

The Long Term Effect of Cardiac Resynchronization Therapy

Nof, E; Abu Shama, R; Kuperstein, R; Gurevitz, O; Luria, D; Bar-lev, D; Granit, H; Eldar, M; Feinberg, M; Glikson, M
Sheba Medical Center, Ramat Gan, Israel

Background: Little is known about the long term effect of cardiac resynchronization therapy (CRT) and whether those who respond in the short term maintain their clinical benefit status through long term follow up (FU).

Methods: Consecutive pts (n=149) implanted with a CRT device that had FU period of at least 36 months were included. All parameters [NYHA class, quality of life questionnaire (QOL), 6 minutes walk (6MW), left ventricular (LV) ejection fraction (EF) and end systolic volumes (ESV)], were recorded at baseline, at 1 year, at 3 years and up to 8 years post implantation. Clinical response to CRT was defined by a combined score of improvement in NYHA class, QOL and 6MW (<-1/0/>1). Echocardiographic response was defined as a combined score of absolute increase in LVEF \geq 5% and relative decrease in LVESV \geq 10% (<-1/0/>1). Responders had to have a combined score of \geq 1 and alive at 12 months post implantation. All cause mortality was analyzed by Kaplan- Meier method and was compared between responders and non responders.

Results: One year after implantation 89/149 (60%) had a clinical response to CRT and 29/ 56 (52%) had an echocardiographic response. Of those who responded, 56 (63%) maintained their clinical response and 24 (83%) maintained their echocardiographic response after 3 years of CRT. In the long term, the hazard ratio (HR) for mortality was 2 times higher (95% C.I.:1.30-3.20; p= 0.002) for those who did not have a clinical response to CRT after 1 year of therapy compared to responders (figure) . However, echocardiographic responders and non responders at 1 year had similar mortality rates (HR of 0.9; 95% C.I.: 0.5- 1.6; p= 0.7).

Conclusions: Most clinical and echocardiographic CRT responders at 1 year maintain their benefit over the long term. Clinical response at 1 year but not echocardiographic response predicted significant long term survival benefit.

