Clinical Response with Adaptive CRT Algorithm Compared with CRT with Echocardiography-Optimized

Introduction: Cardiac resynchronization therapy improves left ventricular (LV) structure and function and clinical outcomes in NYHA functional class III and IV HF with prolonged QRS. Objectives: We aimed to compare the clinical response between adaptive cardiac resynchronization therapy (ACRT) and standard CRT.

Methods: Fifteen patients with NYHA functional class III or IV heart failure with a QRS > or =120 ms and a LV ejection fraction < or =35% received a CRT device and were ACRT (N = 8) or standard CRT (N = 7). The primary end point was the HF clinical composite response, which scores patients as improved, unchanged, or worsened. The retrospective powered secondary end point was LV end-systolic volume index.

Result: The HF clinical composite response end point, which compared only the percent worsened, indicated 13% worsened in ACRT compared with 43% in standard CRT (N.S.). Patients assigned to ACRT experienced an improvement in LV end-systolic volume index (-15.8 +/- 16.5 ML/M2 vs. 10.8 +/- 40.8 ML/M2, P = 0.08) and other measures of LV remodeling.

Conclusion: The ACRT algorithm is safe and at least as effective as biv pacing with standard CRT.