Tilt Table Testing

ACG: A-0124 (AC)
Link to Codes

MCG Health
Ambulatory Care
27th Edition

Clinical Indications for Procedure

- Tilt table testing may be indicated when **ALL** of the following are present(1)(2)(3)(4):
  - Syncope, historical or recurrent,[A] as indicated by **1 or more** of the following(13):N
    - Carotid sinus hypersensitivity, suspected(23)
    - Convulsive syncope, and need to distinguish from epilepsy
    - Delayed orthostatic hypotension, suspected[B](24)
    - Need for evaluation before patient returns to high-risk work (eg, commercial driving, roofing) or leisure activity
    - Neurally mediated syncope, suspected (including vasovagal, carotid sinus, or situational syncope)(5)(25)(26)
    - Postural orthostatic tachycardia syndrome, suspected[C](5)(26)(27)(30)
    - Psychogenic pseudosyncope, suspected[D]
  - Cardiac causes of syncope have been excluded by cardiac tests.
  - Comorbid conditions that may contribute to syncope have been diagnosed and treated (eg, gastrointestinal bleeding, anemia).(31)
  - Medications that may contribute to syncope have been adjusted or discontinued (eg, diuretics, antiarrhythmics, antidepressants, antihistamines).(31)(32)

Alternatives to Procedure

- Alternatives include(1)(6)(33)(34):
  - Ambulatory blood pressure monitoring.(35) See Ambulatory Blood Pressure Monitoring, 24-Hour AC for further information.
  - Holter monitor. See Holter Monitor (24-Hour to 48-Hour Continuous Monitoring) AC for further information.
  - Implantable loop recorder.(36) See Loop Recorder (Cardiac Event Monitor), Implantable AC for further information.
  - Non-implantable loop recorder. See Loop Recorder (Cardiac Event Monitor), Non-Implantable AC for further information.
  - Patch-type cardiac monitor. See Patch-Type Cardiac Monitor AC for further information.

Evidence Summary

Background

The tilt table test is used to identify patients with neurally mediated syncope by producing a vasodepressor and/or cardioinhibitory response. Patients are positioned on a table in the supine position and then tilted upright to 60 to 80 degrees for a period of 20 to 45 minutes, or longer if necessary. A positive response is defined as inducible presyncope or syncope associated with hypotension. Isoproterenol or nitroglycerin, as a bolus or infusion, may be used to provoke syncope in patients whose initial tilt table test result was nondiagnostic or to shorten the overall time of the test; however, the specificity of tilt table testing decreases significantly when provocative agents are used.(1)(5)(6)(7) **(EG 2)** Contraindications include critical valvular stenosis and left ventricular outflow tract obstruction, and severe proximal cerebral or coronary artery disease.(8)(9)(10) **(EG 2)** In patients with ischemic heart disease, the use of isoproterenol is contraindicated.(5)(11) **(EG 2)**

Criteria

For syncope, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Tilt table testing can be useful in cases of orthostatic hypotension, postural

orthostatic tachycardia syndrome, supine hypertension, carotid sinus syncope, psychogenic syncope, and exclusion of epilepsy.(5)(9)(10)(14)(15) **(EG 2)** A systematic review and meta-analysis of 55 studies (encompassing 4361 patients and 1791 controls) concluded that head-up tilt table testing demonstrated a high overall performance for diagnosing vasovagal syncope. Overall, head-up tilt table testing was found to have sensitivity of 59% and specificity of 91%.(16) **(EG 1)** In a prospective observational study of 290 consecutive elderly patients referred for tilt table and carotid sinus massage testing due to a history of syncope or unexplained falls, researchers found that testing was significantly more likely to be positive in patients older than 80 years, with carotid sinus syndrome being the most common explanatory diagnosis.(17) **(EG 2)** A retrospective chart review of 107 patients with refractory epilepsy found that head-up tilt table testing was able to identify a misdiagnosis of epilepsy in 33% of patients, and 21% of patients had a dual diagnosis of neurocardiogenic syncope and epilepsy.(18) **(EG 2)** A specialty society guideline notes that while tilt table testing has acceptable sensitivity and specificity in patients with true vasovagal syncope or without a history of syncope, tilt table testing often does not prove to be decisive when evaluating syncope of uncertain cause.(5) **(EG 2)** In patients with a negative cardiac evaluation (ie, with a structurally normal heart and no evidence of ischemia), performance of tilt table testing may contribute little to the establishment of a definitive diagnosis given the high pretest probability of neurocardiogenic syncope; even a negative tilt table test will not invalidate neurocardiogenic syncope as the most likely explanation for the patient's symptoms.(1)(5) **(EG 2)** In addition, the prognostic value of a positive tilt table test is uncertain; a long-term follow-up study of 107 patients who underwent a head-up tilt table test found that recurrence of neurocardiogenic syncope did not differ significantly between those with a positive and those with a negative tilt table test.(19) **(EG 2)** A specialty society guideline states that tilt table testing can be useful in patients with suspected vasovagal syncope or suspected delayed orthostatic hypotension if the diagnosis is unclear after initial evaluation; the utility of tilt table testing is highest in such patients when syncope is recurrent.(1) **(EG 2)** Tilt table testing has been safely performed in children for evaluation of syncope, but the prognostic value of the results is unclear, as the recurrence rate appears to be the same regardless of test outcome.(20) **(EG 2)** Data on the use and effectiveness of tilt table testing in children are limited.(21)(22) **(EG 2)**

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Footnotes

[A] Syncope is defined as a transient loss of consciousness and postural tone due to inadequate cerebral perfusion, with prompt recovery without resuscitative measures.(4)(5)(12) [A in Context Link 1]

[B] Delayed orthostatic hypotension is distinguished from orthostatic hypotension by a sustained decrease in blood pressure occurring beyond 3 minutes of standing or upright tilt table testing, and thus may be responsible for episodes of presyncope or syncope that occur only after prolonged standing.(1)(3)(24) [B in Context Link 1]

[C] Postural orthostatic tachycardia syndrome is a chronic disorder characterized by a sustained increase in heart rate within 10 minutes of upright posture and without significant orthostatic hypotension (an increase in heart rate of 30 beats per minute or more in adults and 40 beats per minute or more in adolescents age 12 to 19 years).(3)(26)(27)(28)(29) [C in Context Link 1]

[D] Psychogenic pseudosyncope may be differentiated from true syncope with normal blood pressure and heart rate despite an apparent loss of consciousness and motor control during tilt table testing.(1)(13) [D in Context Link 1]

Codes

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