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Distinguishing features of cardiac-related syncope

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Question

Among patients presenting with syncope, what is the diagnostic accuracy of the clinical exam and electrocardiogram (ECG), compared with cardiology evaluation, in diagnosing cardiac-related syncope?

Design

Retrospective cohort based on chart review.

Setting

University of Rochester, New York.

Participants

Patients with syncope referred to cardiology.

Intervention

History and physical exam plus ECG compared with cardiology evaluation.

Outcomes

Test characteristics of distinguishing features of cardiac-related syncope.

Main Results

In patients with cardiac-related compared with vasovagal syncope, the presence of the following 4 previously identified predictors of cardiac etiology were assessed: (1) syncope surrounding activity, 65% vs 18% ($P < .001$); (2) family history of cardiac disease or sudden cardiac death, 41% vs 25% ($P = .2$); (3) physical examination supporting cardiac diagnosis, 29% vs 0% ($P < .001$); and (4) abnormal findings on ECG, 76% vs 0%, ($P < .001$) respectively. Any one of these four characteristics had a sensitivity of 100% (95% CI, 82% to 100%) and specificity of 60% (95% CI, 49% to 69%), +LR 2.5 (95% CI, 1.9 to 3.2) and -LR 0 (95% CI, 0 to 0.72).

Conclusions

A screening tool that includes history, physical examination, and ECG, accurately identifies patients requiring further evaluation for a cardiac etiology.

Commentary

Nevarly 40% of people will experience one or more episodes of syncope during their lives, most by age 20 years with a mode of 15 years of age.¹ Syncope—one form of transient loss of consciousness that also includes seizures, intoxication, conversion, and mild traumatic brain injury—is defined as transient global cerebral hypoperfusion characterized by rapid onset, short duration, and spontaneous complete recovery.² It is classified into 3 groups: (1) reflex syncope – including the vasovagal type; (2) syncope due to orthostatic hypotension; and (3) cardiogenic syncope,² uncommon in pediatrics but may have dire consequences. Tretter and Kavey identified characteristics distinguishing cardiogenic from reflex syncope: history, physical examination, and ECG. However, the strength of the study was diminished in four ways that may have affected the precision and/or numerical value of the sensitivity and specificity: (1) the infrequency of cardiogenic presentations included (eg, Wolff-Parkinson-White syndrome, a common cause of cardiogenic syncope was not represented); (2) use of billing codes to identify patients, excluding both patients with other forms of syncope and patients without syncope but in whom syncope was ruled out; (3) patients with aborted sudden cardiac death, a non-syncopal event, were included; and (4) history, physical examination, and ECG interpretation are operator dependent. Future studies should compare all patients with syncope presenting with the clinic or Emergency Department with evaluation by cardiology.

References

1. Ganzeboom KS, Colman N, Reitsma JB, Shen WK, Wieling W. Prevalence and triggers of syncope in medical students. *Am J Cardiol.* 2003; 91:1006–8. A8. [PubMed: 12686351]
2. Moya A, Sutton R, Ammirati F, Blanc JJ, Brignole M, Dahm JB, et al. Guidelines for the diagnosis and management of syncope (version 2009). *Eur Heart J.* 2009; 30:2631–71. [PubMed: 19713422]