Interventional Approach to Left Ventricular Lead Implantation

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Introduction: Anatomic variability of the coronary venous system frequently hinders left ventricular lead placement using traditional tools & techniques. Interventional tools & techniques (IT&T) have been developed to improve the success of cardiac resynchronization therapy. We describe the success & the IT&T employed in patients with previous implant failure using traditional techniques.

Methods: We reviewed the data on 96 patients with a previously unsuccessful attempt at LV lead placement from June 2017 through November 2018.

Result: 90 of 95 were implanted successfully. The following interventional techniques were judged primary: 1. Vein selector enhanced/sub-selector (20) 2. Snare – ortho/antidromic (18) 3. Support wire technique (13) 4. Anchor balloon (3) 5. Coronary branch venoplasty (3); 6. Subclavian venoplasty (19). In 84 cases, two ITT were employed (e.g., subclavian venoplasty & vein selector). Implant failure resulted from: 1. high thresholds in all targets (3). 2. CS atresia & unroofed CS with occluded vein of Marshall (1).

Conclusion: Use of interventional techniques including the vein selector, snaring, coronary venoplasty, & the anchor balloon makes LV lead implantation successful in the vast majority of prior implant failures.