The predictive role of mitral regurgitation in ischemic heart failure patients undergoing cardiac resynchronization therapy

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Purpose: Cardiac resynchronization therapy (CRT) reduces mortality and morbidity in selected heart failure patients, although the predictors of non-response are not fully recognized. Ischemic cardiomyopathy is associated with reduced clinical response to CRT, moreover coronary artery disease (CAD) patient with significant mitral regurgitation (MR) have higher mortality risk regardless the presence of HF. The purpose of our study was to assess the impact of significant MR on clinical outcomes in ischemic and non-ischemic HF patients undergoing CRT.

Methods: We enrolled 117 consecutive patients undergoing CRT, the follow-up period lasted for 5 years. The primary end-point was 5-year all-cause mortality, 2-year HF hospitalization was considered as secondary end-point. Echocardiographic measurements were taken off-line, MR were quantified using the PISA method, according to recent EACVI guidelines.

Results: The mean age of patients were 70.2±10.3 years, 78% were male, 55% suffered from HF of ischemic origin. Baseline anthropometrics, severity of HF and comorbidities did not differ among patients with ischemic and (I) non-ischemic (N-I) HF. We observed significant MR in half of the patients (I:52% vs N-I:50%, p=0,088). During follow-up 42 patients (36%) reached the primary end-point, neither ischemic aetiology (p=0,816) nor the severity of baseline MR (p=0,28) predicated 5-year mortality. Analysing ischemic patients separately, baseline MR was not associated with mortality (p=0,244). This trend was observed regarding HF hospitalization as well, baseline MR (p=0,244) and ischemic aetiology (p=0,14) showed no significant correlation with hospitalization. MR decreased in both groups (I:-16±22 vs N-I:-7±15; p=0.067), although the decrease was higher in ischemic patients. Persisting significant MR predicted increased risk of both mortality (p=0,067) and HF hospitalization (p=0,016), the aetiology of HF did not alter this association.

Conclusion: Baseline MR was not associated with clinical outcomes after CRT, both in ischemic and non-ischemic patients. On the other hand persisting significant MR predicted increased risk of mortality and morbidity regardless of HF aetiology.