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Tilt Table Testing

Policy Number:

MM.02.024

Line(s) of Business:

HMO; PPO; QUEST Integration

Section:

Medicine

Place(s) of Service:

Office, Outpatient

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I. Description

The tilt table test can be used to diagnose neurocardiogenic or neurally mediated syncope caused by a sudden, temporary failure of the autonomic nervous system to maintain blood pressure and heart rate.

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 to 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 if syncope occurs. Syncope is defined as a sudden, transient loss of consciousness, accompanied by loss of postural tone.

Background

Syncope is a common clinical problem and accounts for 3.5% of all emergency room visits and 1 to 6% of all hospital admissions in the United States each year. Neurocardiogenic syncope is the most common type of syncope. Also referred to as neurally mediated, vasodepressor and vasovagal syncope, neurocardiogenic syncope is characterized by a sudden failure of the autonomic nervous system to maintain blood pressure, and sometimes heart rate, at a level that adequately maintains cerebral perfusion and consciousness. Structural heart disease and ischemia are also frequent causes of syncope. Additional, less frequent causes of syncope include long QT syndrome, Wolff-Parkinson-White syndrome, and conversion reactions.

The cause of syncope may be accurately determined by a detailed history and physical exam, although the cause remains unexplained in 40% of episodes. In some patients, the hemodynamic response to standing may be sufficient to identify postural orthostatic tachycardia syndrome or orthostatic hypotension, which may be treated without further testing. An electrocardiogram (ECG) provides important information about the heart rhythm and atrioventricular (AV) conduction. An echocardiogram may be helpful if a diagnosis is not provided by history, physical examination and ECG, or if underlying heart disease is suspected. Exercise-tolerance testing, Holter monitoring,

electrophysiological testing and loop-event monitoring may be used. A diagnosis of neurocardiogenic syncope is considered when there is no structural heart disease and the ECG is normal. Although syncope is not associated with excess mortality in the absence of underlying heart disease, physical harm may occur with recurrent syncope. Determining the origin of syncope can be challenging, however. Tilt table testing may be considered for a select subset of individuals when the diagnosis remains uncertain.

Tilt table testing is performed by using a tilting table with a footboard. The patient rests in the supine position for 20-45 minutes before beginning the test. At least three ECG leads record simultaneously during the study, and continuous blood pressure readings are recorded. The table rapidly moves to an upright position (60-90°). A tilt test response is considered positive for vasovagal syncope if sudden drops in heart rate, blood pressure or both are induced during the test in association with syncope or near syncope. Intravenous medications that can cause venous pooling or increase adrenergic stimulation, such as isoproterenol, may be used to induce a positive test result if syncope is not produced by tilt table testing alone.

II. Criteria/Guidelines

Tilt table testing is covered (subject to Limitations and Administrative Guidelines) when the patient has a negative cardiac workup, i.e., electrocardiogram and echocardiogram with or without stress test that shows no structural heart disease, and one of the following criteria are met:

- A. The patient has recurrent unexplained syncope;
- B. The patient has a single unexplained syncopal event and works in a high-risk setting (e.g., commercial driver, pilot); or
- C. For the evaluation of postural orthostatic tachycardia syndrome (POTS) if initial evaluation (e.g., a detailed history, complete physical examination including orthostatic vital signs, and 12-lead ECG) failed to establish the cause of symptoms.

III. Limitations

Tilt table testing is not covered for any other indication including, but not limited to, the following because its use is not known to be effective in improving health outcomes:

- A. Single syncopal episode, when clinical features support a diagnosis of vasovagal syncope;
- B. Syncope in which a specific alternate cause has been established and in which the potential demonstration of neurally mediated syncope would not alter treatment plan;
- C. Differentiation of convulsive syncope from epilepsy in an individual with recurrent loss of consciousness with associated tonic-clonic activity;
- D. Evaluation of an individual with unexplained recurrent falls;
- E. Recurrent near syncope or dizziness presumed to be neurally mediated in origin;
- F. Evaluation of unexplained syncope when neuropathies or dysautonomias may contribute to symptomatic hypotension;
- G. Follow-up evaluation of therapy to prevent syncope recurrences;
- H. Chronic fatigue syndrome;
- I. Recurrent vertigo; or
- J. Recurrent transient ischemic attacks.

