SYNCOPE

AGS Geriatrics Evaluation and Management Tools (Geriatrics E&M Tools) support clinicians and systems that are caring for older adults with common geriatric conditions.

From the AMERICAN GERIATRICS SOCIETY

Geriatrics Evaluation & Management Tools

BACKGROUND

- Definition: a symptom complex composed of a sudden and transient loss of consciousness resulting from a temporary interruption of global cerebral perfusion
- Primary reason to investigate syncope is to evaluate for sudden cardiac death and to avoid future injuries.
- Incidence doubles at age 70.
- In older adults, the cause of syncope is often multifactorial.
- In 10%–20% of cases, the cause is not determined.

SCREENING

Most diagnostic procedures are of low yield unless findings from the history and physical examination (H&P) suggest a particular cause.

DIFFERENTIAL DIAGNOSIS

- Epileptic seizure is not a cause of syncope. It can cause transient loss of consciousness but is not due to global cerebral hypoperfusion.
- Some degree of orthostatic or postprandial hypotension may contribute to syncope in >50% of older patients.

Common Causes of Syncope in Older Adults

Reduced cardiac output

Cardiac (bradycardia is the #1 cause of cardiac-associated syncope):
- Rhythm disturbances
- Structural heart diseases (eg, aortic stenosis)
- Coronary artery disease/myocardial infarction

Reduced intravascular volume:
- Bleeding, dehydration

Pulmonary:
- Massive pulmonary embolism

Altered peripheral vascular resistance

Functional autonomic reflexes:
- Vasovagal/reflex mediated
- Carotid sinus syndrome
- Situational: swallowing, micturition, defecation, postprandial hypotension

Structural autonomic insufficiency:
- Primary conditions: pure autonomic failure, multiple system atrophy, Parkinson disease
- Secondary conditions: diabetes mellitus, spinal cord lesions, uremia

Drugs causing reduced cardiac output or altered peripheral resistance

HISTORY

- Increased age and male sex as coronary artery disease risk factors
- Focused history of events before, during, and after loss of consciousness—obtain history from available witnesses
- Especially important to elicit:
  - Symptoms of chest pain*, shortness of breath*, palpitations*, GI bleeding*
  - Syncope during exercise*, while lying or sitting; more than one episode within 6 months*
- Past medical history of cardiac disease*, arrhythmia*, or neurologic disease
- Family history of first-degree relative with sudden death*, hypertrophic cardiomyopathy*, Brugada syndrome*, long QT syndrome*
- Depression screening: syncope is more common in depression
- Medications, recent medication changes, timing of medication administration

Distinguishing Characteristics of Syncope Due to Arrhythmia and Vasovagal Syncope

	Sign/Symptom	Syncope Due to Arrhythmia	Reflex-Mediated Syncope
Before	Position	Any	Upright; aborted by lying flat
	Warning/prodrome	<5 seconds	Seconds to minutes
	Precipitant	Absent	Present
	Palpitations	Sometimes	Absent
	Nausea/diaphoresis	Absent	Common
	Visual changes	None	Common
During	Tone	Flaccid	Flaccid
	Pulse	Absent or faint	Variable
	Color	Blue, ashen	Pale
	Incontinence	Rare	Rare
	Automatisms	Absent	Absent
After	Type of recovery	Rapid, complete	Fatigue common
	Nausea/diaphoresis	Absent	Present
	Focal neurologic findings	Absent	Absent
Mortality		Increased	Unchanged

PHYSICAL EXAMINATION

- Vital signs
  - Systolic blood pressure <90 mmHg* or >160 mmHg*
  - Blood pressure in both arms
  - Orthostatic vital signs
  - Tachypnea*
  - Hypoxia*
  - Sinus heart rate <50 bpm or >100 bpm*
- Neurologic examination
  - Focal neurologic deficits*
- Cardiac examination
  - Heart murmur*, extra heart sounds
  - Signs of volume depletion*
  - Carotid pulse evaluation (upstroke, bruit)
- Musculoskeletal examination
  - Gait evaluation (gait unsteadiness indicates increased risk of falls; failure of heart rate to increase indicates chronotropic incompetence)
  - Deformities or signs of injury

DIAGNOSTIC TESTS

- Not every test is required; a thorough H&P, especially focused on the cardiovascular and neurologic systems, should be used to determine appropriate testing.
- In all patients, perform orthostatic vital signs, gait evaluation, laboratory tests, and ECG.
- Laboratory testing
  - Hyper/hypoglycemia, electrolyte disturbance, increased creatinine
  - Anemia (hematocrit <30%*)
  - Occult blood in feces*
  - Abnormal troponin I*
- Resting ECG
  - Q waves*, ischemic ST segment or T wave changes*, ventricular or supraventricular arrhythmias including rapid atrial fibrillation*, second- or third-degree AV block*, prolonged QTc (>500 msec)*, bifascicular block indicate increased likelihood of cardiac causes of syncope.
- Echocardiogram: if history, physical examination, or ECG are suggestive of heart disease
- Ambulatory (24-hour) blood pressure monitor: can identify diurnal variation in blood pressure, supine hypertension, postprandial hypotension
- Ambulatory ECG monitoring (Holter, 30-day event, implantable loop recorder) if H&P indicates arrhythmia
  - Choose type of monitor based on frequency of events.
- Head-up tilt table testing can reproduce vasovagal syncope.
- Carotid sinus massage: perform only in the presence of continuous ECG monitoring and resuscitation equipment
- Electrophysiologic study: used rarely to identify inducible ventricular tachyarrhythmias

MANAGEMENT STRATEGIES

- Discontinuing or reducing antihypertensive medications has been shown to decrease syncope recurrence.
- Patients with cardiac syncope require immediate hospitalization on telemetry.
- Strongly consider hospital admission for patients with syncope due to neurologic or unknown causes, particularly if concurrent heart disease.
- Patients with vasovagal, orthostatic, or medication-induced syncope can usually be managed as outpatients, particularly if there is no history of heart disease.
- Treatment of syncope is correction of underlying cause(s).

Treatments for Selected Causes of Syncope

Reflex syncope and postural hypotension

- Counter-pressure maneuvers such as leg crossing, arm tensing, hand grip, and buttock clenching
- Compression stockings and abdominal binders
- Liberalize diet (added salt)—caution if patient has significant hypertension
- Postprandial hypotension: smaller and frequent meals; meals with fewer carbohydrates
- Pharmacologic treatment
  - Sympathomimetics: midodrine, etilefrine
  - Acetylcholinesterase inhibitor: pyridostigmine (may be helpful if supine hypertension and orthostatic hypotension).
  - Sodium retention/volume expansion: fludrocortisone

Sinus node dysfunction or high-grade AV block

- Pacemaker placement
- Patients with transient asystole and carotid sinus syncope may benefit from pacemaker placement.

PROGNOSIS

- There are many tools for risk stratification, such as the EGSYS and San Francisco Syncope Rule.
- 1-year mortality: 18%–33% if cardiac cause; 6% if noncardiac cause

CHOOSING WISELY

- Do not perform imaging of the carotid arteries for simple syncope without other neurologic symptoms.
- In the evaluation of simple syncope and a normal neurologic examination, do not obtain brain imaging studies (CT or MRI).
- Avoid CT of the head in asymptomatic adult patients in the emergency department with syncope, insignificant trauma, and a normal neurologic evaluation.

* Indicates risk factors for adverse prognosis in syncope. Patients with none of these factors can likely be safely dismissed from the emergency department without hospitalization.