

index (LAVI) and an increase in the LA strain and the Global Longitudinal Strain (GLS) of the LV was found (15±4 months after PVI). Significant increase in right atrium (RA), right ventricle (RV) and LA-RA free wall strain was noticed. Moreover the RA area and RA major diameter significantly decreased.

**Conclusion:** Successful PVI in patients with paroxysmal AF and preserved/mid-range LV systolic function results in significant reverse structural remodeling not only within the LA but also in the LV, RA and RV.

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**Echocardiographic predictors of left atrial appendage thrombus in patients with atrial fibrillation prior to catheter ablation**

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**Introduction:** A complete echocardiographic examination that includes transthoracic and transesophageal echocardiography (TEE) is routinely performed for patients with atrial fibrillation (AF) for whom catheter ablation is being considered. The presence of left atrial appendage thrombus (LAAT) is not an uncommon finding in this setting. The aim of this study was to assess clinical and echocardiographic parameters associated with LAAT.

**Methods:** A observational prospective study of anticoagulated patients with AF referred to the Echocardiography Laboratory for evaluation prior to a catheter ablation procedure at a tertiary hospital was performed. Two groups were defined based on the presence or absence of LAAT as defined by TEE. Clinical and echocardiographic characteristics were described. Student's "t" Test was used for the comparison between groups, followed by a multivariate logistic multiple regression to determine echocardiographic parameters related to the presence of LAAT.

**Results:** Ninety-four patients were included, 78 were free of LAAT; 16 did have thrombus. Patients with LAAT were significantly older (67.85±11.75 vs 62.25±9.23; p=0.035) but no differences in other clinical characteristics such as hypertension or diabetes were found. Those patients with LAAT had lower left ventricular ejection fraction (LVEF) (55.10±9.89 vs 60.71±8.12; p=0.017) and larger left atrium volume (90.4 ml ±40.5 vs 65.8 ml ±30.6; p=0.009). In addition, patients with LAAT presented a decreased in both left atrial appendage wall-motion velocity (30.05 cm/s ±9.18 vs 49.70 cm/s ±19.68; p=0.002) and medial e' (5.86 cm/s ±1.81 vs 8.34s cm/s ±2.60; p=0.001).

Logistic regression analysis identified the latter two as independent predictors for LAAT. A decreased left atrial appendage wall-motion velocity (<40 cm/s) was associated with a 9,09 fold higher risk of LAAT (p=0.02) whereas a reduced medial e' velocity (<8 cm/s) increased the risk by 8.35 fold (p=0.01).

**Conclusions:** Echocardiography may help to identify patients with AF at higher risk of left atrial appendage thrombus formation. A reduced velocity in myocardial displacement and LAA wall-motion are associated with this complication.

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**Myocardial performance index by tissue doppler echocardiography predicts adverse events in patients with atrial fibrillation**

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**Background:** The prognostic potential of the myocardial performance index (MPI) measured by tissue Doppler imaging (TDI) M-mode, has previously shown to provide prognostic information in various patient populations. The prognostic value of MPI however has not yet been assessed in patients with atrial fibrillation (AF).

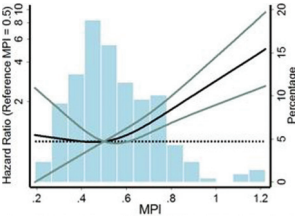
**Purpose:** To evaluate the prognostic value of MPI by TDI M-mode in AF patients.

**Methods:** In total, echocardiograms from 210 patients with AF during examination were analysed offline. Patients with known heart failure were excluded. Time intervals were measured using an M-mode line through the mitral valve leaflets to provide a color diagram of the mitral leaflet movements so all time intervals could be measured from one cardiac cycle. MPI was calculated as the sum of isovolumic relaxation time and isovolumic contraction time divided by the ejection time ((IVRT+IVCT)/ET).

**Results:** The mean age was 72±12 yrs, 65% male, 11% hypertensive, 7% had diabetes (DM), 24% had ischaemic heart disease and mean MPI was 0.5±0.3.

During a median follow-up of 2.4 years, 84 patients (40%) reached the combined endpoint of all-cause mortality, heart failure, myocardial infarction or stroke.