IV. Administrative Guidelines

- A. Precertification is not required. Documentation supporting medical necessity should be legible and maintained in the patient's medical record and made available to HMSA upon request. HMSA reserves the right to perform retrospective reviews using the above criteria to validate if services rendered met payment determination criteria.
- B. Applicable code:

CPT Code	Description
93660	Evaluation of cardiovascular function with tilt table evaluation, with continuous ECG monitoring and intermittent blood pressure monitoring, with or without pharmacological intervention

V. Scientific Background

Tilt table testing has not been evaluated in randomized controlled trials, and the clinical utility of the procedure has not been definitely established. The pretest probability of neurocardiogenic syncope is high in a patient without evidence of ischemia or structural heart disease, and even if the test is negative, neurocardiogenic syncope remains the most likely diagnosis. The results of testing therefore contribute little to establishing a diagnosis. Despite the lack of strong evidence, tilt table testing has become an established procedure in the clinical evaluation of patients with syncope when the cause cannot be established based on a detailed history and physical examination and routine diagnostic testing. The procedure is also widely used when the cause of syncope has been established but the results of tilt table testing will contribute to evaluation of near syncope, frequent falls, evaluation of therapy to prevent syncope recurrence, and evaluation of syncope related to neuropathies or dysautonomias. Other emerging conditions for which tilt table testing has been proposed include evaluation of chronic fatigue syndrome to determine if neurally mediated hypotension and bradycardia are contributing factors, and evaluation of recurrent vertigo and recurrent transient ischemic attacks. The use of tilt table testing for these indications has not gained widespread acceptance, and the diagnostic utility of tilt table testing to evaluate these conditions has not been established in the published medical literature.

Professional Societies/Organizations

European Society of Cardiology (ESC) Task Force for the Diagnosis and Management of Syncope

ESC guidelines for the management of syncope, updated in 2009, include recommendations for tilt table testing. The guideline states that in most studies, the main indication for tilt testing has been to confirm a diagnosis of reflex syncope in patients in whom this diagnosis is suspected but not confirmed by initial evaluation. Tilt testing is usually not needed in patients whose reflex syncope is already diagnosed by clinical history, and in patients with single or rare syncope, unless special circumstances exist (e.g., injury, anxiety, occupational implications).

Indications and levels of evidence are classified in the ESC guidelines as follows:

- Class I: Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.
- Class II: Conflicting evidence and/or divergence of opinion about the usefulness/efficacy of the given treatment or procedure.

- IIa: Weight of evidence/opinion is in favor of usefulness/efficacy.
- IIb: Usefulness/efficacy is less well established by evidence/opinion.
- Class III: Evidence or general agreement that the given treatment or procedure is not useful/effective and in some cases may be harmful.
- Level of evidence A: Data derived from multiple randomized clinical trials or meta-analyses.
- Level of evidence B: Data derived from a single randomized clinical trial or large non-randomized studies.
- Level of evidence C: Consensus of opinion of the experts and/or small studies, retrospective studies, registries.

The ESC guidelines include the following recommendations:

Class I, level of evidence B: Tilt testing is indicated in the case of an unexplained single syncopal episode in high risk-settings (e.g., occurrence of or potential risk of physical injury or with occupational implications), or recurrent episodes in the absence of organic heart disease, or in the presence of organic heart disease, after cardiac causes of syncope have been excluded.

Class I, level of evidence C: Tilt testing is indicated when it is of clinical value to demonstrate susceptibility to reflex syncope to the patient.

Class IIa, level of evidence C: Tilt testing should be considered to discriminate between reflex and orthostatic hypotension.

Class IIb, level of evidence C

- Tilt testing may be considered for differentiating syncope with jerking movements from epilepsy.
- Tilt testing may be indicated for evaluating patients with recurrent unexplained falls.
- Tilt testing may be indicated for evaluating patients with frequent syncope and psychiatric disease.

Class III, level of evidence B: Tilt testing is not recommended for assessment of treatment.

Class III, level of evidence B: Isoproterenol tilt testing is contraindicated in patients with ischemic heart disease.

American Heart Association (AHA)/American College of Cardiology Foundation (ACCF) Scientific Statement

An AHA/ACCF Scientific Statement on the Evaluation of Syncope states that tilt table testing is used as an aid in establishing the diagnosis of neurocardiogenic syncope, but serious questions about the sensitivity, specificity, diagnostic yield and day to day reproducibility of the test exists. The reported sensitivity and specificity of tilt table testing depend on the technique used. The sensitivity ranges from 26% to 80%, and the specificity is approximately 90%. In patients with a negative evaluation (i.e., no evidence of ischemia or cardiac structural abnormalities), the pretest probability that the diagnosis is neurocardiogenic syncope is high. Tilt table testing therefore contributes little to establishing the diagnosis. In a patient with normal evaluation and a negative tilt table test, neurocardiogenic syncope remains the most likely diagnosis. The scientific statement also states that it may be more important to rule out other causes of syncope than it is to perform

a tilt table test, since the risk of recurrent syncope in a patient with a normal cardiac evaluation and syncope is similar regardless of whether the tilt table test is positive or negative.

