

Non-pharmacological Management for Chronic Heart Failure

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The treatment of heart failure has improved as the understanding of the disease evolves. Despite advances in medical therapy for patients with heart failure, morbidity and mortality remain high. The 1- to 2-year mortality rate is approximately 35% to 50% for advanced heart failure. Non-pharmacological management for chronic heart failure includes home oxygen therapy, rehabilitation therapy, enhanced external counterpulsation therapy, heat therapy, surgical therapies for mitral regurgitation, aneurysmectomy, or coronary artery bypass, cardiac resynchronization therapy (CRT), and implantable cardioverter-defibrillator (ICD), etc. Of which the effects of CRT and ICD therapies are well documented by randomized controlled trials. This is a rapidly developing and somewhat contentious area of heart failure management. Many patients who meet criteria for biventricular pacing will meet criteria for ICD, in which case they should receive devices that combine these therapies.

Approximately 15~20% of patients diagnosed with symptomatic heart failure have evidence of significant intraventricular conduction delay with QRS duration greater than 120 ms. It leads to dyssynchronous ventricular contraction, reduced stroke volume, mitral regurgitation, and further impairment of left ventricular systolic function. CRT can improve atrioventricular, intraventricular, and interventricular synchrony by atrial synchronous biventricular pacing. The reported success rate is between 88-95%. Furthermore, ventricular tachyarrhythmias that often occur in severe heart failure patients can also be managed by the incorporation of CRT with ICD.

The weight of evidence supporting routine use of CRT in patients with heart failure and ventricular dyssynchrony is now quite substantial. More than 4000 patients have been evaluated in randomized controlled trials. Data from these studies have consistently demonstrated the safety and efficacy of CRT in patients with NYHA functional class III and IV heart failure. CRT has been shown to significantly improve left ventricular structure and function, NYHA functional class, exercise tolerance, quality of life, and overall mortality. Given these findings, CRT should be routinely considered in eligible NYHA Class III and IV heart failure patients with left ventricular systolic dysfunction, wide QRS complex, and ventricular dyssynchrony.