

Clinical and Echocardiographic Predictors of Clinical Response to Cardiac Resynchronization Therapy (CRT/D)

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Background: Up to 30 % of CRT/D recipients implanted according to guidelines do not respond to the therapy.

Methods: We reviewed our prospectively collected institutional CRT/D database of 435 pts implanted with CRT/D since 1998. Excluded were 26 (failed implantation), 10 (system malfunction), 74 (non guideline based), and 132 (incomplete data). In 193 pts analyzed, baseline and follow up data collected over a 3 month to 1 year post implantation period were collected. Response was defined by a combined score of NYHA class, quality of life and 6-minute walk (6MW) scores. Each component was classified as improved (+1), unchanged (0), or worsened (-1) and responders were defined as patients who had a combined score of ≥ 1 who did not die during follow-up.

Results: There was a 62.7% clinical response rate. Significant predictors of response are listed in the table:

	Responders	Non responders	P value
N =	121 (62.7%)	72 (37.3%)	
NYHA IV (vs. III)	27.30%	12.50%	0.02
6MW	265.9±115.1	309.6±103.8	0.05
Interventricular delay (ms)	49.2±26.6	39.6±24.0	0.06
Severe MR	78.30%	21.70%	0.04

There was no significant difference between groups in age, gender, QRS width, septal to lateral delay, lead location, etiology of cardiomyopathy, atrial fibrillation, LVEF, right ventricular function or pulmonary artery pressure.

Conclusions: In this large CRT pt cohort the only predictors of clinical response to CRT/D were worse NYHA functional class, low baseline 6MW distance, severe MR and increased interventricular mechanical delay. Other commonly used clinical and echocardiographic measures failed to predict clinical response.