RELATIONSHIP BETWEEN LEFT ATRIAL VOLTAGE AND THE LEFT ATRIAL FLOW PATTERN BY TRANSESOPHAGEAL CONTRAST ECHOCARDIOGRAPHY IN PATIENTS WITH ATRIAL FIBRILLATION

Poster Contributions
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Authors: Jung Myung Lee, In-jeong Cho, Sanghoon Shin, Chi Young Shim, Hyuk-Jae Chang, Geu-Ru Hong, Hui-Nam Pak, Jong-Won Ha, Namsik Chung, Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea

Background: We have previously shown that left atrial (LA) flow vortex using transesophageal contrast echocardiography (TEE) was feasible and showed different pattern in normals and patients with atrial fibrillation (AF). However, the relationship between LA vortex pattern with hemodynamic and electrophysiological properties are still unknown.

Methods: Thirty-nine consecutive patients with symptomatic nonvalvular AF underwent contrast-TEE before radio frequency ablation (RFCA) of AF. Contrast TEE was performed with slow infusion of Definity and LA flow was analyzed by a Omega flow software (Siemens medical solution). LA voltage map was obtained by contact bipolar electrograms during RFCA.

Results: The morphologic parameters such as vortex depth, length, width and sphericity were not associated with LA voltage. The relative strength (RS) which represents pulsatility power of LA vortex was well correlated with LA voltage. Increased RS was associated with larger LA voltage (R=0.53, p=0.001). RS showed significant negative correlation with LA volume index.

The patients with paroxysmal have higher RS (2.0 ± 0.4 vs. 1.7 ± 0.3, p=0.05), and larger LA voltage (1.9 ± 0.8 mV vs. 0.9 ± 0.5 mV, p<0.001) when compared with the patients with persistent AF.

Conclusion: Pulsatility of LA vortex measured by contrast TEE was well correlated with LA voltage by invasive electrophysiologic study. This finding can offer a potential application for the decision of treatment strategy in patients with AF.

Figure 1. Correlation between relative strength of vortex and voltage or volume index of L.A.