

 **CARDIAC ARRHYTHMIAS**

**GENDER DIFFERENCES IN SURFACE ELECTROCARDIOGRAPHIC CHARACTERISTICS AND LEFT VENTRICULAR REMODELING IN HEART FAILURE PATIENTS WITH CARDIAC RESYNCHRONIZATION THERAPY**

ACC Poster Contributions  
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**Background:** Cardiac resynchronization therapy (CRT) improves survival in heart failure patients with a wide QRS complex. Females (F) may have better response but mechanisms are uncertain. We postulated that F differed in baseline electrical substrate and degree of CRT-associated LV remodeling.

**Methods:** The hypothesis was tested in 302 patients with non-ischemic cardiomyopathy (LV ejection fraction (EF) 19.8 ±7.3%) and wide QRS (168 ±28 ms), including chronic right ventricular pacing (n=81), treated with CRT and followed for 931 ±701 days. Patients with right bundle branch block were not included.

F patients were compared to male (M). Baseline QRS was evaluated for duration and amplitude of posterior (negative in V1-2) and leftward (positive in I) forces to assess delayed posterolateral LV activation. Echocardiographic changes in LVEF and end-systolic (ESD) and end-diastolic (EDD) parameters were recorded.

**Results:** Despite similar QRS durations in age matched patients, (table), F demonstrated larger posterior and leftward forces at baseline.

	Age (yrs)	Surface ECG								Echocardiographic Changes Post-CRT		
		QRS duration (ms)		V1 (mV)		V2 (mV)		I (mV)				
		Baseline	Δ post-CRT	Baseline	Δ post-CRT	Baseline	Δ post-CRT	Baseline	Δ post-CRT			
M (n= 165)	60±13	170 ± 29	-5.8 ± 33	-13.0 ± 9	-6.9 ± 7	-20.91 ± 12	-12 ± 9	5 ± 4.3	- 0.12 ± 3.7	7.1 ± 12.1	- 0.36 ± 1.1	- 0.38 ± 1.3
F (n= 137)	62±12	166 ± 23	-14 ± 25	-16.4 ± 9	-9.0 ± 8	-24.9 ± 112	-13 ± 10	7 ± 4.3	-0.79 ± 4.6	14.5 ± 14.3	- 0.8 ± 1.1	- 1.1 ± 1.3
	P =NS	P =NS	P<0.02	P<0.002	P<0.02	P<0.005	P =NS	P<0.0001	P =NS	P <0.01	P<0.002	P<0.0001

Post-CRT, F demonstrated greater extent of QRS abbreviation, correction of posterior forces in V1, and LV reverse remodeling.

**Conclusion:** Females with heart failure and conduction delay have distinct ECG characteristics and exhibit superior LV functional improvements in response to CRT. These mechanisms may underlie more favorable outcomes in women.