

- **The entire range of implantable defibrillators**

The cardiac defibrillator is a complex system intended to save the lives of the patients that are exposed to sudden death.

The majority of cardiac arrests are caused by extremely short and sustainable heart rhythm disorders. These heart rhythm disorders (called malignant) determine the heart to beat faster, which makes it unable to pump blood in the body. As a result, the entire circulatory system crashes in a matter of seconds and if the arrhythmia is not stopped, the patient dies in the following 3-5 minutes.

This event usually takes place without any previous notification, no matter if the patient is under strain or relaxed and regardless of his/her emotional state, even during sleep. Thus, it is generally impossible to prevent this event and the short time in which it takes place makes the possibility of intervening very slight in most of the cases.

The only current effective solution for the patients who have been exposed to the possibility of sudden death or who have already been through a situation like this is the implant of a device that can detect such an event in a matter of seconds and stop it immediately. This device is called cardiac defibrillator.

The cardiac defibrillator is a device belonging to the family of cardiac stimulators, that can detect the arrhythmias that cause heart attacks through a special catheter and stop them through extremely fast stimulations of the heart (that are not perceived by the patient) or through electric shocks (that are usually perceived as a punch in the chest or in the back).

The implant procedure for this device is partially similar to the implant of a cardiac stimulator, but it also has a particular stage regarding the testing of the defibrillator.

The implant of a cardiac defibrillator is recommended to the patients who have already been in a situation like this and who have had the extraordinary chance of surviving. Usually (with some rare exceptions), sudden death can recidivate at certain time intervals that are impossible to predict. Therefore, the only solution for keeping these patients alive is to protect them with the help of a cardiac defibrillator.

There is also an overwhelming number of patients who haven't had a cardiac arrest yet, but who are in great danger of having one due to their underlining cardiac disease. In general, patients with cardiac insufficiency of various causes and clear alteration of the heart performance (which can be easily determined through an echocardiographic exam) are recommended to have a prophylactic defibrillator implant in order to prevent sudden death.

Even if medication is compulsory for these patients, it cannot protect them from sudden death; the only efficient solution is the defibrillator. Bearing in mind the small survival rate (2-5%) after cardiac arrest, we have to make every effort to implant the system before sudden death can occur.

There are also young or very young patients with certain cardiac diseases that are asymptomatic, for whom the first symptom of the disease can present itself through sudden death. In some cases, these patients should also benefit from a cardiac defibrillator implant.

We have to constantly remind ourselves that when we talk about the cardiac defibrillator, either in the light of secondary prophylaxis or that of primary prophylaxis (i.e. patients who haven't suffered a cardiac arrest yet), we actually talk about life or death. Death that occurs a few minutes (3-5) after the beginning of the cardiac arrest.