Electrocardiographic Characteristics of the Epicardial Ventricular Tachycardia in Dilated Cardiomyopathy

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Background: Although epicardial ventricular tachycardia (VT) ablation in patients with dilated cardiomyopathy (DCM) is increasingly performed, there may have a potential risk of complications related to epicardial access. The aim of study was to ascertain the electrocardiographic characteristics of epicardial VT related with DCM by using some previously reported electrocardiographic indexes.

Methods: Endocardial or epicardial radiofrequency catheter ablation (RFCA) were performed in 16 consecutive DCM patients (3 female; age 56±11 years). In this study, we analyzed the surface electrocardiograms of 15 clinical VTs in 12 patients who were successfully ablated from the epicardial sites. We measured the intervals of ventricular activation: (1) the pseudodelta wave, (2) the intrinsocid deflection time in V2 (IDT), (3) the shortest RS complex, and (4) the maximum deflection index (MDI), which indexes were previously reported by other papers.

Results: A pseudodelta wave of >34ms had a sensitivity of 100%, an IDT in V2 of >85ms had a sensitivity of 86%, an RS complex duration of >121ms had a sensitivity of 73%, and a MDI of >0.55 had a sensitivity of 73% in identifying an epicardial origin of the VTs.

Conclusion: Morphological ECG features that described the above-mentioned indexes can help to identify the epicardial origin of DCM-VTs. Especially, a pseudodelta wave of >34ms in precordial lead is the most useful index of epicardial VT.

Keywords: epicardial ventricular tachycardia, ablation, dilated cardiomyopathy