

Left atrial global longitudinal strain predicts atrial fibrillation recurrence in patients with paroxysmal and persistent atrial fibrillation and preserved ejection fraction treated with first catheter ablation

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BACKGROUND: Atrial fibrillation (AF) frequently recurs after radiofrequency catheter ablation (CA).^{1,4} This study investigated novel echocardiographic strain parameters as predictors of outcome in AF treated with CA.

METHODS: 110 patients (pts, mean age 59, mean CHA₂DS₂-VASc = 1.37) with paroxysmal and 92 pts (mean age 62, mean CHA₂DS₂-VASc = 1.5) with persistent AF and preserved ejection fraction (EF) underwent CA and echocardiography ≤ 30 days prior to CA. Left atrial (LA-GS) and left ventricular (LV-GS) global longitudinal strains were measured with 2D speckle tracking. Patients were followed for AF recurrence after CA.

RESULTS: During follow-up period (16±6 months for paroxysmal and 13±3 months for persistent AF), 44 (40%) and 47 (51%) pts had AF recurrence in each group. In both paroxysmal and persistent AF subgroup pts with AF recurrence had lower LA-GS (22% vs 31%; p<0.001 and 11.3% vs 17.9%; p<0.001) and lower magnitude of LV-GS (-15.6% vs -17.4%; p=0.001 and -12.3% vs -13.7%; p=0.007). ROC analysis revealed that LA-GS predicted AF recurrence better than LV-GS or LAVI (p<0.01). By multivariate analysis in paroxysmal AF subgroup, LA-GS entered either as a binary (<24.5%) (HR=8.91, 95% CI=4.35-18.27; p<0.001) or a continuous variable (HR=0.88, 95% CI=0.85-0.92; p<0.001) was the only independent predictor of AF recurrence. In the subgroup of pts with persistent AF, LA-GS (<11.98%) (HR=5.50, 95% CI=2.74-11.06; p<0.001) and LAVI (>38 mL/m²) (HR=2.28, 95% CI=1.26-4.13; p=0.006) both entered as binary variables were independent predictors of AF recurrence. When echocardiographic parameters were analyzed as continuous variables LA-GS (HR=0.82, 95% CI=0.75-0.88; p<0.001) was the only independent predictor of AF recurrence.

CONCLUSION: LA-GS using speckle tracking echocardiography is a strong and independent predictor of AF recurrence after first CA therapy in patients with paroxysmal and persistent AF and preserved EF.

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LITERATURE

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