

Chronic right ventricular pacing works for ICD patients with left ventricular dysfunction

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Cardiac resynchronization therapy with defibrillators (CRT-D) is appropriate for patients who have left ventricular dysfunction and require chronic ventricular pacing, based on the findings of an observational study that being presented March 26 that the 61st annual American College of Cardiology (ACC) scientific session.

Previous clinical findings have indicated that chronic right ventricular pacing may cause left ventricular <u>remodeling</u> and <u>heart failure</u> (HF), but current guidelines do not recommend CRT-D for patients without HF who need frequent ventricular pacing.

"Recent data demonstrated that in those patients who require chronic right ventricular pacing, the benefits seen from implantable cardioverterdefibrillators [ICDs] were attenuated after approximately five years, compared with those who did not require pacing," explained the study's lead author Raed H. Abdelhadi, MD, a cardiac electrophysiologist at the Minneapolis Heart Institute at Abbott Northwestern Hospital and physician researcher with the Minneapolis Heart Institute Foundation in Minneapolis.

In this retrospective, observational study, the researchers examined the effect of right ventricular pacing on survival in 1,401 ICD patients who have left ventricular dysfunction with an <u>ejection fraction</u> (EF) of less than or equal to 35 percent that were treated at the Minneapolis Heart



Institute from 2000 to 2011.

The study broke the patients into three groups: 1) single- or dualchamber ICD with right ventricular pacing greater than or equal to 50 percent; 2) single- or dual-chamber ICD with right ventricular pacing less than 50 percent; and 3) biventricular <u>defibrillator</u> (CRT-D) patients.

Across all the groups, the average age of the patients was 67 years, 67 percent whom had ischemic <u>cardiomyopathy</u>, 26.9 percent of whom had atrial <u>fibrillation</u> and 56.9 percent of whom had Class III/IV heart failure. The mean follow-up of the study was four years.

"We found that patients with high percentage of right ventricular pacing had worse survival—with an adjusted hazard ratio of two—compared with patients who had biventricular pacing or had less than 50 percent right ventricular pacing," said Abdelhadi, who noted that researchers adjusted for the multiple variables that could affect mortality.

Based on their findings, the researchers concluded that in ICD patients who have <u>left ventricular</u> dysfunction, chronic right ventricular pacing is associated with significantly reduced survival. The study authors also noted that this long-term adverse effect of right ventricular pacing on survival is not observed in patients treated with CRT-D devices.

In discussing how these findings could impact clinical practice, Abdelhadi recommended that, "Even for those who have a lower heart failure Class, similar to the MADIT-CRT population, our findings support the use of biventricular defibrillators in patients who will require a high percentage of ventricular pacing. While an observational analysis should not necessarily alter the guidelines, this large retrospective study supports the literature that shows detrimental effect of right ventricular pacing and the important role of biventricular defibrillators for this population."



Provided by Minneapolis Heart Institute Foundation

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