

Significance of left atrial function in predicting early recurrence of atrial fibrillation following electrical cardioversion

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Introduction: Left atrial (LA) mechanical dysfunction due to LA fibrosis, which is common in atrial fibrillation (AF) regardless of LA enlargement, can be assessed by LA strain. Important factor in determining which patients are more likely to experience an AF recurrence following cardioversion is among others the early detection of LA dysfunction. Predicting the likelihood of an AF recurrence prior to electrical cardioversion enables more effective patient selection and avoiding unnecessary risk and treatment costs. In addition, better selection of patients with high probability to FA recurrence enables us to manage more safely further drug treatment.¹⁻³ The main objective of this study was to assess whether LA function estimated by strain echocardiography carries any additional predictive significance for the early AF recurrence after electrical cardioversion.

Patients and Methods: In total 36 symptomatic patients (EHRA symptom score ≥ 3) with permanent atrial fibrillation and preserved systolic function who underwent successful electrical cardioversion were prospectively monitored. Following previous saturation with antiarrhythmic medications, successful electrical cardioversion was performed utilizing synchronized 200J energy to max three times. Mean age of patients was 49.8 ± 5.3 years, 81% of them were male and 19% were female. Prior to cardioversion, a comprehensive echocardiography evaluation was carried out, including measuring the LA volume index and strain. As well TEE evaluation of the LAA was performed in each patient regardless of anticoagulant therapy status. The assessment of rhythm was carried out within the first month following cardioversion (33 ± 3 days). Confirmation of the recurrence of persistent AF at the ambulatory control examination was the main outcome.

Results: Regardless of the duration of AF, 12 patients (33,3%) of the total study population experienced an AF recurrence. The greatest incremental predictive value for an AF recurrence was found in patients with peak atrial longitudinal strain (PALS) $\leq 17\%$ (HR = 7.37, 95% CI: 3.12–19.25, $p < 0.001$). PALS $\leq 17\%$ continued to be an independent predictor of AF recurrence in patients with non-dilated LA (HR = 5.23, 95% CI: 2.32–15.71, $p = 0.005$).

Conclusion: This study showed that LA function assessment using PALS can serve as an additional predictive marker for early recurrence of AF after electrical cardioversion independent of left atrial volume and AF duration. A better prediction of the early AF recurrence after electrical rhythm conversion allows a better selection of patients who undergo invasive treatment and can facilitate the decision of the clinician in tailoring the treatment strategy in terms of rate or rhythm control.

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LITERATURE

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