

- **Cardiac resynchronisation systems (with/without defibrillation support)**

Cardiac resynchronisation is a method that has revolutionised the therapy of patients who were in a desperate state: advanced cardiac insufficiency that did not respond to the adequate medication. For such patients, the only possible solution was a heart transplant. However, the limited number of donors, the restrictions related to pathology and age make the possibility of solving the issue in this way illusory.

Fortunately, the cardiac resynchronisation method can not only improve/eliminate the symptoms of these patients and reduce the death rate by 40% (which is an amazing percentage in this case), but it can also increase the heart contraction intensity and eliminate the need for heart transplant, through an infinitely easier and cheaper procedure. Unfortunately, only patients with cardiac insufficiency and contraction asynchronism (i.e. the majority of patients with left bundle branch block, but not only) can benefit from this method, not all the patients suffering from cardiac insufficiency.

Contraction asynchronism refers to the fact that certain segments of the heart work against each other, as a result of an abnormal electrical command, thus consuming the limited energy of the heart pointlessly.

This phenomenon can be eliminated through the implant of a special device from the family of cardiac stimulators. Currently, this is the most complex implant procedure, but it is limited by a series of objective aspects related to the particular anatomy of each patient and the characteristics of the patient's underlying condition. However, once it is performed successfully, in 2/3 of the cases the procedure results into an immediate and spectacular improvement of the quality of life and an increase in the survival rate of this category of patients that has not been achieved up to this point.

If the device also contains a cardiac defibrillator alongside the stimulator, it means that the procedure has reached the maximum level of complexity and protection: apart from the improvement of the heart's contractility, the patient is also protected against sudden death, which can frequently occur in these patients.

The presence of a cardiac defibrillator in the same system is welcome, since, practically, all the patients suffering from cardiac insufficiency that need resynchronisation are prone to sudden death. However, the systems that don't carry a defibrillator are also beneficial due to their impact on the symptoms, the increase of the heart strength and of the patient's increased lifespan. The remarkable benefits of this method have also brought into discussion the use of cardiac resynchronisation in patients with left bundle branch block and alteration of the heart strength, before the progression of the disease.

The procedure is similar to the implant of a cardiac stimulator, although it may take longer (we must access more areas of the heart, some of which are hard or extremely hard to reach). Usually, the procedure is performed under local anaesthesia. However, more difficult cases might require general anaesthesia. On the day after the surgery, the patient can move and be discharged. Afterwards the patient enters the same periodical monitoring program as the one for the defibrillation system.