

"Long-term results for atrial maze operations in patients with congenital heart disease"

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implanting centers. Arrhythmias were defined as premature ventricular contractions (PVCs) and supraventricular (SVT) or ventricular tachycardia (VT). The mean age at implantation was 22.4±0.9 years, range 7-53 years.

Results: Prior to Melody implant, PVCs were common, occurring in 40% (57) of patients during CPET. No subjects had sustained arrhythmias, while 2 had non-sustained VT and 3 had non-sustained SVT. During a mean follow-up of 4.8 years post implant, (range 0.3-7.3 years), there were no significant changes in the overall frequency of PVCs or SVT at any follow-up interval. However, post implant, VT occurred in 18 patients: 7 during CPET and in 11 others during electrophysiologic study (4), catheterization procedures (2), and inpatient or Holter monitoring (5). Diagnoses in the VT patients were tetralogy of Fallot (12), transposition (2), and post-Ross procedure (4). Hemodynamic status was not predictive of VT during follow-up. An ICD was implanted in 8 of 18 VT patients with medical management for 10 patients. Furthermore, VT occurred in 3 of 19 patients who required PV re-implantation for valve stenosis or stent fracture, but none of 12 patients who required surgical removal of the Melody valve for endocarditis or conduit / ventricular dysfunction. **Conclusions:** Despite improvement in hemodynamics, Melody valve implant was not associated with resolution or prevention of arrhythmias. VT occurred in 18 of 141 (12.7%) patients post implant, with CPET an effective method to provoke clinically relevant VT. Continued monitoring of arrhythmias as well as prosthesis function appears warranted following Melody valve implant.

AB40-04

ARRHYTHMIAS AFTER THE FONTAN OPERATION: 30 YEAR FOLLOW-UP OF 1,052 PATIENTS

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Introduction: We sought to determine the incidence and determinants of atrial and ventricular arrhythmias during follow-up after the Fontan operation.

Methods: Medical records of all patients (pts) who had a Fontan operation at our institution from 1973-2012 (n = 1052) were reviewed. A questionnaire was mailed to all pts not known to be deceased at the time of study. Review of medical records and surveys were used to document diagnosis of any clinically significant bradyarrhythmias or tachyarrhythmias requiring treatment > 30 days after the Fontan operation. Pts with arrhythmias prior to the Fontan were excluded (n = 56).

Results: There were 996/1052 (95%) pts who did not have a diagnosis of an arrhythmia prior to their Fontan operation. Overall freedom from arrhythmias at 10, 20, and 30 years after the Fontan was 71%, 42%, and 24%, respectively. Of the pts with arrhythmias > 30 days after the Fontan operation, 304/996 (31%) had atrial flutter, 161/996 (16%) had atrial fibrillation, 37/996 (4%) had re-entrant SVT, 108/996 (11%) had atrial tachycardia and 40/996 (4%) had ventricular tachycardia. Mean age at diagnosis of arrhythmia was 20.0 ± 10.4 yrs. Mean duration from the Fontan operation to diagnosis of arrhythmia was 9.3 ± 7.1 yrs. In a multivariate analysis, atriopulmonary type of Fontan, older age at the time of Fontan operation (> 16 yrs), or atrial arrhythmias in the immediate postoperative period were associated with an increased overall risk of having late arrhythmias. The incidence of AICD placement in this cohort was 2% (16/996) and 11% of pts (113/996) had sinus node dysfunction. There were 31/996 (3%) pts that had pacemaker implantation prior to hospital discharge after Fontan, and

209/996 (21%) pts had pacemaker implantation during long term follow up. In pts who required temporary pacing for sinus node or AV node dysfunction after Fontan, long term freedom from pacemaker implantation was 73%, 59% and 41% at 10, 20 and 30 yrs respectively.

Conclusions: Long term freedom from arrhythmia after the Fontan operation is 71%, 42% and 24% at 10, 20 and 30 yrs respectively. Routine monitoring for both atrial and ventricular arrhythmias during follow-up of Fontan pts is mandatory, particularly in pts who had arrhythmias in the immediate postoperative period.

AB40-05

LONG-TERM RESULTS FOR ATRIAL MAZE OPERATIONS IN PATIENTS WITH CONGENITAL HEART DISEASE

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Introduction: Intra-operative ablation of atrial arrhythmia substrates can be incorporated into surgical repair for pts with CHD. We present our results over the last 17 years with modified atrial Maze procedures in this group.

Methods: From 1998 to 2014, 166 pts underwent a modified Maze at the time of CHD surgery using cryosurgical technique. Of these, 137 (83%) had documented atrial tachycardias preoperatively (IART n=69, AF n=25, IART/AF n=28, other n=15) and 29 (17%) had a prophylactic procedure. Figure I: distribution of CHD. Mean age at arrhythmia onset was 23.62 +/- 16.23 y and mean age at Maze surgery was 27.75 +/- 16.74 y. The Maze involved RA in 105 pts, LA in 6 pts and both in 55 pts.

Results: There were 6 surgical deaths unrelated to rhythm status. The Maze intervention did not increase morbidity in terms of ICU stay (median 3 d) or complications. Of the 160 surgical survivors, 158 were discharged in sinus or stable atrial paced rhythm. Only 2 pts (1%) had AF at discharge. Follow-up extended to a max. of 15 y (mean 3.3 y). There were 4 late deaths (3 failed Fontan and 1 sepsis) and one heart transplant. Of the 109 pts followed at 1 y, 83 (76%) were tachycardia-free (12% of them on class I/III drugs). Of the 56 pts with 5 y follow-up, 38 (68%) had no tachycardia recurrence (23% on class I/ III drugs). Outcomes are displayed in Figure II. Interestingly, from the 36 pts that had an early recurrence, 9 remained completely free of arrhythmias in the long-term follow-up under no treatment.

Conclusions: Atrial Maze surgery in a large group of pts with varied CHD lesions appears beneficial. Early recurrence is not a predictor of persistent arrhythmias and nearly 70% of pts remain tachycardia-free at late follow-up.

