

Microvolt T-Wave Alternans Test Accurately Predicts Risk of Sudden Cardiac Arrest in patients without ICD, Meta-Analysis Finds (Heart Rhythm 2009;6:S36 –S44) © 2009 Published by Elsevier Inc. on behalf of Heart Rhythm Society.

Evidence from 13 clinical studies involving 6,000 heart patients and four additional papers published support MTWA testing

The meta-analysis, conducted by a group led by Stefan Hohnloser, MD, FHRS, of the JW Goethe University Division of Cardiology in Frankfurt, Germany, assessed 13 MTWA clinical studies involving approximately 6,000 cardiac patients.

"The results demonstrate that MTWA testing is a consistently accurate predictor of sudden cardiac death and cardiac arrest in patients who do not already have implantable cardiac defibrillators (ICDs)," said Dr. Stefan Hohnloser. "These are the patients for whom MTWA testing is intended."

The meta-analysis authors also conclude that:

- Patients who test negative for MTWA abnormalities are at extremely low risk (0.3%) for SCA in the next 12 months if ICD is not implanted.
- MTWA testing can help doctors guide ICD therapy to appropriate patients and overcome the widespread reluctance of patients and referring physicians to accept ICD therapy.
- In clinical trials, appropriate ICD shocks are an unreliable surrogate endpoint for SCA and can skew results of risk stratification studies.

The Heart Rhythm supplement also includes:

- A second meta-analysis of MTWA testing in patients with non-ischemic heart disease, authored by Gaetano De Ferrari, MD and Antonio Sanzo, MD of the Department of Cardiology at Fondazione IRCCS Policlinico San Matteo, Pavia Italy. Analyzing eight available trials involving 1,450 patients, the paper indicates that in this population negative MTWA results can help patients and their physicians decide whether ICD therapy may safely be avoided.
- An article by Michael J. Mirro, MD, Medical Director of the Parkview Health System Clinical Research Center in Fort Wayne Indiana, who describes how his center has incorporated MTWA testing into clinical practice to complement other methods for identifying and educating patients about the risk of SCA.
- A review of numerous studies concerning the underlying cellular mechanisms of T-wave alternans. The authors conclude that microvolt T-wave alternans is a marker of cellular changes that make the heart susceptible to sudden cardiac arrest. The review was carried out by Michael Cutler, DO, PhD, and David S. Rosenbaum, MD, of the Heart and Vascular Research Center at the Department of Biomedical Engineering at Case Western Reserve University in Cleveland.
- A review by Navinder Sawhney, MD and Sanjiv Narayan, MD of the University of California at San Diego that underscores the value of MTWA testing in patients who have had heart attacks but do not fall within current guidelines for ICD implantation.