DEVICE THERAPY AVOID APICAL LEAD POSITION IN CRT

Following on from the primary efficacy and safety findings and the sex-specific outcomes data from MADIT-CRT, the study investigators have now demonstrated that placement of left ventricular (LV) pacing leads in the apical position is associated with poor outcomes in patients undergoing cardiac resynchronization therapy (CRT). The authors of the report, published in *Circulation*, hypothesize that apical lead placement could explain the high rate of nonresponsiveness to CRT.

A total of 799 patients from the implantable cardioverter-defibrillator (ICD) plus CRT arm of MADIT-CRT were evaluated for lead position. All patients had NYHA class I–II heart failure, with an LV ejection fraction $\leq 30\%$, were in sinus rhythm, and had a guideline-mandated indication for ICD therapy. Lead placement was assessed by coronary venography of the long and short axes of the heart. Along the short axis, patients were classified as having laterally ($n=468$), posteriorly ($n=176$), or anteriorly ($n=155$) positioned leads. Along the long axis, they were grouped as having leads that were placed apically ($n=110$) or nonapically ($n=689$).

The risk of heart failure hospitalization or death was higher among patients with apically located leads than those whose leads were in a nonapical position (hazard ratio 1.72, 95% CI 1.09–2.71, $P=0.019$). By contrast, no differences in this outcome were found between leads placed in the lateral, posterior, or anterior positions. Multivariate analysis demonstrated that an LV ejection fraction $\leq 25\%$ and history of NYHA class $>II$ heart failure were significant predictors of adverse outcome in patients with apically placed leads. The investigators recommend avoiding the apical region in CRT and speculate that this strategy could lead to increased responsiveness, enhancing the cost-effectiveness of the therapy.

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Original article Singh, J. P. et al. Left ventricular lead position and clinical outcome in the Multicenter Automatic Defibrillator Implantation Trial-Cardiac Resynchronization Therapy (MADIT-CRT) Trial. *Circulation* 123, 1159–1166 (2011)