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Heart Failure and Cardiomyopathies

LEFT VENTRICULAR LEAD LOCATION IMPACTS LONG-TERM CLINICAL OUTCOME IN LEFT BUNDLE BRANCH BLOCK PATIENTS

Poster Contributions
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Background: The impact of left ventricular (LV) lead location in patients with cardiac resynchronization therapy (CRT) on long-term clinical outcome is unknown.

Methods: We evaluated the impact of LV lead location classified along the longitudinal and radial axis in 569 patients with mild HF and left-bundle branch block (LBBB) receiving CRT, compared to 505 patients with an ICD-only. The leads were classified into apical (n=83) and non-apical (n=486); with the non-apical LV leads being further categorized into anterior (n=99) and posterior/lateral (n=387). All-cause mortality and HF over a 7-year period were assessed with Kaplan-Meier and Cox analyses.

Results: LBBB patients with posterior/lateral LV lead location experienced significant reduction in long-term all-cause mortality (HR: 0.54, 95% CI: 0.37-0.79, p=0.001) (Figure) and in HF (HR=0.44, 95% CI: 0.33-0.60, p<0.001), compared to ICD-only. Patients with anterior and apical LV lead location experienced significant reductions in HF (HR=0.50, 95% CI: 0.30-0.82, p=0.006 and HR=0.58, 95% CI: 0.34-0.98, p=0.04), compared to ICD therapy. Notably, there was no difference in all-cause mortality between anterior and apical LV lead locations compared to ICD-only.

Conclusion: In mild HF patients with LBBB and an implanted CRT-D, lateral/posterior LV lead location is associated with significant reduction in long-term all-cause mortality. Anterior, apical, and lateral/posterior LV lead locations are associated with similar HF reductions.