Increasing MPI was significantly associated with an increased risk of the combined endpoint, and the risk increased with 20% per 0.1 increase in MPI (HR 1.20, 95% CI 1.10–1.32, p<0.001) (Figure). Besides being significantly associated with the combined endpoint, increasing MPI was significantly associated with a lower ejection fraction (LVEF) (p<0.001). Nevertheless, MPI remained an independent predictor even after adjustment for age, sex, DM, left atrial volume and LVEF (HR 1.12, 95% CI 1.01–1.26, p=0.036).



Association between MPI and risk of the combined endpoint in a cubic spline model. Histogram of the distribution (blue bar chart) and restricted cubic spline analysis displaying the unadjusted hazard ratio (HR; black line) and 95% confidence interval (CI; green lines) for the composite end point. Reference value is a MPI of 0.5. Dotted line displays HR of 1. X-axis: MPI value. Y-axis to the left: Hazard ratio. Y-axis to the right: Percentage.

**Conclusion:** Increasing MPI was significantly associated with increased risk of reaching the combined endpoint and remained an independent predictor after multivariable adjustment. This demonstrates that the MPI obtained by TDI M-mode might be useful in assessing cardiac function in AF patients with ongoing arrhythmia during examination.

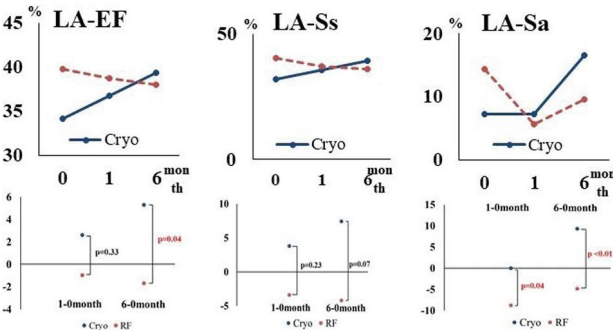
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**Echocardiographic comparison about left atrium between cryoballoon and radiofrequency ablation in patients with paroxysmal atrial fibrillation**

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**Methods:** Forty-two patients with paroxysmal AF undergoing PVI were studied. Patients undergoing cryoballoon ablation (Cryo: n=15) were compared with patients undergoing RF ablation (RF: n=27). We evaluated biomarkers and LA volume before and 1 month after, and 6-month after PVI. LA diameter and volume were measured by two-dimensional and three-dimensional speckle tracking echocardiography, including ventricular systolic LA strain (LA-Ss) and atrial systolic LA strain (LA-Sa).

**Results:** In Laboratory data, creatine kinase (CK) level after ablation was significantly higher in Cryo group compared to RF group (275.7±125.3 vs. 158.4±53.5, p<0.01). Preoperative and 6-month after ablation HANP level of Cryo group was significantly higher than RF group.



Change of echocardiographic data

Abstract P6467 – Table 1. Laboratory and echocardiographic data

	Preoperative			1 month			6 month		
	Cryo	RF	p value	Cryo	RF	p value	Cryo	RF	p value
Laboratory data, Mean ± SD									
BNP (pg/ml)	68.8±73.4	68.2±93.2	0.99	47.7±32.3	51.9±78.8	0.85	53.8±41.7	29.6±22.0	0.02
HANP (pg/ml)	47.8±38.4	28.6±18.4	0.04	37.1±19.3	35.4±32.8	0.87	60.3±55.2	32.8±29.2	0.05
Echocardiographic data, Mean ± SD									
LAV (ml)	46.1±8.1	42.7±14.3	0.41	43.7±6.4	39.9±14.8	0.36	41.8±6.4	37.6±15.8	0.34
LA-EF (%)	34.1±9.2	39.7±10.3	0.09	36.8±7.0	36.8±10.0	0.50	39.4±11.4	38.0±10.6	0.70
LA-Ss (%)	31.8±13.3	40.3±20.4	0.15	35.7±13.9	36.9±16.1	0.80	39.2±18.2	36.2±14.3	0.55
LA-Sa (%)	7.31±11.5	14.4±15.6	0.13	7.29±12.3	5.6±12.9	0.69	16.6±14.9	9.58±14.1	0.14

SD: standard deviation, BNP: brain natriuretic peptide, HANP: human atrial natriuretic peptide, LAV: LA volume, LA-EF: LA emptying fraction, LA-Ss: ventricular systolic LA strain, LA-Sa: atrial systolic LA strain. p<0.05 was considered as significant.