Predictors of non-response to cardiac resynchronization therapy implantation in patients with class I indications

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Introduction: Cardiac resynchronization therapy (CRT) was normally performed in patients with a class I recommendation. However, a small proportion of the strictly selected patients still fail to respond. This study was designed to identify predictors of non-response in patients with class I indications for CRT and determine the non-response probability of the patients.

Methods: A total of 296 consecutive patients with a class I recommendation received CRT from January 2009 to January 2017 were retrospectively analyzed. Multivariate logistic regression analysis was performed to identify predictors for non-response (defined as cardiac death, heart transplantation, or heart failure hospitalization during 1-year follow-up).

Result: Among 296 patients, 30 (10.1%) met non-response. Multivariate analysis demonstrated that non-response to CRT was associated with a fragmented QRS (odds ratio [OR] = 2.86, 95% confidence interval [CI] 1.14 to 7.12; P=0.025) and LVEDD ≥ 77mm (OR = 3.02, 95% CI 1.17 to 7.82; P=0.022). Patients with both of the predictors had a non-response probability of 46.2% (95% CI 19.1% to 73.3%).

Conclusion: In patients with LBBB and wider QRS duration, the proportion of non-response to CRT is not low in real world. The presence of the dilated LVEDD or fragmented QRS is a strong predictor of non-response to CRT. The probability of non-response in patients with these two predictors was 46.2%.