Correlations between arrhythmogenic substrate and noninvasive risk stratification in ischemic heart disease patients modifications by radiofrequency ablation

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Abstract

Introduction

Several noninvasive risk factors for ventricular arrhythmias have been described in postmyocardial infarction (MI) patients, whose relationships with scar characteristics and modifications by ablation are unknown.

Methods

Twenty-two patients with previous MI referred for ventricular tachycardia ablation were prospectively included. ECG, heart rate variability (HRV), signal-averaged ECG (SA-ECG), and T wave alternans (TWA) were performed before and after radiofrequency ablation. Scar areas were correlated to preablation parameters. Pre and postablation parameters were furthermore compared.

Results

Left ventricular ejection fraction and some spectral and time-domain HRV parameters were significantly correlated to the scar areas.

QRS duration was larger after vs before ablation (120 ± 29 vs 105 ± 22 msec, \( P = .01 \)). No significant modification in time or spectral domain of HRV was observed. There was no significant change in TWA and SA-ECG before and after ablation. Borderline decreases in quantitative TWA parameters were noted in patients with positive TWA and successful ablation procedure.

Conclusion

Some noninvasive risk factors were linked to the scar areas, but few were significantly modified after ablation. Larger populations are needed to demonstrate significant differences or correlations.