The Effect of Bilateral Cardiac Sympathetic Denervation for Refractory Ventricular Tachycardia in Ischemic Cardiomyopathy – A case report

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Introduction: Recent studies have shown that cardiac sympathetic denervation (CSD) is effective treatment for refractory ventricular tachyarrhythmia (VT) in patients with structural heart disease. The objective of this case report is to highlight the effect of CSD in suppression of treatment-resistant VT.

Methods: Case report

Result: A 79-year-old man with ischemic cardiomyopathy presented with frequent implantable cardioverter defibrillator (ICD) shocks. Frequent ICD shocks were caused by VT. He had a history of myocardial infarction. This VT was refractory to antiarrhythmic drugs (AADs) and suppressed by sedation with propofol. An emergency VT ablation was performed. Clinical VT cycle length (CL) was 430ms. Left ventricular endocardial voltage mapping was performed during right ventricular pacing. Pace-mapping at the right coronary cusp (RCC) was similar to clinically documented VT. Then clinical VT was induced by programmed stimulation. At the RCC, entrainment mapping showed concealed entrainment and electrogram-QRS intervals (23ms) matched stimulus-QRS intervals (29ms). These findings suggested that the ventricular myocardium captured by RCC was the exit site of this reentrant circuit. RFCA was applied for RCC and left ventricle on opposite side of RCC. We finished this session without confirmation of the inducibility of VT because he developed cardiogenic shock and required IABP support. Two days after ablation, electrical VT storm recurred following cessation of sedation. In this case, VT was refractory to multimodality approach including ICD-reprogramming, AADs and catheter ablation except sedation. Therefore, cardiac sympathetic denervation (CSD) was attempted on him and bilateral CSD (TH2-5) through a video-assisted thorascopic approach was performed. After bilateral CSD, this refractory VT was completely suppressed and has been no recurrence during 1-month follow-up.

Conclusion: This case highlights the effect of bilateral cardiac sympathetic denervation for refractory ventricular tachycardia in patient with ischemic cardiomyopathy.