INAHTA Briefs

Issue 2009/147

Title **Efficacy of Biventricular Pacemakers for Heart Failure**

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Reference Report no. 1/2008. ISBN 978-84-691-4039-0. www.juntadeandalucia.es/salud/servicios/contenidos/aetsa/pdf/2008_1nf_Marcapasos_biventriculares.pdf

Aim

To overview and critically synthesize the best evidence available on the efficacy of biventricular pacemakers or cardiac resynchronization therapy (CRT) in treating chronic heart failure.

Conclusions and results

CRT in addition to traditional treatment reduces mortality for any cause in patients with symptomatic heart failure. The benefit is extensive for patients in functional class NYHA II to IV (New York Heart Association) and evident in the first 3 months of treatment (High quality [HQ]). The benefit is due mainly to reducing mortality from progression of heart failure (HQ). The association of CRT with an implantable defibrillator does not alter the benefit (HQ). Controversy surrounds sudden death since scientific studies report effects opposite to this variable (HQ).

CRT reduces hospitalization from progression of heart failure, yielding higher benefit to patients in functional class NYHA III/IV (Moderate quality).

Regarding parameters in heart failure patients, CRT is associated with an increased distance covered at 6 minutes (Moderate quality [MQ]) and growth in the peak of oxygen uptake (MQ). At 3 months CRT improves the quality of life of heart failure patients when added to traditional treatment. The benefit is higher in CRT patients, but without implantable defibrillator (HQ). CRT is beneficial if complemented with traditional treatment and reduces symptoms in patients with heart failure (HQ). The evidence available and magnitude of benefit are insufficient to confirm a possible clinical relevance of the outcomes.

CRT increases ejection fraction of left ventricle (HQ) and improves other echocardiographic parameters (MQ). CRT reduces duration of QRS interval (MQ).

CRT is safe and well tolerated. Mortality rate is low: after implantation, up to discharge from hospital (lower than 1%), and after discharge from hospital (about 1%).

One in 10 biventricular pacemakers cannot be implanted successfully (HQ). Most severe complications arise from introducing the cable in the left ventricle and include: anomalous position of the cable, perforation of coronary core, and cardiac perforation (HQ).

Methods

We used relevant databases to search the scientific literature (English, Spanish) for studies and summarized the recommendations referring to the review topic. (See full report for details.) Then, each study was classified. To establish the levels of evidence for every type of study, we used the proposal of the CEBM of Oxford. The quality of the evidence for every intervention was classified as high, moderate, or low, and assessed regarding study design, internal validity, direct or indirect evidence, consistency, accuracy of results, etc.

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ISSN 1654-501X