Zero fluoroscopy ablation for ventricular tachycardia.

Tohru Kawakami  
Naoki Saitou  
You Asukai  
Shinya Wada  
Houjou Sasaki  
Hideo Takahashi  
Kei Hatori  
Noritoshi Itou  
Hiroshi Fukanaga  
Tetuya Toubaru

Introduction: Radiofrequency catheter ablation is an effective treatment option for ventricular tachycardia (VT). There is a concern that VT ablation may cause longer fluoroscopy time. Exposure to radiation during catheter ablation procedures is a risk for both the patient and electrophysiology staff. Recently, the feasibility and effectiveness of zero fluoroscopy ablation has been shown. There are some strategy to VT ablation. We present our experience with a strategy isolating core elements of VT circuits (core isolation) with zero-fluoroscopy technique.

Methods: Zero fluoroscopy ablation was performed in 2 patients with VT using a 3-dimensional electro-anatomical mapping system, contact force monitoring, and intracardiac echocardiography imaging. In these cases, ultrasound-guided sheath insertion (9 Fr sheath and 8.5 Fr sheath) was performed from the right femoral. The strategy of VT ablation was isolating core elements of VT circuits (core isolation). An ablation catheter was advanced to the left ventricle anterograde or retrograde and a voltage-map was created under pacing rhythm or sinus rhythm. Core isolation was performed around the low voltage zone. The end point of core isolation was exit block within the isolated area. VT induction test was conducted after core isolation.

Result: Case 1 was a 62-year-old man with old myocardium infarction. He had a history of aortic valve replacement, coronary artery bypass grafting, and CRTD implantation. He was an emergency hospitalization due to VT storm. After core isolation, VT was not induced, and the treatment ended without complications. Case 2 was a 65-year-old man with old myocardium infarction. He had a history of ICD implantation. An ablation catheter was advanced anterogradely to the left ventricle and a voltage-map was created under pacing rhythm. Core isolation was performed around the low voltage zone. There were no complications related to procedures. Fluoroscopic time during the ablation procedure was 0 seconds. No serious procedure-related complications were recorded. Two cases have been followed up by remote monitoring system without VT.

Conclusion: Zero fluoroscopy VT ablation is feasibility. Endocardial VT ablation using zero fluoroscopy technique may eliminate radiation exposure. Core isolation is a strategy with a discreate and measurable endpoint.