MECHANICAL DYSSYNCHRONY IS ADDITIVE TO QRS WIDTH AND MORPHOLOGY IN PREDICTING RESPONSE TO CARDIAC RESYNCHRONIZATION THERAPY IN PATIENTS WITH ADVANCED WIDE QRS HEART FAILURE

Poster Contributions
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Background: Current guidelines for cardiac resynchronization therapy (CRT) focus on QRS width and morphology, but the independent effect of baseline mechanical dyssynchrony on CRT outcomes is uncertain.

Methods: A 2-center observational study included 369 consecutive wide QRS advanced heart failure (HF) patients. We tested the following criteria associated with CRT response: 1) QRS > 150ms, 2) left bundle branch block (LBBB), and 3) radial dyssynchrony by speckle tracking (opposing wall peak strain delay > 130 ms). Left ventricular (LV) end-systolic volume (ESV) and ejection fraction were assessed at 1 year, while 2 year death and HF hospitalization rates were analyzed by a Cox proportional hazard model adjusted for baseline variables.

Results: Linear regression showed that all 3 criteria were independently and additively associated with ESV reduction: QRS >150 ms (-12 ± 5 ml), LBBB (-14 ± 5 ml) and radial dyssynchrony (-12 ± 5 ml) (Figure). Left ventricular (LV) end-systolic volume (ESV) and ejection fraction were assessed at 1 year, while 2 year death and HF hospitalization rates were analyzed by a Cox proportional hazard model adjusted for baseline variables. Two-year mortality or HF hospitalization was also independently and additively associated with all 3 criteria: QRS>150ms, LBBB, and radial dyssynchrony. Having 2 criteria reduced death or HF hospitalization by 44% and 3 criteria by 63% compared to having 0 or 1 criteria (Figure).

Conclusion: Baseline radial dyssynchrony is independently associated with QRS>150ms and LBBB for LV reverse remodeling and HF hospitalization or death after CRT. Radial dyssynchrony is of additive prognostic value to QRS width and morphology for predicting CRT response.