

measurement was made 3 times and these were averaged. The MPI during the default configuration (Dipole 1) was compared with each other configuration for the group as a whole and for each patient.

Results: The default pacing configuration resulted in the lowest MPI for only 4 of the 15 patients (Dipole 2: 4 patients; D3: 4 patients; D4: 3 patients). Among this study population, the echo-guided identification and selection of the optimal configuration resulted in a statistically significant (*t* test, *p*=0.003) mean reduction in MPI of 0.12±0.13 (range, 0.00 to 0.50) compared with the default configuration. However, for the entire group, no single configuration was consistently superior to the others (mean MPIs 0.84±0.38, 0.84±0.47, 0.81±0.42, and 0.83±0.48, respectively; repeated measures ANOVA, *p*=0.87).

Conclusions: In individuals undergoing cardiac resynchronization therapy, the configuration of the LV pacing vector can affect myocardial performance. This suggests that echo-guided selection of LV pacing configuration may be useful in optimizing cardiac resynchronization.

2:00 p.m.

906-241 **Inter-observer Variability in Identifying the Location of Coronary Venous Leads**

Imran K. Niazi, John Hummel, Lisa McCallum, Julie Wang, Mindi Newman, Patrick Yong, St Luke's Medical Center, Milwaukee, WI, Boston Scientific, Saint Paul, MN

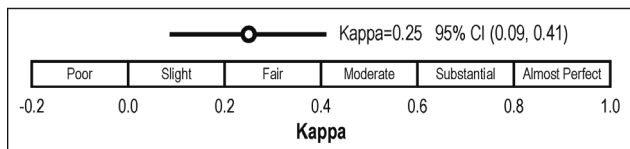
Background: Hemodynamic studies of cardiac resynchronization therapy (CRT) have demonstrated that coronary venous lead (CVL) location is an important determinant of benefit. However, whether implanting physicians consistently identify the location of the CVL is largely unknown.

Methods: Patients (pts) participating in the DECREASE HF study had their lead position assessed at the time of implant by the implanting physician as Anterior (Ant), Lateral (Lat), or Posterior (Pos). Radiograms from the anterior-posterior and lateral views were obtained from pts enrolled in the DECREASE-HF study of CRT and reviewed by an external physician experienced with the implant of CRT systems. The external physician was blinded to the original description of lead location. Inter-observer variability in the interpretation of CVL location was evaluated with the kappa statistic, which classifies agreement as "slight", "poor", "fair", "moderate", "substantial", or "almost perfect".

Results: Radiograms were available for 163 pts. Mutual agreement was observed in 123/163 (75%) pts. The inter-observer matrix and kappa statistic are shown below: The kappa value of 0.25 corresponds to only fair agreement between the implanting physician and an external reviewer.

Conclusions: Considerable variation exists between observers in interpreting the location of CVLs. Given the importance of lead location, this finding suggests that standard definitions and techniques for identifying CVL position need to be established.

| | | External Physician Assessment | | |
|---------------------------------|-----|-------------------------------|--------------|-----------|
| | | Ant | Lat | Pos |
| Implanting Physician Assessment | Ant | 7 (4%) | 6 (4%) | 2 (1%) |
| | Lat | 12 (7%) | 113 (69%) | 7 (4%) |
| | Pos | 0 (0%) | 13 (8%) | 3 (2%) |



2:00 p.m.

906-242 **Thoracic Electric Impedance and Its Changes After Multiple Shocks for External Cardioversion of Atrial Fibrillation. A Role for Acute Inflammatory Response?**

Stefano Fumagalli, Francesca Caldi, Francesca Tarantini, Claudia Di Serio, Margherita Padeletti, Lorenzo Boncinelli, Luigi Padeletti, Giulio Masotti, Serge Barold, Niccolò Marchionni, Intensive Care Unit, Geriatric Cardiology, Dep. of Critical Care Medicine and Surgery, University, Florence, Italy, Division of Cardiology, University of South Florida College of Medicine and Tampa General Hospital, Tampa, FL

Background: Thoracic impedance (TI), according to current Resuscitation Guidelines, is one of the major determinants of success of external cardioversion (ECV) or defibrillation. In fact, the current intensity crossing heart chambers is inversely associated with TI. Moreover, old experimental data seem to suggest that TI decreases after multiple shocks, allowing an easier flow of current through the thorax. With this study we wanted to evaluate normal baseline values of TI and its changes in patients (pts) undergoing ECV.

Methods: All the 193 pts (age: 73±9 years; men: 66%, BMI: 26.3±3.7 Kg/m²) who consecutively underwent ECV of atrial fibrillation or flutter between January 2004 and September 2006 were enrolled in the study. Biphasic shocks (Multipulse Biowave, Schiller/

ESAOTE) were delivered through adhesive pads placed in antero-posterior position. Initial energy was set at 1 Joule/Kg, with progressive increases at 130 and 180 Joule in case of failure of previous attempts of ECV. In a subgroup of patients, plasma concentrations of Interleukin-6 (IL-6) and Tumor Necrosis Factor (TNF) - alpha were evaluated at baseline and after 5 hours from ECV.

