

Practice Guidelines

Syncope Evaluation and Treatment Guidelines from ACC, AHA, and HRS

Key Points for Practice

- Resting 12-lead electrocardiography can be beneficial in determining the cause of syncope in the initial evaluation.
- Laboratory testing can be ordered based on the history and examination to aid in diagnosis of syncope, but routine comprehensive testing in all patients with syncope is not useful.
- Transthoracic echocardiography may be beneficial if there is suspicion for structural heart disease.

From the *AFP* Editors

Although the incidence of syncope, which has multiple causes and presentations, varies by population, a prevalence as high as 41% has been reported. The American College of Cardiology (ACC), American Heart Association (AHA), and Heart Rhythm Society (HRS) have released guidelines to assist physicians in evaluating and treating syncope.

History and Physical Examination

A history should be taken and physical examination performed in persons who present with syncope. The goal of the history should be to determine prognosis, diagnosis, reversible factors, comorbidities, medication use, and individual and family needs. Historically, factors associated with a cardiac cause of syncope include age older than 60 years, male sex, ischemic heart disease, structural heart disease, previous arrhythmias, reduced ventricular function, brief prodrome, sudden loss of consciousness, syncope while supine or during exertion, experiencing only one or two syncope episodes, abnormal findings on cardiac examination, family history of inheritable conditions or sudden cardiac death before 50 years of age, and congenital heart

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A collection of Practice Guidelines published in *AFP* is available at <http://www.aafp.org/afp/practguide>.

CME This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 439.

Author disclosure: No relevant financial affiliations.

disease. Factors associated with a noncardiac cause include younger age, absence of cardiac disease, syncope episodes only while standing, positional change (e.g., from sitting to standing), prodrome, triggers (e.g., dehydration, coughing), and recurrence or prolonged history of syncope.

Orthostatic blood pressure should be measured and heart changes should be evaluated when the patient is lying, sitting, immediately standing, and upright (after three minutes). Murmurs, gallops, and rubs should be identified; heart rate and rhythm should be assessed; and a neurologic examination should be performed.

Electrocardiography

Based on moderate-quality evidence from nonrandomized studies, resting 12-lead electrocardiography (ECG) can be beneficial in patients initially presenting with syncope by providing information on possible causes; however, findings on ECG have not been shown to significantly affect treatment.

Risk Assessment

Risk stratifying patients who present with syncope can guide treatment and avoid morbidity and mortality, according to moderate-quality evidence from nonrandomized studies. Long-term prognosis is based on treatment effectiveness and the severity of the underlying condition and comorbidities, whereas short-term prognosis is typically associated with the cause of syncope and whether it can be treated. Therefore, in addition to determining the cause, the risk of short- and long-term morbidity and mortality should be outlined. If a cause is unclear, risk stratification for short-term outcomes can aid in making immediate treatment decisions.

Risk factors for short-term (up to 30 days) morbidity and mortality in patients presenting in an outpatient setting or emergency department include male sex, age older than 60 years, absence of prodrome, palpitations before losing consciousness, syncope on exertion, structural heart disease, heart failure, cerebrovascular disease, family history of sudden cardiac death, and trauma. Factors to look for on physical examination or laboratory testing include bleeding, persistent abnormal vital signs, abnormal findings on ECG, and positive results on a troponin test. Risk factors for long-term (more than 30 days) morbidity and mortality include male sex, older age, absence of nausea or vomiting, ventricular arrhythmia, cancer, structural heart disease, heart failure, cerebrovascular disease, diabetes mellitus, and a high CHADS₂ (congestive

heart failure; hypertension; age 75 years or older; diabetes mellitus; previous stroke, transient ischemic attack, or thromboembolism [doubled]) score. Abnormal findings on ECG and a lower glomerular filtration rate are also risk factors.

Although it has not been shown to be superior to clinical judgment, risk stratification scoring is a reasonable option to aid in treating patients with syncope. Various scoring systems exist, each with its own limitations (e.g., inconsistent definitions and outcomes, use of composite outcomes, small sample size).

