

How to Differentiate Syncope from Seizure



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KEYWORDS

• Syncope • Convulsive syncope • Epileptic seizures • Tilt tests

KEY POINTS

- Although differences exist in the presentations of syncope and epileptic convulsions, some patients present as diagnostic dilemmas.
- Estimates of the prevalence of convulsive activity during syncope have a wide range (about 4%–40% of spells), and the differences between epileptic convulsions and convulsive syncope may be difficult for observers to distinguish.
- A careful, perceptive, evidence-based history is essential, and bystander observations are important.
- Tilt tests, despite their limitations, seem to be useful in many patients.
- Excellent communication between neurologists and internists or cardiologists probably offers the best chance for accurate diagnoses.

INTRODUCTION

The diagnosis of transient loss of consciousness poses practical challenges. The first causes to be considered are syncope and epileptic seizures, and the distinction between the two is not always made accurately.¹ Other less common possibilities, such as narcolepsy, cataplexy, arrhythmias, and pseudoseizures and pseudosyncope, should be remembered. The United Kingdom All Party Parliamentary Group on Epilepsy in 2007 reported that 74,000 UK patients were being treated for epilepsy that they did not require. Part of the problem is the frequent association of convulsive activity with syncope.² The investigation of loss of consciousness can be costly and intrusive and is often inconclusive.^{3–7} We first review the presentations of epilepsy, syncope, and convulsive syncope, and then review how to distinguish syncope from epilepsy in patients who are diagnostic dilemmas.

EPILEPTIC SEIZURES

Epileptic seizures usually do not resemble syncopal spells. The most common epileptic seizures that are also associated with loss of consciousness are generalized tonic-clonic convulsions (**Box 1**). Atonic epileptic seizures are uncommon and occur only in children.⁸ The prevalence and incidence of syncope and epilepsy are important when considering misdiagnosis rates. Banerjee and colleagues⁹ reported a narrative review of world-wide publications of the epidemiology of epilepsy. The estimates vary considerably depending on the location, the method of detection and diagnosis, and the definition of prevalence. On the whole, the age-adjusted prevalence is 2 to 20 per 1000 people, and the age-adjusted incidence is 0.15 to 0.5 per 1000. In contrast to syncope, which has a lifetime cumulative incidence of more than 50%, epilepsy is much less common.

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Box 1**Common presentations in adults of epileptic convulsions and syncope**

Epilepsy	Syncope
Generalized tonic-clonic epilepsy	Vasovagal syncope: blood/injury exposure
Partial complex epilepsy with collapse	Vasovagal syncope: orthostatic stress
	Initial orthostatic hypotension
	Cardiac arrhythmias
	Classic orthostatic hypotension

The presentation of epilepsy depends to some extent on the specific type, but when considering a diagnosis of syncope versus epileptic seizures the most important point is that the patient while fainting is usually limp, whereas the patient with epilepsy usually convulses. Specific triggers are less common in epilepsy than in syncope, although some memorable ones include strobe lights and sudden arousal. Similarly, specific auras are less common than are generally appreciated. Epileptic convulsions tend to last considerably longer than syncopal spells, and are followed by significant postictal confusion and disorientation. This diagnostic point requires careful questioning, because many patients with syncope also report postspell confusion. The latter is minor and brief. The convulsions tend to be rhythmic, severe, and bilateral. Useful diagnostic clues include a history of lateral tongue biting and bedwetting.¹⁰

SYNCOPE

Syncope is a transient loss of consciousness caused by transient global cerebral hypoperfusion characterized by rapid onset, short duration, and spontaneous complete recovery.¹ It is quite common, although in contrast to epilepsy there are fewer epidemiologic data. Savage and colleagues¹¹ studied middle-aged Framingham adults to estimate a lifetime prevalence of syncope of 3%, an estimate now known to be extremely low. Two estimates^{12,13} of vasovagal syncope indicate that the likelihood of syncope by age 60 is about 37%, and many more faint for the first time in their later years. For many, syncope seems to occur in clusters, and the 5-year prevalence in adolescents is probably around 15% to 20%.¹⁴ Therefore, syncope probably has a lifetime prevalence exceeding 500 per 1000 people, with correspondingly high

values for incidence and prevalence over 1 to 5 years.

Syncope has numerous potential causes and classifications abound (see **Box 1**). A particularly useful one appears in the European Society Guidelines 2009,¹ whose highest level classification includes reflex syncope, syncope caused by orthostatic hypotension, and cardiac syncope, almost always caused by abrupt bradycardia or abrupt tachycardia. In the community at large vasovagal syncope is by far the most common diagnosis.¹⁵ It is generally benign and usually does not require specific treatment. Conversely, syncope secondary to such causes as cardiac tachyarrhythmias, heart block, or valvular disease may forebode a fatal or nonfatal outcome that might be avoided with appropriate management.^{1,16}

Therefore, the distinction between syncope and epilepsy depends to some extent on the cause of the syncope. One easily recognizable cause is initial orthostatic hypotension.¹⁷ Typically the history is one of syncope either within 30 seconds of standing up, or while walking to a nearby destination, such as the kitchen, bathroom, or nearby room. The patient manages to walk only a few feet before collapse. A second easily recognizable cause is vasovagal syncope caused by exposure to needles, blood, carnage, and so forth (the so-called blood/injury fear syndrome).¹⁸ The third very common cause is vasovagal syncope that occurs when the subject has been sitting, standing, or walking quietly for at least several minutes.¹⁸ Memorable examples include patients who faint in church; while standing at attention; or in hot environments, such as showers. Syncope caused by classic orthostatic hypotension usually is accompanied by a history of frequent presyncope that is worsened by longer periods of upright posture, and syncope itself is much less common than presyncope. Patients with syncope caused by cardiac arrhythmias usually have no prodrome other than very brief palpitations^{19,20} and usually have a history of some form of electrical or structural heart disease and electrocardiogram (ECG) abnormalities.^{15,18}

Depending on the cause of syncope there may or may not be a prodrome, which most commonly consists of diaphoresis and a sense of flushing warmth.¹⁸ True loss of consciousness usually lasts less than a minute, although some patients may take several minutes to fully regain consciousness. There is often a period, occasionally quite prolonged, of fatigue.²¹ The most important feature that distinguishes syncope from seizures is that patients with syncope are usually limp, whereas patients who seize have convulsive activity, other than in rare childhood cases.

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