

RISK FACTORS OF SELF-TERMINATING AND PERPETUATING VENTRICULAR TACHYARRHYTHMIAS IN POST-INFARCTION PATIENTS WITH MODERATELY DEPRESSED LEFT VENTRICULAR FUNCTION, A CARISMA SUB-ANALYSIS

ACC Poster Contributions

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Background: Perpetuating ventricular tachyarrhythmias (pVT) are more closely related to the risk for sudden arrhythmic death than self-terminating ventricular tachyarrhythmias (stVT). However, it is not known whether there are differences in risk indicators for pVT and stVT.

Methods: Patients with acute myocardial infarction and baseline left ventricular ejection fraction $\leq 40\%$ (n=292) received an implantable ECG loop-recorder and were followed-up for 24 months to document arrhythmic events in the CARISMA study. Several risk markers, such as the inducibility to monomorphic ventricular tachycardia during programmed electrical stimulation, the signal-averaged QRS duration (SAECG-QRS), heart rate variability (HRV) and turbulence (HRT), T-wave alternans, and nonsustained VT on Holter were analyzed at 6 weeks after the acute myocardial infarction.

Results: During the follow-up 26 patients (9%) experienced stVT, and 21 patients (7%) pVT. The occurrence of nonsustained VT on Holter significantly predicted stVT (HR=2.90, 1.26-6.67, 95% CI, p=0.01), but not pVT during the follow-up. The inducibility during programmed electrical stimulation (HR=5.02, 1.85-13.60, 95% CI, p=0.001), SAECG-QRS ≥ 130 ms (HR=8.73, 3.38-22.56, 95% CI, p<0.001), the short-term scaling exponent HRV parameter (DFA1) ≤ 0.77 (HR=5.65, 2.12-15.10, 95% CI, p=0.001), and HRT slope ≤ 1.75 ms/NN (HR=4.57, 1.80-11.59, 95% CI, p=0.001) were significant predictors of pVT, even after adjustments with relevant clinical parameters (p from <0.01 to <0.001), but did not significantly predict the occurrence of stVT (p from 0.35 to 0.75).

Conclusions: Our findings suggest that stVT and pVT have differences in electrophysiological substrate and modifiers of arrhythmias.