

0.2±1.2 METs, p<0.05).

Conclusions: Responders of LV reverse remodeling predicts a lower heart failure event rate than non-responders. They were also associated with more symptomatic improvement and a better gain in peak exercise capacity.

1111-224 Improvement of Brain Natriuretic Peptide Levels 48 Hours Following Cardiac Resynchronization Therapy

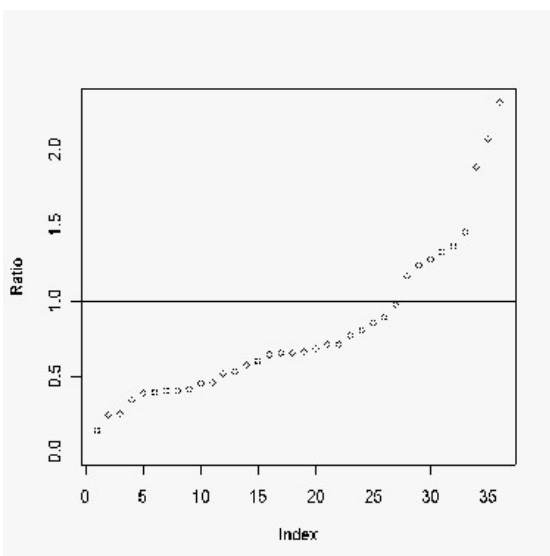
Nazim U. Khan, David W. Frazier, Srivani R. Ambati, Jaafer Golzar, Martha Clutter, Paul W. Vos, Harry J. DeAntonio, Assad Movahed, East Carolina University, Brody School of Medicine, Greenville, NC

Background: Brain natriuretic peptide (BNP) levels are a marker of left ventricular dysfunction in heart failure. High BNP levels after optimal medical management of heart failure are an independent predictor of prognosis. Cardiac resynchronization therapy (CRT) or dual ventricular chamber pacing improves quality of life, exercise capacity and cardiac function. A small previous study showed improvement in BNP levels with chronic CRT (15±8 weeks). We investigated the short term effects of CRT on BNP levels.

Methods: 36 patients with a mean EF 23±7% and LBBB (mean QRS 170±25ms) were investigated. BNP levels were checked immediately prior to and 48 hours after CRT. BNP levels were measured using the Triage BNP test/ Biosite Diagnostics, USA.

Results: The paired t-test on the log transformed data indicates that the difference between baseline BNP and 48 hours BNP is statistically significant (p=0.0006). The average change on the log scale is -0.3956 which is 0.673 when converted to a proportion. The 95% confidence interval for the average change is 0.545-0.832. The figure shows the ratios of 48 hours/baseline BNP levels plotted in increasing order of the ratio, for the 36 patients. 75% of the patients had a reduction in BNP.

Conclusions: There is a statistically significant reduction in BNP levels 48 hours following CRT.



1111-225 In the Rapid Pacing Canine Model of Heart Failure, Left Ventricular Stimulation Resynchronizes Better the Left Ventricle Compared to Biventricular or Right Ventricular Stimulation: An Echocardiographic-Hemodynamic Correlation of Systolic and Diastolic Function

Bernard Thibault, Anique Ducharme, Yan-Fen Shi, Marc Dubuc, Peter Guerra, Laurent Macle, Denis Roy, Mario Talajic, Jean-Claude Tardif, Institut de Cardiologie de Montréal, Montreal, PQ, Canada

Resynchronization therapy is effective for patients with left ventricle (LV) dysfunction, but the underlying mechanisms are not well understood. We studied acute hemodynamic effects of RV, LV and biventricular (BiV) and established the correlation with LV resynchronization assessed with echocardiography and tissue Doppler. **Methods:** A total of 17 dogs were paced at high rate for a minimum of 4 weeks to create LV dysfunction. Transvenous pacing electrodes were implanted in the right atrium, the right ventricle (RV) and in a lateral branch of the coronary sinus (LV). Aortic, LV and pulmonary pressure were continuously monitored and because dogs have short PR intervals, complete AV node ablation was performed to assess the isolated effect of the different modes of stimulation, with no participation of intrinsic conduction. **Results:** All the animals developed severe heart failure (mean LVEF=28,7%), none with a wide QRS. LV stimulation was associated with better LV hemodynamic parameters than BiV (5-10%) which was superior to RV stimulation (10-20%, p<0.05). Echocardiographic evaluation showed that LV pacing was associated with improved LVEF, less mitral regurgitation (MR) and less LV intraventricular dyssynchrony as assessed with tissue Doppler. Improved systolic performance was associated with improved diastolic performance (negative Lvdpt) and diastolic pattern assessed by echo. **Conclusions:** 1- In a canine model of heart failure, LV stimulation was found to result in better LV systolic and diastolic performance compared to BiV and RV

stimulation. 2- The superior LV performance with LV pacing is associated with improved LVEF, less mitral regurgitation and less intraventricular systolic and diastolic LV dyssynchrony.

