Syncope is defined as a traumatic transient loss of consciousness associated with the inability to maintain postural tone that resolves spontaneously. It is a common presenting complaint for emergency department (ED) visits accounting for one to two percent of overall ED volume and up to six percent of hospital admissions.

Syncope is important in medical liability cases when the underlying cause is a serious condition that is not diagnosed in a timely fashion. When there is an adverse outcome, there may be a subsequent claim for failure to diagnose or treat. The differential diagnosis of syncope includes many benign conditions and more rarely serious conditions. It is a distinct entity from seizure, vertigo, coma, and altered consciousness. This article examines some clinical features of syncope and describes some of the approaches to its work-up.

Many disease processes can result in a syncopal event, which often leads to extensive work-ups and hospital admissions. Although experts estimate that more than $2 billion per year is spent on acute hospitalization of these patients, the value of admitting asymptomatic patients is unclear. The prognosis for patients with syncope varies widely based on underlying co-morbidities and the cause of syncope. Overall risk of serious outcome is felt to be around nine to ten percent (not sure where this 9-10% figure is from), depending on the length of follow-up.

The most common cause of syncope is neurocardiogenic, followed by primary arrhythmias. Other names for neurocardiogenic syncope include neurally mediated, vasodepressor, reflex, and vasovagal syncope.
The goal of the physician who is evaluating a patient with acute syncope is to exclude life threatening causes such as arrhythmias, pulmonary embolism, subarachnoid hemorrhage, acute coronary syndrome, etc. Given the plethora of disease states that can result in syncope, the history and physical examination are crucial in the risk stratification process. In general, young healthy patients without high-risk features do not require admission or specialty referral.

History If possible, obtain any history from eyewitnesses to the event since the patient may not be able to recall details immediately preceding and following the episode. The presence of tonic-clonic activity and post-ictal symptoms may point to a seizure, although brief seizure-like movements are not uncommon in syncope of any etiology (convulsive syncope).

A complete assessment of medications and possible interactions is critical since many medications can cause prolongation of the QT interval or hypotension. Prodrome length can be useful in distinguishing benign from serious causes—a brief prodrome may point to dysrhythmia as a source whereas longer prodromes are typically associated with neurally mediated events. Syncope that occurs while seated or laying down is more likely to be cardiac in etiology. A family history of premature sudden cardiac death may point to a serious congenital cause such as pre-excitation syndromes, long QT syndromes, and cardiac sodium channel disorders (such as Brugada syndrome). Syncope associated with exertion (especially in younger patients) may indicate the presence of a hypertrophic cardiomyopathy.

Exam

Certain features of the physical exam are important in risk stratifying patients presenting with syncope. The presence of tongue biting or intra-oral lacerations may point to a seizure as the source of the loss of consciousness. The presence of hypotension, orthostatic hypotension, or tachycardia can indicate a serious issue and should be investigated. Signs of CHF or acute coronary syndrome stratify the patient into a high-risk group and typically warrant admission and acute treatment. The presence of a murmur can indicate valvular disease or other outflow obstruction and should prompt further investigation to exclude structural disease. Abdominal pain may point to bowel perforation, abdominal aortic aneurysm rupture, or ectopic pregnancy as a cause. Finally, consider performing a rectal examination if the patient is at risk for or has symptoms of GI bleeding.

Testing

In general, testing should be guided by the clinical picture based on the patient presentation, history, and physical examination. The American College of Emergency Medicine published revised clinical guidelines in 2007 that give a Level A recommendation for the routine performance of EKG in patients presenting with syncope. Although the yield is < 5 percent, this test is inexpensive, non-invasive, and can diagnose serious disease in patients who otherwise appear well. Routine blood tests are generally unhelpful, although a hematocrit of < 30 percent has been shown to be a predictor of complications. Females of child bearing age with abdominal pain or vaginal bleeding should have a pregnancy test. There is no evidence to recommend the use of head CT unless neurological symptoms are present. The value and indications for other tests including tilt table testing, extended cardiac monitoring, stress testing, angiography, and electrophysiological studies need to be considered depending on the individual presentation. In general, Holter monitoring is appropriate for patients who have symptoms that occur frequently (every few days), event monitoring for symptoms occurring monthly, and internal loop monitoring for rare episodes. Tilt table testing is commonly used, but its sensitivity and specificity varies dramatically between published studies.

High-Risk Criteria

There are multiple different specialty societies (American College of Emergency Physicians, American Heart Association, and Canadian Cardiovascular Society) that have published recommendations for the evaluation of syncope. Generally speaking, the outcome for patients with syncope is associated with the underlying disease process more than the syncope itself. Although each guideline has slight differences, there are generally agreed upon criteria that warrant patient admission or early outpatient evaluation including:

- CHF
- Structural Heart Disease
Abnormal EKG—what constitutes abnormal varies based on the publishing organization, however, certain features are common including: bradyarrhythmia, tachyarrhythmia, conduction disease, ischemia, and changes consistent with previous infarct. The European Society of Cardiology adds the presence of pre-excited QRS complex and EKG findings suggestive of an inherited disease.

- Anemia (defined as hematocrit less than 30 percent)
- Age > 60 is considered an independent predictor of poor outcome
- Syncope that occurs with exertion or while supine
- Hypotension

Decision Rules and Clinical Algorithms

The San Francisco Syncope rules are probably the most commonly used decision aid ([http://www.mdcalc.com/san-francisco-syncope-rule-to-predict-serious-outcomes/](http://www.mdcalc.com/san-francisco-syncope-rule-to-predict-serious-outcomes/)) and claim a sensitivity of 87 percent and negative predictive value of 95 percent. Web-based clinical algorithms are available as well (based on the European Cardiology Society guidelines). As always, no guideline can replace clinical decision making, however, use of decision rules can serve as a framework for the clinician. The implementation of decision rules in emergency departments has been demonstrated to safely reduce admissions. Defensibility of your decisions is greatly enhanced when your documentation shows that you followed a recognized systematic approach to the work-up.

Geriatric Patients

Aging is associated with a variety of diseases, including underlying heart disease, gait disorders, and orthostatic hypotension. The elderly are often treated with multiple medications which may precipitate syncope. The effects of these drugs and their interactions are exacerbated in the elderly because of the loss of peripheral autonomic tone that occurs with aging. It is often difficult to distinguish falls from syncope in this patient population.

Pediatric Patients

Syncope in pediatric patients is generally benign because underlying heart disease is less common in this patient population. The goal of the evaluation is to identify high-risk patients with potentially identifiable genetic abnormalities such as long QT syndrome, Brugada syndrome, or hypertrophic cardiomyopathy. If a genetic condition is identified, the evaluation may include other family members.

Summary

Syncope is a common presenting complaint. Its differential diagnosis is long, complex and often inconclusive. Unfortunately, some of its causes are serious conditions. Failure to diagnose or delay in diagnosis of those conditions can lead to medical liability claims. A well-documented, systematic approach (based on best evidence-based practice) greatly aids in the defense your care when one of the serious conditions cannot be diagnosed in the ED or office setting.

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