Heart Failure and Cardiomyopathies

PREDICTORS OF SUPER-RESPONDERS TO CARDIAC RESYNCHRONIZATION THERAPY: RESULTS FROM CUBIC STUDY

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Background: Some heart failure (HF) patients with ventricular dyssynchrony shows drastic improvement of left ventricular (LV) function by cardiac resynchronization therapy (CRT), which we call super-response. However, there were few reports concerning the predictors of super-response to CRT. The purpose of this study was to identify them.

Methods: Study population was 642 CRT patients with echocardiographic data before and 6 month after implantation from CUBIC study which is a multi-center registry of CRT. Super-response to CRT was defined as a >30% reduction of LV end-systolic volume estimated by echocardiography at 6 months after implantation. We reviewed their clinical backgrounds, baseline electrocardiographic and echocardiographic data. We compared the value or frequency of these factors between patients with super-response and those without it by univariate analysis. Then, all significant variables were entered into multivariate analysis in a stepwise logistic regression model.

Results: Super-responders occupied 40.5% (260 patients) of the study population. In univariate analysis, super-responders were associated with older age, lower serum creatinine level, longer QRS duration, shorter left atrial diameter, non-ischemic cardiomyopathy, non-diabetes, left bundle branch block (LBBB) including right ventricular pacing rhythm, no amiodarone prescription, and prescription of angiotensin-converting enzyme inhibitors or angiotensin-receptor blockers. In multivariate analysis, super-responders were associated with LBBB (OR 2.24, 95%CI 1.38-3.72, p=0.001), non-ischemic cardiomyopathy (1.98, 1.28-3.10, p=0.002), shorter left atrial diameter (0.97 per mm, 0.95-0.99, p=0.010).

Conclusions: Predictors of super-responders to CRT were LBBB pattern of QRS morphologies, non-ischemic cardiomyopathy, and shorter left atrial diameter.