

## **The Significance of Intraventricular and Interventricular Dyssynchrony Patterns in Patients with Cardiac Resynchronization Therapy (CRT) Device**

Alon Barsheshet, Raed Abu Sham'a, Rafael Kuperstein, Micha S Feinberg, Amir Sandach, David Luria, Roy Beinart, Shemy Carasso, Michael Eldar, Michael Glikson  
*The Leviev Heart Center, Sheba Medical Center, Ramat Gan, Israel*

**Background:** Interventricular (interV) and intraventricular (intraV) dyssynchrony (D) have demonstrated variable ability to predict response to CRT. We sought to investigate the relationship between dyssynchrony patterns, baseline clinical, baseline echocardiographic and outcome measures.

**Methods:** Included in the study were 139 patients successfully implanted with CRT/CRTD systems according to guideline-based indications who had D data measured by echocardiography. IntraVD was defined as lateral to septal delay  $\geq 60$ ms whereas interVD was defined as left- right ventricular pre-ejection intervals  $\geq 40$ ms. Multiple clinical and echocardiographic variables at baseline and during follow up over the first year of follow up were compared to the pts with no dyssynchrony (ND).

**Results:** There were 77 pts (age mean $\pm$ SD 70 $\pm$ 10) with interVD, 69 pts (age 71 $\pm$ 10) with intraVD and 28 pts with ND (age 73 $\pm$ 9). Thirty five pts had both interVD and intraVD. Pts with interVD had a significant increased baseline QRS width (168 $\pm$ 27 vs. 153 $\pm$ 25, p=.008), more LBBB by ECG (85% vs 62%, p=.009) and less restrictive filling pattern by Doppler echocardiography (23% vs. 50%, p= .030) when compared with ND. Pts with intraVD compared with ND had a tendency towards increased baseline QRS width (mean $\pm$ SD 163 $\pm$ 31 vs. 153 $\pm$ 25, p=.107) and lower incidence of deterioration following CRT (7.4% vs 23.5%, p=.066). Both interVD and intraVD improved with treatment. Neither interVD nor intraVD predicted clinical or echocardiographic response to CRT when compared to ND.

**Conclusions:** InterVD but not intraVD is associated with a significant increased baseline QRS width, LBBB and restrictive filling pattern. Neither interVD nor intraVD were predictors of clinical or echocardiographic response to CRT.