10-year survival in patients undergoing cardiac resynchronization therapy

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Funding Acknowledgement: Type of funding sources: None.

Background: Advanced heart failure with reduced ejection fraction (HFrEF) is associated with poor prognosis. Cardiac resynchronization therapy (CRT) is an effective method of treatment for advanced HFrEF to reduce HF hospitalizations and mortality. Nonetheless, very long-term observation of HF patients undergoing CRT implantation is scarce.
Aim: To assess very long-term survival (≥10 years) and predictors of shorter survival (death within 10 years from CRT implantation).
Methods: We screened a large dataset of CRT population from a tertiary care university hospital comprising consecutive HF patients implanted with CRT from 2002 through 2019 to select those who were alive ≥10 years and those who died within 10 years since device implantation. We analyzed various patients' baseline, clinical and procedural characteristics and sought for predictors of mortality within 10 years from CRT implantation.
Results: Of 1059 CRT patients, 143 (13.5%) were alive ≥10 years since CRT implantation. On multivariable regression analysis the independent predictors for all-cause death up to 10 years from CRT implantation were as follows: age, HR 1.02, 95% CI 1.01–1.31; male sex, 1.27, 95% CI 1.01–1.60; primary prevention of sudden cardiac death (SCD), HR 0.72, 95% CI 0.58–0.89; ischemic cardiomyopathy, HR 1.41, 95% CI 1.76–1.70; NYHA class at implantation, HR 1.38, 95% CI 1.17–1.62; baseline left ventricle ejection fraction (EF), HR 0.97, 95% CI 0.96–0.98; severe mitral regurgitation, HR 1.38; 95% CI 1.08–1.75; baseline NT-proBNP concentration, HR 1.00, 95% CI 1.00–1.00; and creatinine level, HR 1.00, 95% CI 1.00–1.01.
Conclusions: In a real-life patient population with CRT only 13.5% survived over 10 years since device implantation. Independent predictors for death within 10 years since CRT implantation were older age, male sex, secondary prevention of SCD, ischemic and more advanced heart failure along with renal impairment.