American College of Cardiology (ACC) Expert Consensus Document

The ACC Expert Consensus Document, Tilt Table Testing for Assessing Syncope, states that there is general agreement that tilt table testing is warranted for the following indications:

- Recurrent syncope or single syncope episode of unknown cause that resulted in injury or occurred in a high-risk setting (e.g., commercial vehicle driver, machine operator, pilot, commercial painter, surgeon, window-washer, competitive athlete), when a thorough history and physical, 12-lead electrocardiogram, echocardiogram and formal exercise tolerance testing demonstrate no evidence of structural cardiovascular disease
- Recurrent syncope or single syncopal episode of unknown cause that resulted in injury or occurred in a high-risk setting in patient with known structural cardiovascular disease, when vasovagal episode is suspected and other causes of syncope have been excluded by appropriate testing
- When apparent cause of syncope, such as asystole or high-degree atrioventricular (AV) block, has been established, but results of the tilt table test may impact the treatment plan
- Recurrent exercise-induced syncope, when a thorough history and physical, 12-lead electrocardiogram, echocardiogram and formal exercise tolerance testing demonstrate no evidence of organic heart disease

The ACC document classifies the following as indications for which reasonable differences of opinion exist regarding the utility of tilt table testing:

- Differentiating convulsive syncope from seizures
- Assessing recurrent dizziness or presyncope
- Evaluating unexplained syncope in the setting of peripheral neuropathies or dysautonomias
- Follow-up evaluation to assess therapy of neurally mediated syncope

The following indications are listed in the ACC expert consensus document as conditions for which tilt table testing is not warranted:

- Patients who have experienced a single syncopal episode, without injury and not in a high-risk setting, in which clinical features clearly support diagnosis of vasovagal syncope
- Syncope in which a specific alternate cause has been established and in which the potential demonstration of neurally mediated syncope would not alter the treatment plan.

Summary

Although tilt table testing has not been evaluated in randomized controlled trials, it has become an established diagnostic tool in the evaluation of patients with syncope when the cause has not been established by appropriate testing as indicated, including a thorough history and physical examination, twelve-lead electrocardiogram, echocardiogram, and formal exercise tolerance testing. When positive for neurocardiogenic syncope, a tilt table test may guide treatment with appropriate medication and, when negative, evaluation of other possible causes may be explored when indicated.

Tilt table testing may also be used in cases where an apparent cause of syncope such as asystole or high-degree atrioventricular (AV) block is established but the results may alter the treatment plan, as well as in cases of recurrent exercise-induced syncope. Tilt table testing has been proposed for numerous other indications. Use of tilt table testing for the evaluation of these indications has not been established in the published medical literature.

VI. Important Reminder

The purpose of this Medical Policy is to provide a guide to coverage. This Medical Policy is not intended to dictate to providers how to practice medicine. Nothing in this Medical Policy is intended to discourage or prohibit providing other medical advice or treatment deemed appropriate by the treating physician.

Benefit determinations are subject to applicable member contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

This Medical Policy has been developed through consideration of the medical necessity criteria under Hawaii's Patients' Bill of Rights and Responsibilities Act (Hawaii Revised Statutes §432E-1.4), generally accepted standards of medical practice and review of medical literature and government approval status. HMSA has determined that services not covered under this Medical Policy will not be medically necessary under Hawaii law in most cases. If a treating physician disagrees with HMSA's determination as to medical necessity in a given case, the physician may request that HMSA reconsider the application of the medical necessity criteria to the case at issue in light of any supporting documentation.

VII. References

1. 2017 ACC/AHA/HRS Guideline for the Evaluation and Management of Patients with Syncope. A Report of the MCC/AHA Task Force on Clinical Practice Guidelines, and Heart Rhythm Society. Shen WK, Sheldon RS, Benditt DG, et. al., 2017.
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 12. Excellus. Tilt Table Testing. Medical Policy Number 2.01.01. July 18, 2017.
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