Usefulness of MDCT Guided Mitral Isthmus Ablation

Kohei Yamashiro, Yuichirou Sakamoto, Koyo Satoh, Mitsuru Takami
Cardiovascular Medicine, Toyohashi Heart Center, Toyohashi, Japan

Mitral isthmus (MI) ablation is challenging. Blood flow in the CS and circumflex artery (LCx) may act as a heat sink and reduce the efficacy of radiofrequency ablation. Ablation in the CS also has the risk of injury to the LCx. We have reported to be able to visualize the precise anatomical characteristics between CS and LCx on MI obtained by MDCT. The aim of this study was to evaluate usefulness of MDCT guided MI ablation.

Methods: Twenty patients (14 males, 61 ± 11 y) whose CS and LCx images could be obtained simultaneously by MDCT were included in this study. We performed MI ablation between LIPV and the mitral annulus. The strategy for MDCT guided MI ablation were 1. MI line was designed just below LAA, 2. In case of LCx below CS, MI line was designed proximal to the crossing point of LCX and CS, and 3. If LCX is presence on MI, MI line designed more laterally on comparatively peripheral LCX. Irrigated-tip catheters were used during MI ablation with the following settings: endocardial surface (maximum power: 40W); CS (maximum power: 20 W).

Results: The MI was blocked in 94.5% (19/20) of patients with 594 ± 293 seconds of radiofrequency application. The epicardial ablation inside the CS was required in 45% (9/20) patients. No complications occurred.

Conclusion: The MDCT guided MI ablation resulted in a high success rate of MI block without complications.

Keywords: ablation, atrial fibrillation, mitral isthmus