

# Installation of a Definitive Pacemaker in the Hospital of the Ribera, Valencia, Spain. Rol of Infirmary

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## SUMMARY

**Introduction:** In the Unit of Intensive Surveillance (UVI) of the Hospital of the Ribera, we have an operating theatre for the insert of provisional and definitive pacemaker. The professionals of infirmary of our unit should thoroughly know, the indications, the used material, the distribution of the aparatage of the operating theatre, and the procedure and possible complications of their insert. All this combined of knowledge composes the infirmary list in this technique.

**Objectives:** The objective of the present work is to analyze and to unify the infirmary procedure in the insert of a definitive pacemaker.

**Material and Methods:** Through the bibliographical search and the protocol of our hospital, we make a synthesis of the procedure of insert of the definitive pacemaker with relationship to the infirmary work in this process.

**Results:** During the present study we observe the necessity to carry out a guide protocolized in the insert of a definitive pacemaker.

**Conclusions:** Through the present summary study we have observed that carrying out the procedure written in the insert of a definitive pacemaker, and therefore knowing the technique to the complete one, we diminish the time of the procedure, we assure the knowledge of the whole technique on the part of infirmary, and in definitive we diminish the risk of complications.

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## INTRODUCTION

In the Unit of Intensive Surveillance (UVI) of the Hospital of the Ribera, we have a operating theatre with radiology for the insert of provisional and definitive pacemaker.

The insert of definitive pacemaker is carried out for a doctor and an infirmary. In this same unit they are carried out the periodic controls to verify the good operation of the definitive pacemaker.

Today in day, with the materials, aparatage and the technique that we prepare, the insert of a definitive pacemaker believes few problems, overalls if the sanitary team that he carries out it; Doctor-Infermery, they thoroughly know the material to use, each one of the steps to continue and the possible complications of the process.

## OBJECTIVES

The main objective of the one presents work it is the one of making a revision of the procedure of Infirmary in the insert of a definitive pacemaker and therefore an unification of the carried out List, next to a series of considerations and observations to keep in mind.

## MATERIAL ANDMETHODS

Through a deep bibliographical revision that makes an appointment at the end of the communication, of topics related with the definitive pacemaker and infirmary, together with the search of information in Internet, I carry out a synthesis of the whole procedure, including important aspects to keep in mind. I also carry out a brief introduction of indications, material, stimulation ways, etc.

## Installation of a definitive pacemaker; Rol of Infirmary

The knowledge of the operation of a definitive pacemaker, indications, infirmary cares and complications

peri and post insert of the pacemakers it is fundamental for the current infirmary, overall for those that develop their assistance activity in intensive, coronary units of cares and reanimation services with patient post-operation of heart surgery.

Definition. The definitive pacemaker is an electronic device that generates electric impulses in a rhythmic way to the heart, dedicated to stimulate the heart muscle, for the maintenance of an appropriate heart expense.

General indications; It improves of the heart exit, protection of symptoms or against arrhythmias related with the formation of heart impulses or disorders of the conduction. In general; I block complete AV, I block AV 2° degree, dysfunction of the nodule sinusal with bradycardia.

