I Passed Out: Now What?
General Approach to the Patient With Syncope

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KEYWORDS

• Syncope • Loss of consciousness

KEY POINTS

- When approaching a patient with reported transient loss of consciousness, it is essential to differentiate syncope from nonsyncopal causes. Clinicians should approach loss of consciousness with a wide differential diagnosis given different diagnostic and prognostic implications.
- It is important to identify patients with life-threatening conditions and those with red flags indicating an increased risk of sudden death.
- An initial approach to syncope consisting of a careful history, physical examination, and electrocardiograms is essential.

INTRODUCTION

Syncope is a transient loss of consciousness and postural tone characterized by a rapid-onset, short duration of symptoms with rapid and complete recovery. The term "syncope" is derived from the Greek words *syn* and *kopto* meaning "I cut" or "I interrupt," which in this case indicates interruption of the alert and conscious state. The underlying mechanism is transient global cerebral hypoperfusion.

When approaching a patient with reported transient loss of consciousness, it is essential to differentiate syncope from nonsyncopal causes. Many conditions can present with loss of consciousness but are not syncopal in nature. These include falls, metabolic disorders (hypoglycemia, hypoxia, hyperventilation with hypocapnia), intoxications, seizure disorders, cataplexy, drop attacks, transient ischemic attacks (vertebrobasilar or carotid origin), and psychogenic pseudo-syncope. Clinicians, therefore, should approach loss of consciousness with a wide differential diagnosis given different diagnostic and prognostic implications. This review will focus on causes of true syncope.

EPIDEMIOLOGY

Syncope is a common problem. More than 500,000 cases are diagnosed every year in the United States, accounting for up to 5% of emergency care visits and up to 3% of all hospital admissions.[1,2] In young populations, the prevalence in girls is twice that of boys.[3] In the general population, data from the Framingham Study[4] suggest that the incidence of syncope is 6.2 per 1000 person-years. This indicates that a person living 70 years has a 42% chance of experiencing a syncopal event during his or her lifetime. This estimate is based on the assumption that the incidence of syncope is constant over time. However, the incidence of syncope observed in the general population increases with age such that subjects older than 70 are at highest risk.[4] In patients older than 80, the incidence of syncope is 17 to 19 per 1000 person-years.[4] For elderly patients in long-term care facilities, the incidence may be as high as 6% per year, with the chance of a recurrent syncopal event being as high as 30%.[5] Overall, reports in the literature suggest that syncope is a common problem in the overall population but

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mainly in health care settings and long-term care facilities.

CAUSES OF SYNCOPE

Although syncope is benign and self-limited in most cases, it can imply imminent risk of sudden cardiac death, especially in patients with structural heart disease. Causes of syncope can be classified as follows:

- Syncope related to cardiac arrhythmia as primary cause
- Syncope related to structural cardiac or cardiopulmonary disease
- Syncope from cerebrovascular disease
- Neurally mediated or reflex syncope
- Syncope from orthostatic hypotension

The last 2 categories carry a good prognosis in general but the first 2 are associated with an increased risk of sudden death. The causes of syncope within each category are summarized in **Box 1**.

In a study evaluating 325 consecutive patients hospitalized for syncope, an underlying cause could not be identified in up to 25% of patients.[6] The most common identifiable causes included syncope of the vasovagal type (18%), followed by cardiac arrhythmias (18%), volume depletion (12%), acute coronary syndrome (7%), and structural heart disease (6%). Other causes, including drug overdose, pulmonary embolism, and cerebrovascular accidents, accounted for the remaining 13%. Other studies suggest that reflex or neutrally mediated syncope underlies up to 58% of all syncope cases and that cardiac disease underlies up to 23% of cases.[7] Unexplained syncope accounts for 18% to 41% of cases in some series.[7,8] The most common causes of syncope are reviewed in greater detail later.

Neurally Mediated Syncope

This is the most common type of syncope and usually carries an excellent prognosis.[4] In fact, patients with neurally mediated syncope in the absence of structural heart disease have similar morbidity and mortality as patients without syncope. The diagnosis of neurally mediated syncope includes vasovagal syncope, carotid sinus hypersensitivity, glossopharyngeal neuralgia, and situational syncope with loss of consciousness occurring in specific situations (eg, micturition, deglutition). Most patients with this type of syncope experience a prodrome of symptoms from increased vagal tone. These prodromal symptoms may include a feeling of warmth, lightheadedness,

Box 1
Causes of syncope

Neurally mediated

Vasovagal syncope

Carotid sinus syncope

Situational syncope

Acute hemorrhage

Cough, sneeze

Postexercise

Postprandial

Gastrointestinal stimulation (swallow, defecation, visceral pain)

Micturition, postmicturition

Others (weight lifting)

Glossopharyngeal neuralgia

Orthostatic hypotension

Primary autonomic failure (pure autonomic failure, multiple system atrophy, Parkinson disease)

Secondary autonomic failure (diabetic neuropathy, amyloid neuropathy)

Volume depletion (hemorrhage, diarrhea, Addison disease)

Postexercise

Postprandial

Drug-induced orthostatic syncope

Alcohol-induced orthostatic syncope

Primary cardiac arrhythmias

Sinus node dysfunction (including bradycardia/tachycardia syndrome)

Atrioventricular conduction system disease

Paroxysmal supraventricular and ventricular tachycardias

Inherited syndromes (long QT or short QT syndrome, Brugada syndrome)

Implanted device (pacemaker, implantable cardioverter-defibrillator) malfunction

Drug-induced arrhythmias

Structural cardiac or cardiopulmonary disease

Valvular disease

Acute myocardial infarction/ischemia

Obstructive cardiomyopathy

Atrial myxoma

Acute aortic dissection

Pericardial disease/tamponade

Pulmonary embolus/pulmonary hypertension

Vascular steal syndromes