Clinical Value of Left Atrial Volume by 3D-CT for the Prediction of the Long-Term Sinus Rhythm Maintenance after Pulmonary Vein Isolation for Persistent Atrial Fibrillation

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Introduction: Echocardiographic parameters are useful for the prediction of the long-term preservation of sinus rhythm (SR) in patients with successful cardioversion of atrial fibrillation (AF). We assessed the echocardiographic parameters and left atrial volume (LAV) by 3D-CT in 44 consecutive patients who had undergone circumferential pulmonary vein isolation for persistent AF. Methods: Transthoracic echocardiographic (TTE) data, transesophageal echocardiographic (TEE) data and LAV by 3D-CT of 44 consecutive patients (32 men, mean age: 57.6 ± 8.5 years) were analyzed. We examined left atrial appendage flow, left atrial spontaneous echocardiographic contrast, mitral valve regurgitation during TEE, and also left atrial parasternal diameter, left ventricular end-diastolic diameter, left ventricular ejection fraction in TTE. Results: At a half year follow-up, 59.1% (26/44) of the patients who had undergone pulmonary vein isolation continued to have SR. LAV was significantly smaller in patients remaining in SR for a half year than in those with AF recurrence (106.6 ± 25.5 ml vs. 148.7 ± 45.2 ml; p=0.0003, t-test). Between SR groups and AF recurrence groups, there were no significant differences in echocardiographic parameters. Conclusions: In echocardiography and 3D-CT guided management of persistent AF, LAV will be useful to predict the long-term SR maintenance after circumferential pulmonary vein isolation. Keyword: left atrial volume