How Often Does a Standard Evaluation of Syncope Identify an Underlying Etiology?

Sarasin FP, Louis-Simonet M, Carballo D, et al. Prospective evaluation of patients with syncope: a population-based study. Am J Med 2001;11:177–84.

Study Overview

Objective. To determine the diagnostic yield of a standardized evaluation of syncope.

Design. Prospective case series between July 1997 and March 1999.

Setting and participants. Consecutive patients presenting to an academic teaching hospital emergency room with a chief complaint of syncope were enrolled. Exclusion criteria included symptoms suggestive of seizure, vertigo, dizziness, coma, or shock. All patients underwent a standardized clinical evaluation, which included history and physical examination; laboratory evaluation with hematocrit, serum creatinine, and glucose; 12-lead electrocardiogram (ECG); testing for orthostatic hypotension; and bilateral carotid massage. Further targeted testing was employed in patients with signs or symptoms suggesting an underlying cause of syncope. Patients with unexplained syncope after the initial steps underwent a thorough evaluation of cardiogenic syncope with 24-hour ECG monitoring, continuous loop monitoring, and echocardiography. Further electrophysiology evaluation was at the discretion of a consulting cardiologist.

Main outcome measures. A local committee composed of 2 internists and a cardiologist reviewed the data and determined whether testing revealed a cause of syncope. Explicit criteria were applied to categorize the cause of syncope as follows: vasovagal disorder, neurologic and psychiatric disorder, orthostatic hypotension, carotid sinus hypersensitivity, and cardiogenic syncope. Mortality and information about recurrent syncope was determined at 6-month intervals for 18 months after study enrollment.

Main results. Of 788 evaluated patients, 138 were excluded. 446 of the remaining 650 patients (69%) were categorized as having a cause of their syncope after initial clinical evaluation without targeted testing. Neurocardiogenic syncope was diagnosed in 234 (36%) patients, orthostatic hypotension in 156 (24%), arrhythmia in 24 (4%), and other diseases in 32 (5%). Of the 67 patients who underwent targeted testing, an additional 49 (73%) were diagnosed with an underlying cause for their syncope. Extensive testing for cardiogenic syncope was conducted in 122 of the 155 remaining patients; testing provided a cause of syncope in 30 cases. 18 were diagnosed with arrhythmias, and all had abnormal baseline ECGs. At 18 months' follow-up, 9% of patients had died and syncope had recurred in 15%.

Conclusion. Diagnostic yield of a standardized evaluation of syncope is 76%, which is greater than reported previously. ECGs are useful for guiding the use of specialized cardiovascular testing.

Commentary

Evaluation of syncope is difficult for practicing physicians because there is no gold standard diagnostic approach. Previous evaluations of the utility of history taking, physical examination, and electrocardiography for patients with this complaint have shown limited diagnostic yield, with up to 50% of cases undiagnosed after this initial evaluation [1]. Furthermore, the utility and cost-effectiveness of more specialized evaluation is still uncertain in an unselected population of primary care patients.

In this study, Sarasin et al provide important data that demonstrate how stepwise, standardized evaluation of syncope can diagnose most patients presenting to the emergency room with a chief complaint of syncope. One of the strengths of their study is that the patient population was community-based and avoids the referral bias present in previous studies. Secondly, the stepwise diagnostic approach in the protocol can reasonably be conducted in most modern health systems. Finally, follow-up data are provided for nearly the entire cohort (94%), and these data are notable for a relatively high mortality (9%) and recurrence rate (15%). Additionally, the finding that all patients with underlying arrhythmia had abnormal baseline ECGs is helpful to targeting patients for a costly electrophysiology evaluation.

Several limitations are apparent. First, the authors were extremely thorough with their evaluations and involved multiple specialists to ensure an accurate diagnosis. The

diagnostic yield of this approach may be lower outside of the trial setting. Second, while the authors made an effort to form a consensus diagnosis, there is no gold standard for syncope, and some patients may have been misclassified. Finally, there were no data on how this standardized protocol may have improved patient outcomes over usual care. Future analyses should document changes in patient outcomes and include cost-effectiveness data.

Applications for Clinical Practice

Using a standardized protocol should increase diagnostic yield for the evaluation of syncope. Patients with ECG abnormalities should undergo specialized electrophysiology testing.

–Review by Josh F. Peterson, MD

References

1. Linzer M, Yang EH, Estes NA III, et al. Diagnosing syncope. Part I: value of history, physical examination, and electrocardiography. Clinical Efficacy Assessment Project of the American College of Physicians. Ann Intern Med 1997;126:989–96.

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