Use of cardiac resynchronization therapy in the Medicare population

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Record Status
This is a bibliographic record of a published health technology assessment from a member of INAHTA. No evaluation of the quality of this assessment has been made for the HTA database.

Citation

Authors' conclusions
Chronic heart failure (CHF) is a major public health problem in the United States affecting an estimated 4.9 million Americans, causing high rates of hospitalization, poor quality of life, and 300,000 deaths each year. Cardiac resynchronization (CRT) is a pacing modality utilizing a left ventricular (LV) pacing lead with the goal of re-synchronizing myocardial contraction in patients with CHF. CRT was originally indicated in patients with significant LV dysfunction, defined as a left ventricular ejection fraction (LVEF) ≤ 35%, New York Heart Association (NYHA) class III-IV heart failure symptoms, and a QRS duration ≥120ms on optimal medical therapy. More recently, the indications for CRT expanded to include patients with minimally symptomatic heart failure (NYHA class II). The appropriateness of CRT in patients with NYHA class I symptoms is unclear. The vast majority of candidates for CRT devices also have an indication for an implantable cardiac defibrillator (ICD), therefore, the large majority of patients receiving CRT in the United States receive a CRT device with a defibrillator (CRT-D) as opposed to a CRT pacemaker (CRT-P). CRT-P devices are occasionally placed in patients who wish to avoid ICD shocks or in patients with an indication for frequent ventricular pacing due to conduction disease who have an LVEF between 36-50 percent. We performed a systematic review to evaluate the efficacy and safety of CRT-D and CRT-P devices as well as predictors of outcomes following implant of such devices. There is convincing evidence that CRT-D is effective with regard to improvements in multiple outcomes compared to an ICD alone in patients with an LVEF≤35% and a QRS duration ≥120ms. These findings are based on patients primarily with NYHA class II-IV heart failure. The applicability of these findings to patients with NYHA class I symptoms is unclear. Similarly, there is convincing evidence that CRT-P is effective in improving multiple endpoints compared to optimal medical therapy alone in the same population. These data are primarily derived from NYHA class III-IV and the applicability to patients with NYHA class I and II is less clear. Female gender, LBBB, a widened QRS duration, sinus rhythm, and non-ischemic cardiomyopathy are associated with improved outcomes following CRT.

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