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Microvolt T-Wave Alternans Predicts Ventricular Tachyarrhythmic Events in Non-Ischemic Dilated Cardiomyopathy Patients

Thomas Klingenheben, JW Goethe Univ Hosp, Frankfurt Germany; Richard J Cohen, MIT, Cambridge, MA; Daniel M Bloomfield, Columbia Univ, New York, NY; Stefan H Hohnloser, JW Goethe Univ Hosp, Frankfurt Germany

Patients with non-ischemic dilated cardiomyopathy (DCM) have an increased incidence of sudden cardiac death (SCD). Programmed ventricular stimulation is not believed to be a useful predictor of SCD in this group. The purpose of this study was to determine whether non-invasive risk stratifiers identify DCM patients at increased risk of SCD. Methods: 126 patients with DCM were studied to detect microvolt T-wave alternans (TWA), left ventricular ejection fraction ≤0.35 (LVEF), baroreceptor sensitivity ≤3.0 msec/mmHg, 24 hour mean RR interval ≤ 700 msec, and SDNN measure of heart rate variability ≤ 70 msec. Patients (pts) were then followed for up to 18 months for the endpoint of SCD, VF, or unstable VT. Results: 126 DCM pts were followed for 11.9 ± 6.3 months. Age 55 ± 11, Male 77%, LVEF 28.8 ± 11.5, ICDs present in 32 (25%) of pts. During follow-up there were 20 endpoint events. Only TWA was a statistically significant predictor of events. TWA was positive (TWA+) in 62 (49%) pts, negative (TWA-) in 31 (25%) and indeterminate in 33 (26%). The numbers of events in these groups was 15, 2, and 3 respectively. Kaplan-Meier analysis revealed at 18 months of follow-up an event rate of 30% among TWA+ pts and 7.6% among TWA- pts, relative risk = 4.0, p = 0.05. Conclusion TWA appears to be a useful predictor of risk of SCD in DCM patients.