Sudden Cardiac Arrest

Know the Risk

Microvolt T- Wave Alternans™ (MTWA) enhances stress testing by incorporating a non-invasive, clinically-proven, reimbursable test that can help identify patients at risk for Sudden Cardiac Arrest.

CARDIAC science™

MTWA for Q-Stress

The Industry's Gold Standard for Stress…

The Quinton® Q-Stress® cardiac stress system, winner of multiple awards (most recently Frost & Sullivan's Market Engineering Award), is now in its ninth generation.

… now with the Industry's only Reimbursable MTWA Option.

Powered by Cambridge Heart®, Inc., the Q-Stress uses the Analytic Spectral Method® to measure MTWA, the only reimbursable MTWA option on the market.

Who is at risk for Sudden Cardiac Arrest?

- **Previous heart attack victims**
  50-75% of people who die from Sudden Cardiac Arrest (SCA) have suffered a previous myocardial infarction.
- **Coronary artery disease**
  80% of SCA victims have signs and/or symptoms of coronary artery disease (CAD).
- **Heart failure**
  In people diagnosed with heart failure, sudden cardiac arrest occurs at 6-9 times the rate of the general population.
- **LV dysfunction**
  Reduced left ventricular ejection fraction (LVEF) is one of the most significant risk factors for overall mortality and sudden cardiac arrest.
- **Unexplained syncope**
  Although syncope is usually benign, it may be a symptom of serious cardiac disease and can predispose individuals to sudden death.

Risk assessment with MTWA

- **Enhances Traditional Stress Testing**
  Microvolt T-Wave Alternans (MTWA) enhances stress testing by providing a more comprehensive picture of a patient's cardiac condition.
- **Adds Measure of Arrhythmic Risk**
  By combining MTWA with stress testing, the physician is able to assess both the ischemic and arrhythmic risk of the patient.
- **Helps Guide Management Strategies**
  MTWA is a tool to help guide SCA risk management strategies which may include treatment of underlying ischemia, medical optimization, tighter glucose control, lifestyle changes – or, when appropriate, EP referral and possible ICD implantation.
- **Provides Reassurance for Low-Risk Patients**
  A negative MTWA result confers a very low risk of SCA and can provide the physician and patient with a source of reassurance. For patients with a negative result, the MTWA test may be repeated annually to assess any underlying change in cardiac status.

Clinical Guidelines

ACC/AHA/ESC Class IIa

"It is reasonable to use T-wave alternans for improving the diagnosis and risk stratification of patients with ventricular arrhythmias or who are at risk for developing life-threatening ventricular arrhythmias. (Level of Evidence: A)"

Zipes DP et al. ACC/AHA/ESC 2006 Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death. Circulation 2006; 114(10): e385-484

National Medicare Coverage

CMS Statement

"Microvolt T-wave Alternans (MTWA) diagnostic testing is covered for the evaluation of patients at risk of sudden cardiac death, only when the spectral analytic method is used."

CMS Decision Memo for Microvolt T-wave Alternans (CAG-00293N)

Clinical Data

- **Heart Attack Survivors**
  Several studies have shown MTWA to be a significant predictor of arrhythmic mortality in patients with a history of MI, independent of EF.[1-3] In the largest study of MTWA to date (n=1041), a positive MTWA result was associated with a 20-fold increase in SCA risk for post-MI patients with EF>40%.[3]
- **Heart Failure Patients**
  Among 446 NYHA class II/III heart failure patients with nonischemic cardiomyopathy, an abnormal MTWA test was associated with a 4-fold higher risk of cardiac death and life-threatening arrhythmias.[4]
- **Meta-Analysis**
  In a recent meta-analysis of over 3,500 patients, those with an abnormal MTWA result were 14 times more likely to experience SCA, while the annual event rate for those with a normal result was extremely low (0.3%).[5]

Stress Plus® Testing Scenarios

Stress Testing	CPT 93015 Cardiovascular stress test	vs.	CPT 93015 Cardiovascular stress test CPT 93025 Microvolt T-wave Alternans
Stress Echo	CPT 93351 Echocardiography during rest and cardiovascular stress	vs.	CPT 93351 Echocardiography during rest and cardiovascular stress CPT 93025 Microvolt T-wave Alternans
Nuclear Stress	CPT 78452 Myocardial perfusion imaging CPT 93015 Cardiovascular stress test	vs.	CPT 78452 Myocardial perfusion imaging CPT 93015 Cardiovascular stress test CPT 93025 Microvolt T-wave Alternans
	☒ Assess Ischemic Risk ☐ Assess Arrhythmic Risk		☒ Assess Ischemic Risk ☒ Assess Arrhythmic Risk

1. Exner DV et al. Noninvasive risk assessment early after a myocardial infarction - The REFINE Study. JACC 2007; 50(24): 2275-84.
2. Chow T et al. Prognostic utility of microvolt T-wave alternans in risk stratification of patients with ischemic cardiomyopathy. JACC 2006; 47(9): 1820-7.
3. Ikeda T et al. Predictive value of microvolt T-wave alternans for sudden cardiac death in patients with preserved cardiac function after acute myocardial infarction. JACC 2006; 48(11): 2268-74.
4. Salerno-Uriarte JA et al. Prognostic value of T-Wave alternans in patients with heart failure due to nonischemic cardiomyopathy. JACC 2007;50(19):1896-904.
5. Hohnloser SH et al. Evidence regarding clinical use of microvolt T-wave alternans. Heart Rhythm 2009;6:S36 –S44.