

Living with Cardiac Implantable Electronic Devices (CIED)



Pacemaker
Defibrillator
Resynchronization

Patient Education Series
Cardiology clinic, 3rd floor
KIMS Hospital
Secunderabad

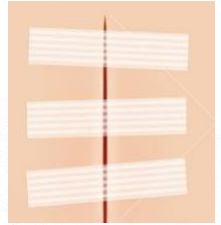
Basics

CIED is a small electronic device typically implanted under the collar bone and is used to manage 'electrical dysfunction' of the heart. The common types are: Permanent pacemaker (PPM), Defibrillator (ICD), and Cardiac resynchronization therapy (CRT). This document will refer to all CIEDs as a general, with special emphasis to ICD as and when required.

Precautions related to CIED can be grouped into two: (1) related to surgical site (2) related to electromagnetic interference (EMI) that device may encounter whenever it is exposed to external current or magnetic field.

(1) Taking care of the surgical site (first 2 weeks)

1. Stitches (sutures): Ask your doctor if you got absorbable sutures or non-absorbable sutures. Non-absorbable sutures need removal after 7-10 days.
2. Generally, surgical site doesn't need any special kind of ointment or dressing. Simple dressing with a dry gauze and a medical tape to keep the gauze in place is good enough. If you see steristrips (→) in place, let them fall off on their own (or remove after 7-10 days). Avoid getting the site wet till it heals completely, or as instructed by your doctor.
3. Avoid jerky arm movements or lifting the arm above shoulder level.
4. Skin bruising at surgical site is ok. Any new swelling, worsening pain, bleeding, fever, or any kind of discharge should prompt a medical evaluation.
5. Ask your doctor when you can resume your work.
6. Activities to avoid for the first 2-3 weeks:



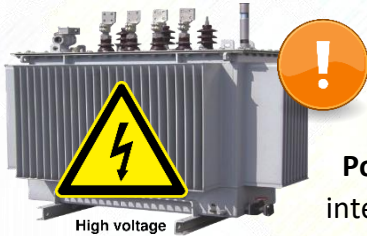
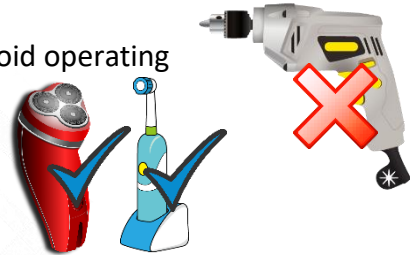
(2) Electro-Magnetic Interference

CIED is an electronic device and can interact with electromagnetic current in its vicinity. EMI may trigger unwanted alarms or may interfere with device function. Use caution in these scenarios:



Metal detectors: Routine pass-through is ok. Maintain more than 30 cm distance if prolonged exposure is required. Declare to the security that you have a CIED, as a 'metal' alarm will be triggered when you pass through. With handheld metal detectors, make sure the wand doesn't hover around your device for more than 1-2 seconds.

Large motors/drilling equipment: Avoid operating such equipment. Small appliances are ok.



Power houses, transformers, high tension wires may interfere with CIED function if they are in proximity (within few meters). Typically, our home/workplace is far enough from these and should not cause any problem.



Electronics: Avoid keeping mobile phone or earphones in the shirt breast pocket. Don't let the headphone magnets sit over the CIED. It is advisable to put the phone over the opposite ear while talking. Apple iPhone 12 series has a larger magnet than most phones, hence need extra caution.



Daily activities:

Driving: If you have an ICD, ask your doctor if driving is allowed.

Recreational sport: Acceptable till the time you avoid injury to the CIED. Any blow or blunt injury to that site warrants urgent check-up. Contact sports should be avoided.

Keep any kind of magnets at least 15 cm away from the CIED.

Don't lean over the open hood of a running car. A running engine creates an electrical field.

Don't place your hand over a machine with a running motor, like mixer-grinder, washing machine, microwave etc.

Even if you believe that your CIED is working fine, it's a good idea to get it checked every 6 months.

Precautions while visiting a healthcare facility

Checklist for MRI scan (CT-scan is no problem):

1. Discuss with your cardiologist and get his/her approval.
2. Ensure your CIED is MRI-compatible (all, but few, modern CIED are).
3. Declare to the radiographer that you have a CIED.
4. CIED needs a pre and a post programming check after an MRI scan.

Medical procedures that may need modifications

Diathermy, TENS (used during physiotherapy)

Shockwave Lithotripsy, in treatment of kidney stones

Radiation treatment (for cancer) around the CIED site

Scan this QR code to get a list of all the machines that may or may not interact with CIED.



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