

Multi-electrode pulmonary vein isolation and left atrial CFAE ablation for chronic AF with bipolar and unipolar RF energy: Longterm results and follow-up

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INTRODUCTION

- Ablation for chronic atrial fibrillation (CAF) remains a long and difficult procedure
- We evaluated the long term results of a novel standardized multi-electrode catheter approach with alternating bipolar and unipolar RF energy

METHODS

- Consecutive patients treated with 3 catheters

Patients

- Symptomatic CAF
- At least one failed DC cardioversion
- Failed of at least one class I or III anti-arrhythmic drugs (AAD)
- No significant structural disease on MRI and TTE/TOE

Follow -up

- Follow up 3, 6, and 12 months: ECG and/or 7 day holter
- Second procedure when AF recurred > 2 months
- Drugs were discouraged after 3 months if patients became asymptomatic
- Pulmonary vein (PV) MRI before and > 6 months in selected patients
- Symptomatic patients: event recording

ENDPOINTS

- Complication: stroke, bleeding, tamponade, hematoma, phrenic nerve damage
- Chronic Success: absence of AF assessed with a 7-day holter, ECG and event recording in the first 12 months post procedure, with exception of the first 3 months blanking period

Table 1 PATIENT CHARACTERISTICS OVERALL

No. of patients	66		
Male/Female	50 / 16		
Age (years)	59 7 (37 – 75)		
Procedural time	Total time (min)	116	36
	Fluoroscopy time	30	25
Applications	PVAC/MASC/MAAC	40	11
Complications	Procedural	0/66	
		<u>1st 20</u>	<u>Last 20</u>
□ Procedure time (min)		151 50	101 15
□ Fluoroscopy time (min)		40 37	22 8
□ Applications PVAC		29 11	24 4
□ Total applications		48 18	38 6
			<u>Decrease</u>
			-33%
			-45%
			-17%
			-21%

MULTI-ELECTRODE ABLATION CATHETERS

PVAC: PVI - Helical, 10-electrode array - mapping, pacing and ablate (4:1 bi/unipolar RF)

MASC: CFAE on the left atrial septal wall - 3-arm, 12 electrode array - mapping, pacing and ablate (1:1 uni/bipolar)

MAAC: CFAE in the left atrial body - 4-arm, 8-electrode array - mapping, pacing and ablate (1:1 uni/bipolar RF)



PVAC



MASC



MAAC

MULTI-CHANNEL RF GENERATOR

GENius Multi-channel RF Generator

- Temperature controlled 60°C, 10W
- Duty cycled bipolar/unipolar RF energy



Table 2 LONGTERM FOLLOW UP n = 27

Male/Female	23 / 4	
Age (years)	60 7 (47 – 75)	
Left atrium dimension (mm)	41 5 (31 – 54)	
Mitral insufficiency grade 1 – 2	7%	
Time to recurrence of AF after last DCCV	8 8 (0 – 20) days	
Antiarrhythmic drugs	2 1	
Amiodarone (use or used)	37%	

Table 3 RESULTS

PV stenosis	Angio and/or MRI	0/27
Early AF recurrence	REDO	8/27 (33%)
Freedom from AF	Holter at 6 months	17/21 (81%)*
	Holter at 12 months	11/13 (85%)**
	any recording 6 mo	19/27 (70%)^
	any recording 12 mo	11/16 (69%)^^

*(7/17), **(2/11), ^(5/19), ^^ (2/11) patients on class I or III AAD

Predictors of failure (12 months)

- Recurrence of AF within first 3 months

CONCLUSION

Multi-electrode catheter approach for CAF

- Feasible, time-efficient, safe

Longterm results

- Freedom of AF beyond 12 months 69%