

Atrial Fibrillation Ablation: Surgical MAZE Procedure vs. Catheter Based Pulmonary Vein Isolation

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MAZE procedure is highly effective when performed during mitral valve surgery, partially, due to correction of left atrium pressure/volume overload. Results of MAZE during "non-mitral" surgery depend mostly on effective modification of arrhythmogenic substrate, similarly to catheter based pulmonary vein isolation (PVI).

We sought to compare results of atrial fibrillation (AF) ablation in patients underwent PVI vs. patients who had "non-mitral" MAZE procedures.

Methods and Results: Study cohort comprise PVI (group 1, n= 140) and MAZE (group 2, n=78). Ablation in group 1 was performed by double transseptal technique, using Lasso mapping catheter and open irrigation RF ablation catheter. Two pairs of pulmonary veins were isolated using 3D mapping. Group 2 consists of patients who underwent aortic valve surgery (n=38, 49%), coronary bypass (n=28, 36%), "stand alone" MAZE (n=9, 12%) and other procedures (tricuspid valve, aortic surgery, myectomy; n= 15, 20%). Most patients underwent only left atrial MAZE (n=60, 77%). Twelve pts (15%) underwent bi-atrial MAZE and 6 (8%) - PVI only. Patients were followed at the clinic at 3, 12 months and then annually. ECG was performed daily by event recorder during the first 6 months after the procedure. Holter 24-48 hours was performed on every clinic visit. Patients characteristics and follow up results summarized in Table. Patients in group 1 had intraoperative complications in 14 cases (10%), including tamponade (n=8), TIA/CVA (n=3), lasso entrapment (n=2) and major bleeding (n=1). During the follow up, 4 patients had evidence of pulmonary vein stenosis. Patients in group 2 had only 2 cases of complications (CVA and diaphragmatic paralysis) directly related to MAZE procedure. Conclusions: MAZE procedure in "non-mitral" surgery has similar efficacy, as catheter based PVI, despite more cases with persistent AF and bigger left atrium size in surgical group. Surgical patients had fewer complications, directly related to ablation procedure.

	PVI (group1)	MAZE (group 2)	p value
Total number	140	78	
Age (years)	56±11	67±11	<0.0001
Males	102 (73%)	58 (74%)	0.8
Paroxysmal AF	119 (89%)	22 (30%)	<0.0001
Persistent AF	13 (10%)	38 (52%)	<0.0001
Permanent AF	1 (1%)	13 (18%)	<0.0001
Left atrial volume	81±33	110±38	<0.0001
Follow up duration (mo)	16±16	23±18	0.007
Follow up > 3mo	129	68	
RE DO procedure	11 (8%)	0	<0.0001
Failure (AF)	15 (12%)	8 (12%)	0.7
Failure (Flutter)	2 (2%)	4 (6%)	0.06
Success with drugs	11 (87%)	56 (82%)	0.4
Success without drugs	59 (46%)	47 (69%)	0.05