To this list of patients advised to be admitted, the ACP recommendations add those who are on medications associated with arrhythmias and patients with symptoms suggestive of a TIA or stroke. The ECS extends the admission recommendations to include anyone having syncope associated with exercise and those with syncope associated with severe injury. They also suggest that "occasionally" the following patients may need to be admitted for diagnostic testing – patients without heart disease but with sudden onset of palpitations shortly before syncope, those having syncope while supine, patients with frequent recurrent episodes and those with minimal or mild heart disease when there is high suspicion for cardiac syncope. It would seem that all of these latter patients would warrant routine admission rather than "occasionally." Finally, admission is advised for those patients with cardioinhibitory, neurally-mediated syncope when pacemaker implantation is planned.

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Response

The Evaluation of Syncope: The Neurologist's Perspective

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Emergency department physicians usually have the privilege of obtaining a first-hand history of the syncopal event from the patient and eyewitnesses. Dr. Bukata correctly states that a properly taken history is likely to be the most rewarding effort in the assessment of the patient with syncope. He emphasizes that the history should effectively address the various precipitating mechanisms and diagnostic entities. Many patients are subsequently referred to a neurologist, who only receives second-hand, indirect information, including the emergency department discharge summary. This summary often contains a variety of laboratory and ancillary test results but a very brief history, which leaves many questions unanswered. It may even be misleading when any motor manifestation is labeled as "generalized convulsions".

The most common question, which then confronts the neurologist, is distinguishing between a convulsive syncope and a true seizure. This topic is well covered in several publications, notably those contributed by Dr. Lempert (1,2). The term "convulsive syncope" specifies a common variant of syncope that is accompanied by tonic or myoclonic activity. Convulsions are an integral component of the brain's response to hypoxia; they represent the rule rather than the exception. Whether or not syncope manifests with convulsions depends on the degree of cerebral hypoxia. In contrast to an epileptic seizure, which is a cortical phenomenon, muscle activation during syncope is subcortical and originates from abnormal firing of the reticular formation in the lower

brainstem. This may occur as a consequence of direct hypoxic activation of reticular neurons mediated by chemoreceptors and release from cortical inhibition (3). Reported frequencies of syncopal convulsions vary; when film or video recordings were employed, myoclonus was observed in 90% of 56 syncopal episodes and additional movements in 79% (2).

Clinically, the motor manifestations may include myoclonic jerks, tonic posturing and more complex movements. Myoclonus is often multifocal with asynchronous muscle jerks in different parts of the body, but may be generalized with a few jerks of bilateral synchronous muscle activation. Syncopal myoclonus is not rhythmic and usually lasts less than 30 seconds. Tonic muscle activity during syncope typically consists of head and body extension; the arms may be flexed or extended, and the fists may be clenched. If tonic body extension starts early in the course of syncope, the fall may be stiff rather than flaccid. More complex movements may simulate automatisms (which commonly occur during complex partial seizures), and may include vocalization.

Post-ictal confusion and disorientation lasting longer than 30 seconds is useful in distinguishing an epileptic seizure from a convulsive syncope. Tongue biting usually indicates a seizure, but urinary incontinence and head injury are common in both entities. Sheldon et al (4) devised a simple point score of historical features which distinguishes syncope from seizures with very high sensitivity and specificity.

The electroencephalogram is often overused and misused in the evaluation of syncope. A normal EEG does not preclude the diagnosis of a seizure disorder, the most commonly reported EEG abnormalities are not epileptiform, and interictal epileptiform activity may support the diagnosis of epilepsy but does not rule out the possibility that the episode in question may have been syncopal. The routine use of EEG in the evaluation of syncope is not recommended; in a retrospective EEG review of 73 patients with syncope, 13.7% had abnormal findings, but the final diagnosis and treatment were affected by the EEG findings in only one case (5).

Thus, there is no substitute for a detailed history of the syncopal event, and if any motor manifestations are reported they should be documented with as much detail as possible. No one is in a better position to glean this information than the emergency medicine physician.

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