Results: Mean TI was 57±12 Ohm; the variable had a normal distribution (*p*=0.624). Delivered shocks were 2.4±1.4, with 131 pts (67.9%) needing more than 1 shock. Final values of energy and of current intensity were 135±49 Joule and of 50±15 Ampere, respectively. TI significantly decreased after multiple shocks (57±12 vs 54±11 Ohm, -5.7±3.3%, *p*<0.001), with the absolute reduction directly associated (R=0.640) with baseline TI (*p*<0.001) and the total amount of delivered energy (*p*<0.001). IL-6 (0.16±0.03 vs 1.00±1.70 pg/mL, *p*=0.016) and TNF-alpha (1.39±0.71 vs 2.48±4.13 pg/mL, *p*=0.015) significantly increased with ECV.

Conclusions: TI, one of the determinants of success of ECV, significantly decreases after multiple shocks. At the same time, IL-6 and TNF-alpha increase their concentrations, possibly linking the changes in physical properties of thorax to acute inflammation.

E-POSTER SESSION

907

E-Poster Session 907

Sunday, March 25, 2007, 3:00 p.m.-4:00 p.m.
Hall H

3:00 p.m.

907-234 **Heterogeneous Innervation of the Left Atrium and Pulmonary Veins**

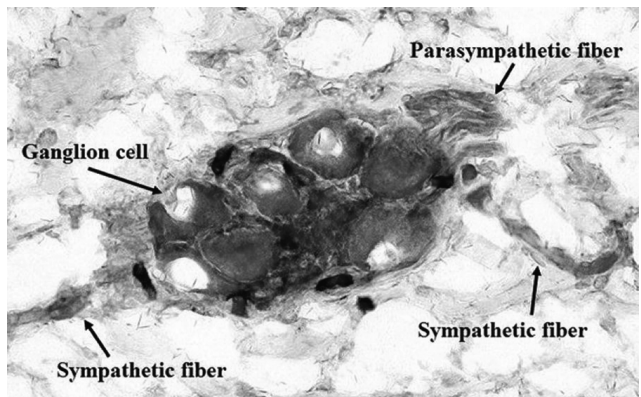
Roger Villuendas, Rishi Arora, Jack Cain, Laura Harvey, Rodney Greene, Jeffrey J. Goldberger, Alan H. Kadish, Northwestern University, Chicago, IL

Background: Heterogeneous distribution of the autonomic nervous system might contribute to create a substrate for atrial fibrillation in the left atrium and pulmonary veins (PV).

Methods: Frozen sections from the left atrial appendage (LAA), posterior left atrium (PLA), and PV of 4 dogs were immunostained with dopamine beta-hydroxylase to identify sympathetic (S) nerves (blue) and acetylcholinesterase to identify parasympathetic (P) nerves (brown). Nerve distribution and density (counted elements/10x field) were assessed by light microscopy.

Results: Nerve bundles containing ganglion cells (figure) were found only in the PV and PLA; none in the LAA (*p*<0.01). The PLA was the most richly innervated with bundles containing both P and S fibers (PV=0.1±0.1, PLA=0.3±0.3, LAA=0.01±0.03; *p*<0.01). Although P fibers predominated in all bundles, the S/P ratio of fibers within the bundles was not different among the sites (PV=0.21, PLA=0.15, LAA=0.19; *p*=NS). The density of individual P fibers outside the bundles was similar (PV=42±23, PLA=43±35, LAA=35±22; *p*=NS). The density of individual S fibers was higher in the LAA (PV=3±2, PLA=3±2, LAA=6±2; *p*<0.005).

Conclusion: Autonomic innervation in the left atrium is heterogeneous, with the PLA having the highest density of nerve bundles. The density of individual S fibers is higher in the LAA. Greater total nerve content as well as a lower S/P ratio of individual fibers outside the bundles may account for the unique electrophysiological characteristics of the PLA.



3:00 p.m.

907-237 **Intraoperative Radiofrequency Ablation With an Irrigated Unipolar Probe in Patients Undergoing Fontan Conversion: a Safe and Effective Approach for the Treatment of Atrial Tachyarrhythmias**

Jose M. Moltedo, Mariano Ithuralde, Alejandro Ithuralde, Carlos Seara, Maria Balestrini, Mauricio Abello, Javier Celada, Pablo Garcia de Lucis, Carlos Nojek, FLENI, Buenos Aires, Argentina

Background: Atrial tachyarrhythmias (AT) are a frequent long term complication of palliated congenital heart disease and are often refractory to medical treatment. The aim of this study is to report the experience with intraoperative radiofrequency ablation