

**DEPARTMENT OF COMMUNITY AND PREVENTIVE MEDICINE
RESEARCH PROPOSAL**

**Analysis of Potential Predictors of the Effects of CRT-D vs. ICD-Only Therapy
on Heart Failure Event or Death in the
Ischemic Male Subset of the MADIT-CRT Patient Population
Randall A. Buermann**

Objective

This substudy proposes to evaluate potential predictors of the effect of CRT-D vs. ICD-only therapy on heart failure or death in the ischemic male subset of the MADIT-CRT patient population. The specific aims of this substudy are: 1. to determine if CRT-D compared to ICD-only reduces the occurrence of heart failure event or death (whichever comes first) when controlling for other risk factors in ischemic males, and 2. to determine if age is associated with treatment effect of CRT-D vs. ICD-only on time to first heart failure event or death (whichever comes first).

Background

Implantable cardioverter defibrillators (ICDs) have been shown in past trials to be effective at reducing mortality in patients at all four New York Heart Classes (NYHA) of heart failure. Results of those trials suggest that implantation of these ICD-only devices leads to an increased rate of non-fatal heart failure events that have adverse economic and co-morbid impacts upon the individual and society as a whole. The MADIT-CRT trial demonstrated that implanting NYHA Class I and II heart failure patients with cardiac resynchronization therapy combined with an ICD (CRT-D) reduced the number of heart failure and mortality events when compared with patients receiving ICD-only. In MADIT-CRT, the observed treatment effect was greater for females (hazard ratio of 0.37, 95% confidence interval of 0.22 – 0.61) than for males (hazard ratio of 0.76, 95% confidence interval of 0.59 – 0.97). Thus, while the MADIT-CRT results make a compelling argument for implanting all female NYHA Class I and II patients with the more expensive and invasive CRT-D device and associated leads, the data are less compelling for implanting all NYHA Class I and II males with CRT-D devices.

Methods

This is a quantitative secondary analysis of the ischemic male subset (N=874) of the MADIT-CRT study population. Substudy analysis will include: descriptive statistics, unadjusted and adjusted Cox Proportional Hazards Regression, and Kaplan-Meier time-dependent analysis.

Significance

The results of this substudy analysis may enhance the ability of clinicians to target their use of the more expensive and invasive CRT-D therapy towards patients with the greatest likelihood to benefit from such treatment based upon the presence or absence of predictive risk factors. If not directly translatable to the “bedside,” this substudy will likely have sufficient power to serve as a compelling pilot data to support avenues of pursuit in future clinical trials.

**Committee Chair:
Robert Block, MD, PhD**

**Committee Members:
Peter Veazie, PhD
Author Moss, MD**

**Monday, March 1, 2010
12:30PM – 1:00 PM
Helen Wood Hall, Room 4W301**

EVERYONE IS WELCOME