SS 12 CV-09 17:30 Dual-enhanced cardiac computed tomography for assessing left atrium and pulmonary veins before radiofrequency catheter ablation for atrial fibrillation Kyeho Lee, Jin Hur, Young Jin Kim, Hye-Jeong Lee, Yoo Jin Hong, Byoung Wook Choi

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PURPOSE: Noninvasive imaging that provides anatomical information, while excluding intracardiac thrombus would be of significant clinical value for patients referred for catheter ablation of atrial fibrillation (AF). This study assessed the diagnostic performance of a new dual-enhanced single-phase cardiac computed tomography (CCT) protocol for thrombus detection and pulmonary venous anatomy evaluation in AF patients before catheter ablation.

MATERIALS AND METHODS: We studied 101 consecutive symptomatic AF patients (71 men and 30 women; mean age, 61.8 years) who planned to perform catheter ablation. They had all undergone pre-AF ablation CT imaging and transesophageal echocardiography (TEE) on the same day. CT was performed with prospective ECG gating, and scanning began 180 seconds after the test bolus.

RESULTS: Among the 101 patients, 9 thrombi and 18 spontaneous echocontrast (SEC) were detected by TEE. Using TEE as the reference standard, the overall sensitivity, specificity, PPV, and NPV of CT for the detection of thrombi in the left atrial appendage (LAA) were 89%, 100%, 100% and 99%, respectively. The mean LAA/ascending aorta (AA) Hounsfield unit (HU) ratios were significantly different between thrombus and circulatory stasis (0.17 versus 0.33, p = 0.002). Of 101 patients, 26 patients presented with variations in the right pulmonary vein (RPV), 5 presented with variations in the left pulmonary vein (LPV), and 4 presented with variations in the RPV and LPV.

CONCLUSION: Dual-enhanced single-scan CCT is a noninvasive and sensitive modality for detecting and differentiating LAA thrombus and circulatory stasis. This protocol can also provide useful anatomical information such as pulmonary vein. Clinical application: This new protocol could reduce the need for multiple imaging in the preoperative assessment of patients sent for LA ablation, significantly reducing the costs of the procedure.