



Effective Health Care

Microvolt T-Wave Alternans Test to Detect Risk of Sudden Cardiac Death

Nomination Summary Document

Results of Topic Selection Process & Next Steps

- Microvolt T-Wave Alternans (MTWA) to detect risk of sudden cardiac death was found to be addressed by a 2011 meta-analysis titled *Predictive value of Microvolt T-Wave Alternans for cardiac death or ventricular tachyarrhythmic events in ischemic and nonischemic cardiomyopathy patients: a meta-analysis*. Given that the existing report covers this nomination, no further activity will be undertaken on this topic.
 - Calo L, De Santo T, Nuccio F, Sciarra L, De Luca L, Stefano LMDS, Piroli E, Zuccaro L, Rebecchi M, de Ruvo E, Liyo E. Predictive value of microvolt t-wave alternans for cardiac death or ventricular tachyarrhythmic events in ischemic and nonischemic cardiomyopathy patients: a meta-analysis. *Annals of Noninvasive Electrocardiology* 2011; 16(4): 388-402. PMID: 22008495.
- MTWA for universal screening for risk of sudden cardiac arrest is not feasible for a full systematic review due to the limited data available for a review at this time.

Topic Description

Nominator: Individual

Nomination Summary: The nominator is interested in establishing Microvolt T-Wave Alternans (MTWA) for use as a universal screening method to detect risk for sudden cardiac death. Comparisons of MTWA screening with other existing methods (e.g., stress tests and nuclear tests) for detection of heartbeat irregularities could confirm the effectiveness of MTWA testing. The nominator indicates that MTWA testing could be used to establish risk for sudden cardiac death across the US adult population and states that existing evidence proves that MTWA testing accurately predicts risk for sudden cardiac arrest among individuals with symptoms of heart disease and that the test is the only available noninvasive method of gauging risk for sudden cardiac arrest.

Staff-Generated PICO

Population(s): All adults; adults with existing heart disease (e.g., coronary artery disease; acute ischemia; or cardiomyopathies)

Intervention(s): Microvolt T-Wave Alternans (MTWA) test

Comparator(s): Stress test, nuclear test, other diagnostic techniques

Outcome(s): Symptomatic arrhythmias, prediction of cardiac arrest, mortality from sudden cardiac arrest

Key Questions
from Nominator: None

Considerations

- The topic meets EHC Program appropriateness and importance criteria. (For more information, see <http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/>.)
- This topic has two main areas:
 1. MTWA to detect risk of sudden cardiac arrest.
 2. MTWA for universal screening for risk of sudden cardiac arrest
- The topic of MTWA to detect risk of sudden cardiac arrest was found to be addressed by a 2011 meta-analysis titled *Predictive value of microvolt t-wave alternans for cardiac death or ventricular tachyarrhythmic events in ischemic and nonischemic cardiomyopathy patients: a meta-analysis*. The objective of this article was to review and analyze existing data on MTWA as a means of risk-stratification for cardiac death in primary prevention patients with ischemic and nonischemic cardiomyopathy.
 - In addition, two in-process clinical trials are examining the comparative effectiveness of MTWA to other tests, including NCT00187291 *Study to Compare TWA Test and EPS Test for Predicting Patients at Risk for Life-Threatening Heart Rhythms (ABCD Study)* and NCT00399503 *Assessment of Noninvasive Methods to Identify Patients at Risk of Serious Arrhythmias After a Heart Attack*.
- No existing reviews, guidelines, or studies explore the use of MTWA testing or any other screening tool for universal screening of adults for sudden cardiac arrest risk. Therefore, this aspect of the topic is not feasible for a full systematic review due to the limited data available for a review at this time.