

New perspectives in cardiac resynchronization

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Introduction: Heart Failure (HF) is a clinical syndrome resulting from structural and/or functional cardiac dysfunction. Electrocardiographic changes, such as left bundle branch block (LBBB), are common findings in patients with HF, mainly when systolic dysfunction occurs. The myocardial conduction system is vulnerable to the same pathophysiological processes that occur in myocytes and interstitium, with changes observed in this system resulting from ischemia, inflammation, fibrosis and aging. Its presence adversely affects the dynamics of the cardiac cycle, causing abnormal ventricular activation and contraction, ventricular dyssynchrony and diastolic dysfunction. A series of clinical trials using Cardiac Resynchronization Therapy proves its effectiveness in improving various indices related to the presence of HF, improving patients' quality of life and reducing mortality. New forms of cardiac stimulation, such as direct stimulation of the HIS bundle or stimulation of the left ventricle by the coronary sinus, are emerging as an alternative to conventional biventricular stimulation, helping us to maximize electrical resynchronization. **Case report:** This is a previously healthy patient who developed functional class III HF, reduced LVEF, ECG in sinus rhythm with LBBB and requiring hospitalization with the use of inotropes to better compensate for the condition. Stratification was performed with echocardiography demonstrating LVEF (30% - Simpson), catheterization that ruled out ischemic cause and MRI of the heart that demonstrate significant dyssynchrony of the interventricular septum with LVEF: 21%. Having ruled out other causes for heart failure, with dyssynchrony being the leading cause, implantation of a cardiac resynchronizer was then recommended in an attempt to improve synchrony and thus improve cardiac performance. The option was to implant a right ventricular electrode in the Hissian region associated with the coronary sinus (LV lateral wall), guided by the HOT-CRT study. The procedure was carried out successfully and without complications. After 6 months the patient evolved with a significant improvement in synchronization, ECG with a narrow QRS (120 ms), a substantial improvement in ventricular function (LVEF: 71%) and HF symptoms, with the patient being weaned from drug therapy. **Conclusion:** Cardiac resynchronization is an already consolidated therapy for treating patients with heart failure and left bundle branch block. With advances and new implantation techniques, therapy has proven increasingly effective, improving cardiac resynchronization, functional class and ventricular function.