Contemporary Cardiac Resynchronization Implantable Cardioverter Defibrillator Battery Longevity in a Community Hospital Heart Failure Cohort

An independent poster presented at Heart Failure Society of America’s (HFSA) 2014 Annual Meeting comparing contemporary CRT-D longevity

DESCRIPTION

Contemporary Cardiac Resynchronization Implantable Cardioverter Defibrillator Battery Longevity in a Community Hospital Heart Failure Cohort was an independent, retrospective observational study comparing battery longevity of contemporary cardiac resynchronization therapy defibrillators (CRT-Ds) of all patients implanted with CRT-ICDs from July 1, 2008, to October 31, 2010, at The Good Samaritan Hospital in Lebanon, PA. This study is unique in that patients cared for in non-academic community hospitals (NCH) may have substantial differences in age, gender, and comorbidities than those in academic centers and national trials.

IMPORTANT OUTCOMES

• CRT-Ds reaching primary event occurred in 1 of 53 Boston Scientific devices (1.9%), 14 of 28 Medtronic devices (50%), and 1 of 10 St. Jude Medical devices (10%)
• During 4 +/- 0.8 years follow-up, there was a 10% mortality rate and 16 devices reached ERI (17.6%)
• Boston Scientific had the highest RA lead impedance while MDT had the highest RV lead impedance
• Patients reaching ERI had higher RV and LV output and RV pulse width

This study agreed with the results of Dr. Saba’s and Dr. Johansen’s studies — Boston Scientific CRT-Ds are lasting significantly longer than Medtronic CRT-Ds.

GET THE FACTS AND CUT THE RISK.

Boston Scientific offers ICDs and CRT-Ds designed to be the world’s longest lasting — with up to 80% more battery capacity than other available models. Better CRT-D longevity could mean a reduced risk of exposure to complications and infections for your patients.
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**PATIENT COHORT**

All patients implanted (N = 90) with a CRT-D at The Good Samaritan Hospital in Lebanon, PA, from July 2008 through July 2010. Mean age was 72+/−9, creatinine 1.3+/−0.5 mg/dl, and ejection fraction 0.25+/−0.08. Medtronic = 28 patients, St. Jude = 10 patients, Boston Scientific = 53 patients.

**METHODS**

- Baseline demographics, device, and lead data were obtained from the electronic medical record
- Covariates that can affect time to battery depletion were included in a multivariate Cox proportional hazard model

**PRIMARY ENDPOINTS**

Device replacement for the battery reaching the elective replacement indicator (ERI)

**PRINCIPAL INVESTIGATOR**

Jeffrey Williams, M.D., Medical Director, Heart Rhythm Center and Clinical Cardiac Electrophysiology, Lebanon Cardiology Associates

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1. Williams J, Stevenson R. Contemporary Cardiac Resynchronization Implantable Cardiuvor Defibrillator Battery Longevity in a Community Hospital Heart Failure Cohort. Presented at HFSA 2014. http://www.onlinejcf.com/article/31097-9196414003989-s.html. Contemporary Cardiac Resynchronization Implantable Cardiuvor Defibrillator Battery Longevity in a Community Hospital Heart Failure Cohort was an independent, retrospective observational study comparing battery longevity of contemporary cardiac resynchronization therapy defibrillators (CRT-D) of all patients implanted with CRT-ICDs from July 1, 2008, to October 31, 2010, at The Good Samaritan Hospital in Lebanon, PA. Medtronic = 28 patients, St. Jude = 10 patients, Boston Scientific = 53 patients.

2. Alm MB, Munir MB, Rattan R, Flanigan S, Adelstein E, Jain S, Saba S. Battery longevity in cardiac resynchronization therapy implantable cardioverter defibrillators. Europace 2014; 16, 246-251. Kaplan Meier curves depicting survival of CRT devices free from battery depletion by device manufacturer. Battery longevity in Cardiac Resynchronization Therapy Implantable Cardiuvor Defibrillators is an independent, single-center, retrospective observational study comparing battery longevity of contemporary cardiac resynchronization therapy defibrillators (CRT-D) of all patients implanted with CRT-ICDs from January 1, 2008, to December 31, 2010, at University of Pittsburgh Medical Center hospitals. The initial study population included 746 patients; 74 were excluded at the onset because they were lost to follow-up within a month of implant, 8 others were excluded because they had a Biventricular CRT-D and that number of devices precludes meaningful comparison. Medtronic = 141 patients, Boston Scientific = 173 patients, St. Jude = 57 patients. Survival rate calculated using device replacements for battery depletion as indicated by ERI.

3. Hjortshøj S, Johannsen J, Jorgensen D, Nielsen J, Petersen H. Device Longevity in Cardiac Resynchronization Therapy/Implantable Cardioverter Defibrillators Differs Between Manufacturers: Data from the Danish ICD Registry. Presented at HRS 2014. http://connect.hrsital.com/common/presentation-detail.aspx/16/30/121/9900. Device longevity in Cardiac Resynchronization Therapy/Implantable Cardioverter Defibrillators differs between manufacturers was an independent, retrospective observational study comparing battery longevity of contemporary cardiac resynchronization therapy defibrillators (CRT-Ds) of all patients implanted with CRT-ICDs from January 1, 2007, to October 31, 2013, in Denmark. The initial study population included 2,793 patients: battery depletion or device failure was identified in 43 Medtronic, 4 Biotronik, 1 Boston Scientific, and 33 St. Jude devices. Medtronic = 651 patients, Boston Scientific = 173 patients, St. Jude = 1,587 patients, Biotronik = 369. Time to exchange of the device because of battery depletion or device failure recorded in the Danish ICD Registry was the endpoint.

4. Survival rate calculated using device replacements for battery depletions as indicated by ERI.


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