**PREDICTION OF “SUPER-RESPONSE” TO CARDIAC RESYNCHRONIZATION THERAPY BY SURFACE ECG FINDINGS IN PATIENTS WITH LEFT BUNDLE BRANCH BLOCK - A PILOT STUDY**

**N. Kocovic**, J. Newland, A. Carleen, M. DeCaro, B. Pavri

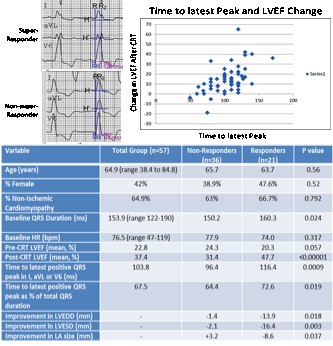
Sidney Kimmel Medical College, Philadelphia, PA, USA

Cardiac resynchronization therapy (CRT) is used in patients (pts) with heart failure, reduced left ventricular ejection fraction (LVEF) and LBBB.  Multiple criteria are described that predict better response rates: wider QRS, female, non-ischemic etiology. Yet ~35% of pts fail to respond.  Data using 3D QRS vectorcardiography showed that pts with ***laterally and superiorly directed late QRS vector***(late depolarization of lateral-basal LV) respond best to CRT.  We attempted to identify 12-lead ECG findings that identify late activation of the basal lateral LV wall and predict response to CRT.

**Methods**: Retrospective cohort study of CRT pts.  Pre-CRT ECGs analyzed at high magnification for timing of ***latest positive deflection in leads I, aVL or V6*** measured from QRS onset, see fig.  Clinical/ECG/echo variables noted. Two groups identified: “super-responders” (pts with LVEF improvement of ≥15%) and “non-super-responders” (pts with EF improvement <15%)

**Results**: n=57; 21/57 were “super-responders”.  The 2 groups were comparable at baseline, except “responders” had 10 ms wider pre-CRT QRS duration and a trend toward *lower* baseline LVEF, see Table. Time to latest positive QRS peak ≥125 ms provided positive predictive accuracy of 89% and negative predictive accuracy of 60% for improvement with LVEF by ≥15%.

**Conclusions**: An easily measured surface ECG finding (timing of latest positive peak deflection in leads I, aVL or V6) reflective of delayed LV basal free wall activation during LBBB predicts improved response to CRT.

[[](https://files.abstractsonline.com/CTRL/E4/9/659/933/79F/4AE/DAD/9F4/765/E74/D4A/06/g512_1.gif)](https://files.abstractsonline.com/CTRL/E4/9/659/933/79F/4AE/DAD/9F4/765/E74/D4A/06/g512_1.gif)