

Risk factors for progression of paroxysmal to persistent atrial fibrillation following successful PV isolation

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Background: Progression from paroxysmal (PAF) to persistent atrial fibrillation (PerAF) following effective PV isolation (PVI) has important clinical implications, as it is relevant for subsequent management of the arrhythmia.

Objective: We evaluated risk factors responsible for progression of PAF to PerAF following successful PVI.

Methods: Consecutive AF patients that received their first catheter ablation as well as the first redo at our center were identified (n=1352). Patients were included in group 1 if the diagnosis was PAF at both first and redo procedure (PAF to PAF) and group 2 if PAF at index progressed to PerAF at redo. All patients received PVI plus isolation of LA posterior wall and SVC at the first procedure.

Results: A total of 822 patients remained as PAF at redo, whereas 530 (39%) progressed from PAF to PerAF. Clinical characteristics of the study population are presented in table 1. In multivariate analysis, BMI (OR 1.02, 1.01–1.04, p=0.04), hypertension (1.4, 1.08–1.8, p=0.01), heart failure (1.67, 1.03–2.69, p=0.03), LA size (2.75, 2.29–3.31, p<0.001) were independent predictors of progression of PAF to PerAF. Data on serum-transthyretin level was available for 37 and 48 patients in group 1 and 2 respectively. It was <18 mg/dL (normal) in 33 (68.7%) patients in group 2 vs 6 (16.2%) in group 1 (p<0.001).

Conclusion: In our patients, after successful PVI, progression of PAF to PerAF was mediated by independent risk factors such as high BMI, heart failure, hypertension, larger LA size and lower LVEF.

Table 1

	Paroxysmal to Paroxysmal (N=822)	Paroxysmal to Persistent AF (N=530)	p-value
Age	62.8±11.5	64.0±9.6	0.04
Male	470 (57.2)	320 (60.4)	0.24
BMI	29.1±7.1	30.1±6.1	0.007
Hypertension	408 (49.6)	312 (58.9)	<0.001
Diabetes	99 (12.0)	77 (14.5)	0.18
Dyslipidemia	304 (37.0)	227 (42.8)	0.03
OSA	90 (10.9)	62 (11.7)	0.67
Heart failure	38 (4.6)	49 (9.2)	<0.001
CAD	112 (13.6)	80 (15.1)	0.46
LA diameter	4.0±0.6	4.5±0.7	<0.001
LV ejection fraction	59.2±8.0	57.0±8.8	<0.001
TIA or Stroke	48 (5.8)	45 (8.5)	0.06