The tilt-table test is used to diagnose neurocardiogenic syncope. The device required for a tilt-table test is a motorized table designed specifically for use in a cardiac catheterization/electrophysiology laboratory. This table differs from tilt tables used in radiology and physical therapy departments. The tilt table for syncope testing must change the patient’s position from 0–60° in less than 10 seconds, must be able to restore the patient equally quickly to a supine position, and must have proper restraints. The patient is held at a 60° angle for an extended period of time, during which heart rate and blood pressure are monitored and syncope observed, should it occur. Syncope is defined as a sudden, transient loss of consciousness, accompanied by loss of postural tone.

The tilt-table test has also been used to classify a patient’s syncope into different categories, which may aid in determining whether a patient is a candidate for insertion of a pacemaker to treat syncope. Based on the heart rate and blood pressure changes observed during the tilt, syncope can be classified as type 1 mixed, type 2A cardioinhibitory, type 2B cardioinhibitory, or type 3 pure vasodepressor.

Policy

Tilt-table testing for the diagnosis of syncope is investigational.

Tilt-table testing may be considered medically necessary for the classification of neurogenic syncope in patients who are being considered for pacemaker treatment.

Rationale
The policy regarding use of the tilt-table test for the diagnosis of syncope was based on a 1997 TEC Assessment. (1) This TEC Assessment was based on a prior 1995 TEC Assessment (2) and a review of the literature published between January 1991 through January 1997. The 1997 TEC Assessment concluded that for the diagnosis of syncope, the evaluation of tilt-table testing is limited due to the lack of standardized protocols for the test, poor sensitivity for the diagnosis of neurocardiogenic syncope, and lack of evidence that tilt-table testing improves health outcomes or reduces utilization of other medical resources needed to diagnose or manage syncope. Although tilt-table testing allows confirmation of a diagnosis of neurocardiogenic syncope in many cases, it is not specific enough to rule out life-threatening cardiac causes of syncope, and not sensitive enough to detect most cases of neurocardiogenic syncope.

The American College of Cardiology published a consensus statement on tilt-table testing that concluded that such testing had a valuable role in the clinical evaluation of patients with syncope of uncertain origin. (3) In addition, the European Society of Cardiology Task Force on Syncope guidelines state that tilt-table testing is indicated for diagnostic purposes with certain specific indications. (4) A guideline on the diagnosis of syncope of the American College of Physicians' Clinical Efficacy Assessment Project also recommends tilt-table testing. (5) However, none of the guidelines states that tilt-table testing can obviate a thorough cardiac workup if a cardiac cause of syncope is possible. Nor do they identify any specific clinical decision that is altered by the use of the tilt-table test. The guidelines do not address any differences in treatment approach between patients diagnosed with neurocardiogenic syncope based on clinical symptoms alone, based on tilt-table testing, or arrived at by exclusion of other possible causes.

The literature was again evaluated in July 2002 for studies published since the 1997 TEC Assessment. For the diagnosis of neurocardiogenic syncope, no studies were found that would change the conclusions of the previous Assessment. The European Society of Cardiology guidelines (4) find other indications for which tilt-table testing is not indicated—to assess response to treatment, after a single episode of syncope without injury, and when the clinical features have clear-cut vasovagal features. They state that tilt-table testing is less well established or there is divergent opinion when it is proposed to differentiate syncope from epilepsy, to evaluate patients with unexplained falls, or to evaluate pre-syncope or dizziness.

However, since the 1997 TEC Assessment, 2 randomized clinical trials evaluating dual-chamber pacemakers as a treatment for neurocardiogenic syncope in patients with refractory syncope have been published. (6,7) The entry criteria for these clinical trials required that the patient have a cardioinhibitory or bradycardiac response as assessed by tilt-table testing. (8) This criterion exists because the scientific rationale for this treatment is that the pacemaker corrects the slow heart rhythm that is presumably the cause of the syncope in this subset of patients.

In the North American Vasovagal Pacemaker Study, 54 patients were evenly randomized to receive a pacemaker or no pacemaker. (6) The trial was terminated early because of a strong effect observed in favor of pacing. Recurrent syncope occurred in 19/27 (70%) of no-pacemaker patients and in 6/27 (22%) of pacemaker patients. The relative risk reduction, as calculated through survival analysis, was 85.4%.

In another study of pacemakers by Sutton and co-workers, 42 patients were randomized to receive pacemaker or no pacemaker. (7) One of 19 (5%) of patients in the pacemaker group experienced recurrent syncope, compared with 14/23 (61%) of patients in the no-pacemaker group.
Several concerns have been expressed about the results of these clinical trials of pacemaker therapy, such as the lack of a sham control, a no-treatment control group (as opposed to an active no-pacemaker control group), the small sample sizes, and the highly select nature of the populations studied. With respect to tilt-table testing, concern has been expressed as to whether the cardioinhibitory response elicited on a tilt-table test corresponds to the cardioinhibitory response of the syncopal episode.

Evidence is lacking as to whether cardiac pacing is effective among patients with other types of tilt-table test responses or among patients with negative tilt-table tests. Thus, it is unknown whether the tilt-table test is actually a necessary component of the selection criteria for a pacemaker. However, given the invasiveness and complexity of pacemaker treatment for syncope, it would be reasonable to incorporate the screening criteria used in the clinical trials reviewed above. Thus, for patients whose frequency, severity, and refractoriness to treatment merit consideration for pacemaker therapy, tilt-table testing to evaluate cardioinhibitory response may be considered medically necessary.

2004-5 Update

Reviews of the peer-reviewed literature on MEDLINE revealed no new clinical trials that would alter the conclusions reached above. (9, 10) Therefore, the policy statement is unchanged.

2006 Update

A literature review update for the period of April 2005 through July 2006 did not identify any controlled trials that would alter the conclusions above. Therefore, the policy statement is unchanged. The guidelines from the American College of Cardiology and the American College of Physicians noted above are unchanged. The European Society of Cardiology Task Force on Syncope guidelines were updated in 2004 but continue to state that tilt-table testing is indicated for diagnostic purposes with certain specific indications. (11)

References:

1. 1997 TEC Assessments; Tab 7
2. 1995 TEC Assessments; Tab 15


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