



Su3036 - Prospective Negative Microvolt T-Wave Alternans Testing is a Marker for Lower Risk of Cardiovascular Death and Appropriate Shock Therapy

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Author Block: Yitschak Biton, Massachusetts General Hosp, Boston, MA; Jayson R Baman, Northwestern Univ, Chicago, IL; Moussa Mansour, E Kevin Heist, Jeremy N Ruskin, Massachusetts General Hosp, Boston, MA; Ottorino Costantini, Summa Health/NEOMED Univ, Akron, OH; Ludmila Danilowicz-Szymanowicz, Medical Univ of Gdansk, Gdansk, Poland; Jorge A Salerno-Uriarte, Univ of Insubria, Varese, Italy; Fabrizio Caravati, Ospedale di Circolo e Fond. Macchi, Varese, Italy; Robert Pedretti, Istituti Clinici Scientifici Maugeri, IRCCS, Italy; Giulio Molon, Sacro Cuore Hosp, Negrar VR, Italy; Leonardo Calo, Policlinico Casilino, Rome, Italy; Takanori Ikeda, Toho Univ Faculty of Med / Medical Ctr, Tokyo, Japan; Demet Erciyas, Istanbul Florence Nightingale Hosp, Istanbul, Turkey; Massimo Zecchin, Azienda Sanitaria Univria Integrata, Trieste, Italy; Maurizio Piancastelli, Ospedale S. Maria delle Croci, Ravenna RA, Italy; Philippe Maury, Univ Hosp Rangueil, Toulouse, France; Daniele Marangoni, Sacro Cuore Hosp, Negrar VR, Italy; Faisal Merchant, Emory Univ Sch of Med, Atlanta, GA; Antonis Armoundas, Massachusetts General Hosp, Charlestown, MA

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Introduction: Microvolt T-wave alternans (MTWA) refers to a pattern of beat-to-beat oscillations in T-wave morphology. **Hypothesis:** We hypothesized that patients with negative MTWA testing were at decreased risk for cardiovascular death and appropriate shock therapy. **Methods:** We studied 913 patients from a prospective international registry from Europe, Asia and USA (9 centers total). All recruited patients qualified for primary prevention of sudden cardiac death with ICD or CRT-D. Beta-blockers were discontinued prior to MTWA testing. We used best-subsets analysis of our study population to identify predictors of all-cause mortality. Ten clinical and demographic variables were included in the analysis. We then used these predictors to evaluate the predictive capacity of MTWA in a multivariate model. **Results:** The mean follow-up was 4.0 ± 3.0 years, mean age was 69.5 ± 12.5 years, 84% were male, and 63% had ischemic cardiomyopathy. 52% and 11% of patients received ICD and CRT-D, respectively. LVEF $<25\%$ (HR 2.17, $p<0.001$), NYHA class $>II$ (HR 1.75, $p=0.01$) and use of diuretics (HR 2.64, $p<0.001$) were significantly associated with all-cause mortality in a multivariate model. Using this multivariate model, a negative MTWA outcome was not associated with all-cause mortality (HR 0.95, $p=0.80$), however a negative MTWA outcome was associated with the risk of cardiovascular death (HR 0.40, $p=0.01$) and the combined endpoint of cardiovascular death and ICD-rendered shock therapy (HR 0.28, $p<0.001$). This was consistent in both ischemic and nonischemic

cardiomyopathy (p value for interaction=0.999). Conclusions: These findings suggest that non-negative MTWA testing is indicative of an underlying arrhythmogenic substrate, manifested as cardiovascular death and appropriate shock therapy. MTWA testing can provide further information for patient selection for ICD placement. Figure 1. Kaplan-Meier Curve demonstrating the time-dependent endpoint of cardiovascular death. The follow-up time displayed on this graph is measured in days.

