Abstract: **P3807**

**Impact of unipolar vs bipolar left ventricular pacing using a quadripolar lead on heart failure hospitalization in patients undergoing cardiac resynchronization therapy**

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**Topic(s):**
Cardiac Resynchronization Therapy

**Citation:**
Background: Unipolar (uni) pacing from a bipolar left ventricular (LV) pacing lead in cardiac resynchronization therapy (CRT) patients (pts) has been associated with worse outcomes than bipolar (bi) pacing (MADIT CRT and ALTITUDE analyses). However, it is unknown whether the same is true with quadripolar LV pacing leads.

Purpose: To determine whether there is a difference in heart failure hospitalization (HFH) following CRT implantation in pts undergoing uni vs. bi LV pacing.

Methods: All pts enrolled in the NAVIGATE study were implanted with a CRT-D (RESONATE, Boston Scientific) using a quadripolar LV lead (ACUITY X4 Spiral Long, Spiral Short, or Straight). Pts were followed, and data collected on HFH and mortality. Vectors were programmed at the discretion of the implanter. Outcomes were adjusted for age, gender, NYHA class, ischemic etiology, conduction disorder pattern, EF, LV lead location, and LV lead shape.

Results: The study cohort included 2080 pts; 1781 pts had bi and 299 pts had uni LV pacing. Bi LV had higher % female, NYHA II/III, non-ischemic, LBBB, spiral shape, lateral and apical locations. During follow-up, the adjusted likelihood of HFH was significantly lower in pts undergoing bi LV pacing (HR 0.75, 0.58-0.97, p=0.027, Figure). Mortality was similar between the two groups.

Conclusions: In this large prospective study, uni LV pacing was associated with significantly greater likelihood of need for HFH during a 4-year follow-up period. These data suggest that routine programming in a bi configuration may be better for post-CRT pts. However, further study is needed to confirm causality and mechanism of this finding.
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Adjusted HR (95% CI) for Bipolar vs. Unipolar: 0.75 (0.58, 0.97), p = 0.027.