1111-226 Frequency and Mechanisms of Inappropriate Implantable Cardioverter Defibrillator Therapy in MADIT II

James P. Daubert, Wojciech Zareba, David S. Cannom, Claudio D. Schuger, Paul Wang, Mark L. Andrews, Jackson Hall, Arthur J. Moss, University of Rochester Medical Center, Rochester, NY

Background: Inappropriate implantable defibrillator (ICD) shocks have been reported to be a common adverse event in ICD patients, with serious consequences including impaired quality of life. **Methods:** We classified the rhythm triggering ICD therapy by review of stored electrograms for each episode. Inappropriate therapy was defined as antitachycardia pacing or ICD shock for anything other than ventricular arrhythmia. Inappropriate shocks were further classified as atrial fibrillation (AF), other supraventricular tachycardia (SVT) (including sinus), or abnormal sensing. We examined the baseline clinical characteristics and medications of patients with and without inappropriate shocks. **Results:** Inappropriate shocks occurred in 88 (12.2 %) of the 720 patients who received an ICD in MADIT II. A total of 806 therapies were delivered from the ICD of which 513 (63.6%) were appropriate and 293 (36.4%) were inappropriate. The clinical characteristics of patients receiving inappropriate therapy were not different from those patients not receiving such therapy. **Conclusions:** Despite awareness of the frequency of inappropriate therapy in prior ICD trials, and despite frequent use of detection algorithms, inappropriate ICD therapy was common in the MADIT II trial. The most common mechanism for inappropriate shocks in the MADIT II trial was AF. Clinical characteristics and medications prescribed do not predict which patients experience inappropriate ICD therapy.

Inappropriate Therapy

Type	Frequency
AF	131 (48%)
Other SVT	96 (34 %)
Abnormal Sensing	48 (17 %)

ORAL CONTRIBUTIONS

828

Pulmonary Vein Isolation for Treating Atrial Fibrillation

Monday, March 08, 2004, 4:00 p.m.-5:30 p.m.
Morial Convention Center, Room 254

4:00 p.m.

828-1 Pulmonary Vein Isolation to Prevent Atrial Fibrillation: Long-Term Safety, Efficacy, and Predictors of Outcome

Hakan Oral, Aman Chugh, Burr W. Hall, Peter Cheung, Srikar Veerareddy, Kristina Lemola, Jihn Han, Kamala Tamirisa, Frank Pelosi, Jr., Fred Morady, University of Michigan, Ann Arbor, MI

Background: The long-term safety and efficacy of segmental ostial ablation to isolate the pulmonary veins in patients with atrial fibrillation (AF) have not been well-defined. **Methods and Results:** Pulmonary vein isolation by ostial applications of radiofrequency energy guided by pulmonary vein potentials was performed in 187 consecutive patients (mean age = 52 ± 11 years) with paroxysmal (167) or persistent AF (20). The left superior, left inferior, and right superior pulmonary veins were targeted in all patients, and the right inferior pulmonary vein also was targeted in 73 patients (39%). Successful isolation was achieved in 96% of targeted pulmonary veins. A repeat ablation procedure was performed in 11% of the patients. At 2 years of follow up, 70% of patients with paroxysmal AF and 25% of patients with persistent AF were free of recurrent episodes of AF, in the absence of antiarrhythmic drug therapy (p<0.001). Among patients with paroxysmal AF, vagotonic AF was the only independent predictor of recurrent AF. Complications consisted of pericardial tamponade (0.5%), left atrial flutter (0.5%), transient ischemic attack (0.5%), and unilateral quadrantanopsia (0.5%). No patient had symptomatic pulmonary vein stenosis. **Conclusions:** The long-term efficacy of pulmonary vein isolation is 70% in patients with paroxysmal AF, and the risk of complications is low. Alternative ablation strategies should be considered to improve long-term efficacy, particularly in patients with persistent or vagotonic AF.