patient will be shifted to the ICU for monitoring of the heart rhythm.

One should avoid vigorous movement of the arm where the pacemaker is implanted. An X-ray of your chest and ECG will be done on the same day after the procedure. After



some rest, the patient can begin moving about, and generally is ready to go home the next day after the pacemaker has been checked.

Will I feel pain after the procedure?

You may feel some pain or discomfort during the first 48 hours and will be given pain relieving medication.

Before Discharge

Before you go home complete pre-discharge advice will be given by the cardiologist. After your pacemaker has been fitted, you'll be given a pacemaker registration card which contains details of the make and model of your pacemaker. You should always carry this with you in case of an emergency.

Wound care

You should avoid getting the wound wet for 7 days after the procedure. Kindly keep the wound dry and clean. If you notice any serious swelling, pain or redness, consult your doctor. Nowadays, the cardiologist uses absorbable sutures, so there is no need to get the sutures removed after 7 days. Your first follow up visit to the hospital will be after 7 days.

How soon can I drive?

If you are driving your personal vehicle, you can start driving again after a week (provided you don't have any symptoms, such as dizziness or fainting, which

would affect your driving). If you are driving a large or passenger-carrying vehicle (public), you'll have to wait for six weeks until after your pacemaker is fitted.

When can I do exercise or play sports again?

You should avoid strenuous activities for around three or four weeks after the surgery. After which you should be able to do most activities and sports. If you play contact sports, however, such as football or rugby, it's important to avoid collisions. You may want to wear a protective pad. You should also avoid extreme activities, e.g. squash/ tennis. Ideally seek your doctors advice before resuming any physical activities.

P. D. Hinduja National Hospital & Medical Research Centre

Veer Savarkar Marg, Mahim, Mumbai - 400 016 (INDIA)

Tel: 2445 1515 / 2445 2222 / 2444 9199 Fax: 2444 9151

ivf@hindujahospital.com

www.hindujahospital.com

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& MEDICAL RESEARCH CENTRE**