

**Prognostic Utility of T-Wave Alternans in a Real World Population of Patients With Left Ventricular Dysfunction: The PREVENT-SCD (Prospective Evaluation of Ventricular Tachyarrhythmic Events and Sudden Cardiac Death in Patients With Left Ventricular Dysfunction) Study**

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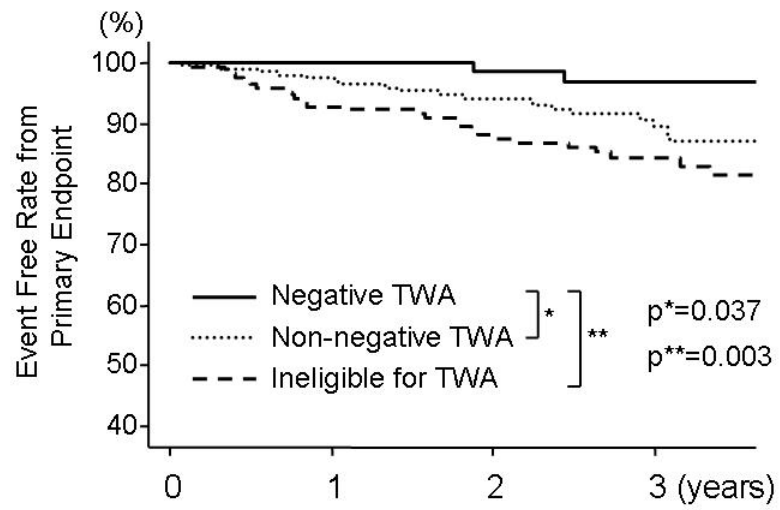
**Abstract**

**Background.** Recent studies have shown conflicting data regarding predictive value of T-wave alternans (TWA) for lethal ventricular tachyarrhythmia in patients with left ventricular (LV) dysfunction. Also, long-term arrhythmia risk of patients ineligible for the TWA test remains unclear. The purpose of this study was to evaluate the efficacy of TWA in predicting lethal ventricular tachyarrhythmia among LV dysfunction patients.

**Methods.** This study was a multicenter, prospective registry of patients with LV ejection fraction  $\leq 40\%$  due to ischemic or non-ischemic cardiomyopathies. The primary endpoint (PE) was composite of sudden cardiac death, resuscitated ventricular fibrillation (VF), or appropriate ICD therapy for VF.

**Results.** Among 453 patients enrolled in the registry, 280 (62%) were eligible for the TWA test. TWA was negative in 82 (29%) of the eligible patients, who accounted for 18% of the total population. The median of follow-up was 3.0 years. The 3-year event free rate from PE was significantly higher in TWA negative patients (97.0%) as compared with both TWA non-negative patients (89.5%,  $P=0.037$ ) and those ineligible for the TWA test (84.4%,  $P=0.003$ ). Multivariable analysis identified both non-negative TWA (HR: 4.43; 95%CI: 1.02-19.2) and ineligibility for the TWA test (HR: 6.89; 95% CI: 1.59-29.9) to be independent predictors of PE.

**Conclusions.** TWA showed high negative predictive ability for lethal ventricular tachyarrhythmia in the real world population of LV dysfunction patients, though the TWA negative patients accounted for only 18% of the entire population. Those ineligible for the TWA test had highest risk for lethal ventricular tachyarrhythmia.



—	Event free rate (%)	—	100.0	98.6	97.0
	No. of patients at risk	82	78	69	41
.....	Event free rate (%)	—	97.4	94.2	89.5
	No. of patients at risk	198	184	159	80
- - -	Event free rate (%)	—	92.8	88.3	84.4
	No. of patients at risk	173	150	120	82