

Predictors of Clinical Deterioration Acutely After Cardiac Resynchronization Therapy (CRT)

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Background: Cardiac Resynchronization Therapy is a state of art therapy for patients with advanced systolic heart failure refractory to medical therapy. Whereas 2/3 of pts respond to CRT, few pts actually deteriorate. We sought to analyze clinical and echocardiographic predictors for clinical deterioration after CRT implantation.

Patients and Methods:

Included in the study were 204 patients successfully implanted with CRT/CRTD systems according to guideline-based indications and had baseline and follow up data collected between 3 month to 1 year post implantation. Clinical deterioration was defined by a score combined of the change in NYHA class, quality of life score and 6-minute walk (6MW). Each component was classified as improved (+1), unchanged (0), or worsened (-1). Deterioration was defined as a combined score of ≤ -1 or who died during follow-up.

Results: Of the 204 patients studied in this cohort, 31 (15.2%) patients had deteriorated within the first year, of them 8 patients died. Significant predictors of deterioration are listed in the table:

N	Deteriorated 31 (15.2%)	Did Not Deteriorate 173 (84.8%)	p value
Females	25.8%	13.9%	0.09
SPAP (mmHg)	46 ± 11	41 ± 14	0.03
RV Fractional Area Change	32% ± 12 %	39% ± 11%	0.04
Baseline Yu-SD (ms)	29 ± 15	38 ± 14	0.048

There was no significant difference between groups in age, gender, QRS width, atrial fibrillation, etiology of cardiomyopathy, baseline 6 minute walk, QoL, septal to lateral delay, interventricular dyssynchrony or LVEF.

Conclusions: In this large cohort of CRT pts 15% deteriorated over the first year after implantation. The presence of elevated SPAP, impaired RV function and lower Yu score at baseline were the only predictors of deterioration, and female gender showed a tendency to predict deterioration. Further studies are needed to confirm these findings and to further characterize patients prone to deterioration on CRT.