Disposition

After initial evaluation, physicians should determine if the patient can continue as an outpatient or if admission to the hospital is necessary. Patients with a serious medical condition that could possibly be related to the cause of syncope should be admitted for further evaluation and treatment based on moderate-quality data from nonrandomized studies. A pacemaker or implantable cardioverter-defibrillator may be needed or a medication regimen altered in persons with a possible arrhythmic cause of syncope. Examples of other serious cardiac and noncardiac conditions associated with syncope that may warrant treatment in a hospital setting include cardiac ischemia, aortic stenosis, acute heart failure, pulmonary embolism, severe anemia, major trauma, and persistent abnormal vital signs.

Patients presumed to have reflex-mediated syncope (vasovagal syncope), but not a serious medical condition, can continue to be evaluated and treated in the outpatient setting, with the possible exception of those with recurrent syncope that has caused an injury or that increases the risk of injury. Patients suspected to have a cardiac cause of their syncope, but who do not have a serious medical condition, can also be treated in the outpatient setting. Patients at intermediate risk (i.e., at least 50 years of age, history of cardiac disease, presence of a functioning cardiac device, concerning findings on ECG, family history of sudden cardiac death, and symptoms different from reflex-mediated syncope) whose cause of syncope is unclear can be monitored using emergency department observation protocol consisting of a limited time of observation and prompt access to cardiac consultation.

Blood Testing

Moderate-quality data from nonrandomized studies suggest that blood testing (e.g., complete blood count, electrolyte panel) can be considered in patients with syncope based on history, physical examination, and ECG to aid in confirming diagnosis and guiding treatment. Measurement of brain natriuretic peptide and high-sensitivity troponin may be useful in patients with a possible cardiac cause of their syncope, but it has modest value for predicting major adverse cardiovascular events. Routinely performing comprehensive laboratory testing is not beneficial in syncope evaluation.

Cardiac Imaging

Transthoracic echocardiography may be beneficial if there is suspicion for structural heart disease, and computed tomography or magnetic resonance imaging may be beneficial if there is suspicion for a cardiac cause of syncope based on moderate-quality evidence from nonrandomized studies. Routinely performing cardiac imaging is not helpful, unless a cardiac cause of syncope is suspected based on history, physical examination, or ECG. It should be noted that even if there are abnormal findings on cardiovascular testing, they may not be the cause of syncope; sound clinical judgment is needed to determine their significance and decide if treatment is needed.

Stress Testing

Exercise stress testing may be beneficial in determining a cause of syncope related to exertion, according to lower-quality studies; however, caution should be taken when performing stress testing, and proper advanced life support must be available.

Cardiac Monitoring

Choice of cardiac monitoring should be based on how often the syncope occurs and the type of syncope experienced. External monitoring approaches, including a Holter monitor, transtelephonic monitor, external loop recorder, patch recorder, and mobile cardiac outpatient telemetry, can be used in certain ambulatory patients with syncope suspected to be caused by an arrhythmia. Their effectiveness, however, is dependent on the length of monitoring, whether continuous or intermittent monitoring is being performed, how often the syncope occurs, prodrome duration, and how quickly incapacitation occurs. An implantable cardiac monitor can be beneficial in certain ambulatory patients with syncope suspected to be caused by an arrhythmia.

Other Recommendations

For recommendations regarding in-hospital telemetry; electrophysiology studies; tilt-table testing; neurologic testing; specific conditions; age, lifestyle, and population; quality of life; health care costs; and emerging technology, see the full guideline.

Guideline source: American College of Cardiology/American Heart Association/Heart Rhythm Society

Evidence rating system used? Yes

Systematic literature search described? Yes

Guideline developed by participants without relevant financial ties to industry? No

Recommendations based on patient-oriented outcomes? Yes

Published source: *Circulation*. August 1, 2017;136(5):e60-e122

Available at: <http://circ.ahajournals.org/content/136/5/e60>

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