**CONTRACTILITY-GUIDED VENTRICULAR LEAD IMPLANT OPTIMIZES PACING AMONG PATIENTS WITH STRUCTURAL HEART DISEASE**

**P.P. Karpawich,** K. Zelin, H. Singh

The Children's Hospital of Michigan, Wayne State University, Detroit, MI, USA

Introduction: Current pacing lead (PL) designs assure stability regardless of implant site (IS), yet sensing (S) and threshold(Th), not ventricular contractility (VC), dictate PL implant. The purpose of this study was to report results of VC-guided PL implant among patients (pts) with and without congenital heart disease (CHD) including repaired tetralogy and transposition of the great arteries.

Methods: Transvenous pacemaker (PM) implants on 100 consecutive pts (43 male), age 2-51 (mean 16y) were reviewed. At implant, temporary pacing with concomitant recordings of systemic VC (dP/dt, dP/dt/p), as well as QRS duration and pressures (EDP) were done in each pt at 5 (septal inflow, outflow, mid, low, apex) potential ISs and compared to each other as well as to either intrinsic or existing paced rhythms. Permanent PL implant measurements of S and Th were obtained at the site giving the best VC.

Results: CHD was found in 46 and preexisitng epicardial (Epi) PM in 26 pts. VC varied from 3-31% (mean 12%) per site per patient. Best paced site was comparable to intrinsic VC (987 vs 1050mmHg-sec, p=NS). Mid septal was best in 34%, while due to CHD, apical was best in 10% pts. Epi pacing had the worst VC and QRS duration (\*p<.05). Otherwise, there were no differences in QRS, Th, S or EDP between IS's.

Conclusion: There is no single best pacing site. Depending on anatomy and surgical repair, best pacing site is variable. Since paced ventricular contractility can improve up to 30% per IS, VC measurements are important at PM implant.