Trans-esophageal echocardiography (TEE) has been recognized as a standard procedure to exclude left atrial appendage thrombus (LAA-T), but it may cause discomfort in some patients. Multi-detector computed tomography (MDCT) may be performed to understand PV and LA anatomy as well as to detect LAA-T in patients with atrial fibrillation (AF).

The purpose of this study is to determine whether TEE can be skipped before pulmonary vein isolation (PVI) by using MDCT. We enrolled 100 consecutive AF patients (paroxysmal AF in 73, persistent or long lasting AF in 27) who underwent PVI. LAA-T was defined as well-contoured echogenic mass in LAA using TEE. To assess LAA by MDCT, the Hounsfield unit (HU) density was measured at LAA proximal (LAAp) and distal (LAAd). The cutoff value of LAAp/LAAd to provide 100% probability of LAA-T absence was calculated using receiver operating characteristic curves (ROC). LAA-T was detected in 7 patients (7/7 AF patients with persistent or long lasting AF). ROC-C indicates that LAAp/LAAd > 0.43 demonstrates 100% specificity. Using this cutoff value, 76% patients can be diagnosed as absence of LAA-T solely by MDCT. In conclusion, LAA-T was observed only in persistent or long lasting AF patients. LAA-T can be excluded in 76% patients without using TEE. TEE could be unnecessary for PVI in PAF patients below the cutoff value of HU density.

**Keywords:** atrial fibrillation, thrombus, MDCT