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Management of Permanent Pacing Wires During Tricuspid Valve Repair

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Presenter Information

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Poster Presentation P44

MANAGEMENT OF PERMANENT PACING WIRES DURING TRICUSPID VALVE REPAIR

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Objectives: We compared 3 management techniques for permanent pacing wires by studying the recurrence of postoperative tricuspid regurgitation (TR).

Methods: From 2004-2009, 40 patients (mean age 71 ± 11 years, 60% male) with prior permanent pacing wires in the right ventricle underwent tricuspid valve annuloplasty (TVA). Wires were managed with three different surgical approaches: leaving the wire in its transtricuspid position ($n=22$); removal and epicardial replacement ($n=10$); and securing it in the postero-septal commissure ($n=8$). Compared to removed group, transtricuspid and secured groups had greater prevalence of pre-operative pulmonary hypertension ($96\%[21/22]$ vs. $88\%[7/8]$ vs. $40\%[4/10]$, $p=0.001$) and atrial fibrillation ($86\%[19/22]$ vs. $88\%[7/8]$ vs. $40\%[4/10]$, $p<0.05$). Ejection fraction was similar (transtricuspid 45%, removed 53%, and secured 47%; $p=0.8$). The percentage of patients with NYHA class III/IV were similar among the 3 groups (transtricuspid $77\%[17/22]$, removed $70\%[7/10]$, and secured $50\%[4/8]$; $p=0.5$). Ambler score was highest in secured group (28 ± 14 , $p<0.05$) followed by transtricuspid (20 ± 10) and removed (14 ± 12) groups. A total of 148 preoperative, discharge, and late follow-up (>6 months) transthoracic echocardiograms were analyzed. Mean follow-up was 21.9 ± 16.6 months (range 10-1840 days) and complete in 28/29 (97%).

Results: One patient died in the hospital in each group after TVA. Incidence of TR 3+/4+ decreased in all groups at discharge ($70\%[28/40]$ vs $5\%[2/40]$, $p=0.001$) and late follow-up ($15\%[8/53]$, $p<0.001$ with no 4+ TR) compared to preoperatively. Preoperatively, secured group had the highest significant TR compared with transtricuspid and removed groups ($88\%[7/8]$ vs. $68\%[15/22]$ vs. $60\%[6/10]$, $p=0.4$) but at discharge, only transtricuspid had TR recurrence ($9\%[2/22]$, $p=0.4$). At late follow-up, significant TR redeveloped and was lowest in secured and similar in removed and transtricuspid groups ($14.3\%[1/7]$ vs. $15.4\%[2/13]$ vs. $15.2\%[5/33]$, $p=0.998$).

Conclusion: Patients in secured group represent a cohort with high risk factors for TR recurrence (greater preoperative pulmonary hypertension, AF and high ambler score) compared with those in removed group, but similarly demonstrated decreased TR across time. High-risk transtricuspid patients showed worsening TR after repair. Securing pace wires into the commissure during TVR may be a reasonable approach in management of pacemaker wires in high risk patients.