Description of a definitive pacemaker and Types. They are composed of; A / energy Source, lítio battery, because they contain the biggest electrochemical potential in all the metallic elements that he translates himself in a high energy density at low cost. B / An electronic circuit, formed by a programming circuit and one of exit that make that the stimulation impulse goes out with a frequency, a width and a duration or determined impulse width. It also incorporates a microprocessor that contributes improvement in the efficiency of the circuits with reduction of energy consumption, better detection function and filtrate of interferences, external or automatic programming of multiple parameters and capacity of interrogating to the pacemaker through telemetric. C / Box that contains the components of the circuit, is carried out in titanium and it is sealed D / Cables electrodes, it is the conductive element between the generator and the heart. The definitive pacemaker of our unit is multiprogramables, with sensor possibility and to stimulate auricle and ventricle. The pacemaker that we prepare in the unit allows us different types of programming; The more complex is the pacemaker, adult it will be the number of programming possibilities; Model S103 or S203; VVI, AAI, ODO, OAO, OVO; Model SR VDD, VDI, VVI, OVO; Model SR DDD, DDDR, DDIR, as well as the rest of previously noted programming, but with the particularity that some of these programming also allow to use the sensor R; VVIR AND VDDR. The stimulation therapies can be modified by telemetric, equally the stimulation data and diagnosis can be evaluated. The operation principles are; Stimulation frequency; Minimum frequency programmed in stimulation absence controlled by the sensor, stimulation Intervals; Intervals auriculoventriculares, refractory Period and of cegamiento; To avoid the I restart inadequate of certain synchronization intervals, Frequency headphone mediates, Stimulation of variable frequency and stimulation Ways; VDD, VVIR/VDIR, VOOR/VOO (Asynchronous), ODO/OAO/OVO (Detection headphone, ventricular or both). The stimulation way is unified internationally with a code of 5 letters: I

Letter I - Where it stimulates.

O = None.

A = Auricle.

V = Ventricle.

D = Both.

Letter II - Where it detects.

O = None.

A = Auricle.

V = Ventricle.

D = Both.

Letter III - for what reason it detects.

O = Anything.

A = Synchronous.

I = Inhibited.

D = Both.

Letter IV - Programabilidad.

O = Not programmable.

P = Programmable.

M = Multi program.

C = TELEMÉTRICO.

E = Frequency autorregulable.  
Letter V - Antitaquicardia.  
O = Not.  
P = Stimulation.  
S = it Collides.  
D = Both.

Complications. Arrhythmias during the placement of the pacemaker (FV), Hematoma of the bag; For incomplete hemostasia, Infection of the pacemaker; For staphylococcus aureus, epidermidis, enterobacterias, etc., displacement of the catheter, Alterations of the cable-electrode; Of the detection, of the capture.

### **Insert. Rol of Infirmary**

Control pre -intervention.

- Patient in you fast; from 24 o'clock (00) hours of the previous day.
- 6 hours before to suspend intravenous perfusion of heparin, if it takes it in the treatment.
- 3 days minimum without AAS (Sour acetyl salicylic)
- EKG pre-intervention.
- Shaved of the area, if body hair exists.
- To explain the patient what will carry out; Already informed for the I prescribe responsible.
- To make sure that the patient of a veined road prepares; central or outlying that works correctly, on one hand for if was necessary to administer some drug of urgency and for another to administer during the administration the antibiotic. Ideally located to the side contrary to the doctor's apposition.
- He prescribes it will have confirmed by means of thorax Rx, where he/she will be carried out the placement of the pacemaker, since generally it is in the left pectoral, reasons exist for which the right side is chosen; Fibrosis, left-handed person, etc.
- In case he/she specifies; Provisional Pacemaker (MPP); for the patient's hemodynamic state, or if one suspects it can have complications.

Space situation of the operating theater.

- Bed radiotransparente in the center.
- Escopia arch in the patient's right or left side, so that it doesn't bother the doctor (That will generally be placed in the patient's left side).
- Escopia screen or intensifier of images, beside the patient and with good visualization for doctor.
- In their head, monitor of EKG and constant hemodynamic; to look for the best derivation. Ideally derivation II where good complex QRS is observed.
- Below table, the pulsador of the escopia.
- To a side of the feet of the bed, auxiliary table for placement of the whole sterile material to use for the doctor.
- To the feet of the bed; Car with electric scalpel, him sufficiently near this for placement of the connection cables to the badge electroquirurgica placed in the patient's leg.
- Auxiliary Luz for the doctor's handling.

### **Material to use**

- Beat and sterile gloves and leads; Cap and mask.
- Sterile plastic for escopia tube.
- 2 capsules.
- 1 stapler.
- Auxiliary table for sterile field; Sheet holed, 2 stockings sterile sheets, 4 sterile green cloths, sterile gauzes, you squirt of 5-10-20 ml, needles IM, needles carrier, scalpel leaf,

scandicain 2%, bránula n° 18.

