

- **The entire range of cardiac stimulators**

The permanent activity of the heart is guided by electrical charges generated by the so-called excitococonductor system. This complex system that extends to all levels of the heart determines regular heart contractions. In some cases, due to the damage of the excitococonductor system, the commands for heart contractions are either not formed or are unable to reach all the parts of the heart.

The consequences can vary from minor discomfort (dizziness, lack of air, fatigue, drowsiness) to major issues (heart failure, loss of consciousness, sudden death). For this type of pathology, drug therapy is out of question. The only solution is the cardiac stimulator implant, which electrically stimulates the heart, thus determining its contractions.

The stimulator provides minimum frequency stimulation, but it is unable to stop the heart's own rhythm if, in certain situations/conditions, it exceeds the programmed minimum frequency of the device. There are certain special stimulators that can intervene to prevent, but also to cure atrial rhythm irregularities (generally, atrial fibrillation is targeted), in order to stop the fast rhythm episodes.

The stimulation system consists of the actual stimulator (that has the approximate size and shape of a watch) that is placed under the skin (or under the muscle) in the shoulder area and the stimulating catheters (1-3 that represent special electrical conductors) that link the stimulator to the heart by following the route of the large neck veins. There are several types of stimulators (single-chamber, dual-chamber and triple-chamber stimulators) that can adapt both to the rhythm irregularity and the target patient's disease. Thus, each patient receives from a certain type of cardiac stimulation and it is the specialist's job to make this match. The use of cardiac stimulators that are not consistent with the patient's pathology can have major consequences (pacemaker syndrome, heart failure, atrial fibrillation).

The implant procedure is relatively simple. Through the local anaesthesia we make a few centimetres-long incision in the shoulder area (usually in the left shoulder), we pick one of the local veins (cephalic, axillary, subclavicular) and we introduce the 1-3 catheters inside the heart, in very precise areas (the right atrium, the right ventricle, the left ventricle). After checking the specific electrical parameters, we fix in the catheters, we connect the stimulator and we close the wound. The procedure takes 1 hour on average. The patient is able to move in the following hours and the following day he/she is discharged. Afterwards, the patient enters in a complex monitoring program that includes queries/programming of the device at various time intervals (usually biannually) with the help of a special programming computer.