Can an Endocardial Arrhythmogenic Substrate Predict the Need for Epicardial Radiofrequency Ablation in Arrhythmogenic Right Ventricular Cardiomyopathy?

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Objectives: This study investigated the correlation between endocardial substrate and requirement for epicardial radiofrequency ablation (RFA) of ventricular tachycardia (VT) in arrhythmogenic right ventricular cardiomyopathy (ARVC). Methods: 25 patients (18 male; aged 43±17; range 15 to 78 years) with ARVC undergoing RFA were included. Arrhythmogenic substrate was defined as an area with an amplitude < 1.5mV, or fractionated or late potentials during sinus rhythm. Irrigated RFA targeted the substrate area in combination with activation and pace mapping. Results: 58 VTs in 25 patients were targeted. An endocardial substrate was found in 20/25 (80%) patients. Endocardial RFA was performed in 20/20 (100%) patients with and 1/5 (20%) patients without an endocardial substrate. One patient without endocardial substrate refused epicardial ablation. Endocardial RFA was successful in 12/21 (57%) patients. Epicardial mapping and RFA was performed in 9 patients with and in 4 patients without endocardial substrate. In these 13 patients, an epicardial substrate with fragmented or late potentials was identified. Epicardial RFA was successful in 7/9 (78%) patients with and in all 4/4 (100%) patients without endocardial substrate. RFA was unsuccessful in 2 patients, despite extensive endo- and epicardial RFA. Conclusions: In patients with ARVC, epicardial RFA should be considered in patients without endocardial substrate, or after failed endocardial RFA in patients with endocardial substrate.