- Box of instrumental of pacemaker.
- Sutures; Non reabsorb 2/0 and reabsorb of 2/0 and 3/0
- Electric scalpel; Way cauterization and court. Scalpel, cable and mango.
- Badge adhesive electroquirúrgica.
- Pacemaker analyzer and cable.
- Introductory of pacemaker cable.
- Cable or it guides.
- Pile of provisional pacemaker.
- Intensificador of Images.
- Monitor EKG, with modules of EKG, SpO2, PNI.
- Vest leaden; Back and neck.
- Car of RCP; proven desfibrilador; Intubations team; Drugs of urgency (Adrenaline, atropine, lidocaina).

### **Insert of the definitive pacemaker**

- Patient in supine decubitus; If problems exist to puncture the vein subclavia, to place the patient in position of Trandelembur, in order to increase the veined pressure and to dilate the vein.
- We will shave the area of insert of the cable electrode and we will paint with iodine; a thoracic vein will be channeled. Preferably the vein subclavia. It will be avoided to produce neumotórax.
- Placement of the cable electrode. 95% of the installations is carried out for via endovenosa (Installation endocárdica, with the generating infraclavicular), being reserved the road epicárdica in the cases in which the endovenosa is not possible for problems of the access to the veined torrent or the precise patient an intervention of heart surgery. The advance of the cable electrode is made low radiological control and electrocardiography. After the placement of the cable he/she is carried out a control electrocardiography of their stimulation (it Gleans and complex wide QRS)
- Lodging of the generator. It is implanted under the skin of the previous thorax, on the biggest pectoral muscle, a little below the clavicle.
- Additional measures; Antibiotic prevention, during the installation.
- Operation in way imam with telemetric; Test of threshold margin (Confirmation of the capture loss).

### **Control after intervention**

- Control EKG.
- Control and registration of possible arrhythmias in the layout of continuous EKG.
- Confirmation of the operation of the definitive pacemaker; to see if it is activated (it Gleans) and if it stimulates the heart (Contraction); I Press central carotid or femoral.
- To ask to the patient if he has pain. To consult with the doctor the painkiller administration.
- Habitual cares in the point of entrance of the catheter; to watch over bled. It cures of the sutures; moved away 7-9 days. If the one bled during the intervention has been superior to the normal thing, a weight will be placed above the wound, pressing and avoiding the hematomas appearance.
- Not to restart perfusion of heparin endovenosa until last 12 hours of the intervention, in case it takes it averaged in the medical treatment.
- Registration; In the book of operating theater registration; Last names and the patient's name, history n°, made intervention, time of escopia.
- Complementation of the identification and registration of the pacemaker.

## To the high one

- Documentation delivery to the patient in their discharge; Card of identification of the pacemaker. The patient will take it I always get and overalls when she goes to the doctor's visit.
- He will be indicated when and where he/she will be mentioned for the next control.
- He will be taught to the patient to take the pulse in an appropriate way; during a complete minute.
- He will be given Information on the possible external interferences on their pacemaker; in most of the times, at popular level, they have been exaggerated. It possesses a filter in the module of reception of signs that distinguishes the heart signs of the external ones.

## RESULTS AND CONCLUSIONS

- During the present study we observe the necessity to carry out a protocolized guide written in the insert of a definitive pacemaker.
- With a protocolized guide, we diminish the time of the procedure, we assure the knowledge of the whole technique on the part of infirmary, and therefore we diminish the risk of complications.
- A qualified personnel of Infirmary guarantees a quality assistance chord to the necessities; to the doctor that will place the pacemaker and to the patient.
- Infirmary acts before, during and after the insert of the pacemaker, therefore it plays a primordial paper of surveillance and control in the whole process (Integral Attention).

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