

Cardiac pacemakers

Marcapasos cardíacos

WHAT IS A PACEMAKER?

It is an electronic device implanted in the human body, free of possible rejection because it is built with biocompatible materials. It consists of:

- 1 A generator that emits electrical impulses to reestablish the absent heartbeat, a battery that provides energy, an intelligent circuit that interprets if it is necessary to deliver stimuli, and a catheter connector head.
- 2 A catheter with electrically conductive filaments connects the generator to the heart conveying the electrical impulses to detect if the heart is beating spontaneously or not and to “inform” the intelligent circuit whether it is necessary to issue stimuli. This is known as “sensing”.

That is why the pacemaker is a system consisting of a generator and catheters.

HOW MANY DIFFERENT TYPES OF PACEMAKERS ARE THERE?

There are different types according to the needs of each patient.

Those that stimulate and monitor the presence or absence of beats in a single chamber of the heart are known as single-chamber pacemakers and those that deliver electrical stimuli and monitor the patient’s own heartbeat in both heart chambers are called dual-chamber pacemakers.

HOW DOES IT WORK AND WHAT DOES VVI OR DDD MEAN?

By convention and to facilitate identification of the type of pacemaker, this is designated by a code of three letters which are synonymous of the type of pacemaker to which they refer. This allows by means of a simple identification card to recognize the brand and model with its serial number, providing quality control for the regulatory entities of each country and manufacturer data, and information for its proper detection during medical monitoring and technical control.

The first letter corresponds to the heart chamber where it “stimulates”, the second letter refers to the heart chamber where it “senses” (monitors if there are spontaneous beats) and the third letter to the “response mode” (how the pacemaker responds to the patient’s own heart rhythm).

When it is single-chamber, it is called VVI pacemaker: the first letter indicates that it delivers impulses in the Ventricle, the second that it monitors the presence or not of spontaneous heartbeats in the Ventricular chamber and the third that it responds by Inhibiting if the patient has his own heartbeats.

When it is dual-chamber, it is identified as DDD because the stimulation is Double (atrium and ventricle), the heartbeat monitoring in the heart chambers is also Double and the type of pacemaker response will also be Double.

WHO INDICATES A PACEMAKER?

The choice is made by the specialist in Electrophysiology, who follows national and international recommendations supported by scientific society guidelines. The technical control and specialized clinical monitoring is also performed by this specialist.

CAN I UNDERGO COMPUTED TOMOGRAPHY OR MAGNETIC RESONANCE IMAGING IF I HAVE A PACEMAKER?

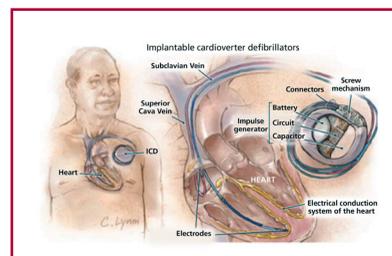
There are no contraindications to perform a computed tomography with a permanent pacemaker, but magnetic resonance imaging is contraindicated in most patients.

Recently, a series of pacemakers suitable for performing a magnetic resonance were launched, but their inclusion in the market is slow.

WHAT PRECAUTIONS SHOULD I HAVE IN THE AIRPORT CONTROLS?

Avoid passing through the metal detector, showing the pacemaker card that each patient owns.

Request a manually-controlled metal detector.



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INFORMATION ON THE WEB

1. Consenso de marcapasos y resincronizadores Consenso Argentino SAC. Rev Arg Cardiol 2009;77
2. www.youtube.com/watch?v=9Yb8Q9c-NQk-video ilustrativo.
3. Wikicardio: http://www.wikicardio.org.ar/wiki/Marcapasos_y_cardiodesfibriladores

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