

A standardized sequential clinical examination identified probable causes of syncope in 69% of patients

Sarasin FP, Louis-Simonet M, Carballo D, et al. Prospective evaluation of patients with syncope: a population-based study. *Am J Med.* 2001 Aug 15;111:177-84.

QUESTION

What are the causes of syncope in patients presenting to the emergency department (ED)?

DESIGN

18-month cohort study.

SETTING

The ED and inpatient services of a major primary and tertiary care hospital in Geneva, Switzerland.

PATIENTS

788 consecutive patients ≥ 18 years of age who presented to the ED with a chief symptom of syncope. Patients with symptoms clearly compatible with seizure disorders, vertigo, dizziness, coma, or shock were excluded. 650 patients (82%) were included in the analysis (mean age 60 y, 52% women).

DIAGNOSTIC STRATEGY

All patients had a standardized evaluation that included a complete history, physical, and neurologic examination; laboratory examination (hematocrit and serum levels of creatine kinase and glucose); 12-lead electrocardiogram (ECG); testing for orthostatic hypotension; and bilateral carotid massage in patients without contraindications. After the initial evaluation, patients were classified into 3 groups: strongly suspected cause, signs or symptoms suggested a specific cause but required confirmation by selected diagnostic

procedures, and undetermined cause. Patients with undetermined causes had extensive cardiovascular testing, transthoracic echocardiography, continuous-loop event recorder, signal-averaged ECG, and passive upright tilt testing.

MAIN OUTCOME MEASURE

Final diagnosis.

MAIN RESULTS

After the initial clinical evaluation, a cause of syncope was strongly suspected in 446 patients (69%). A cause was suspected but required confirmation by selective diagnostic testing in 67 patients (10%); the diagnosis was confirmed in 49 (73%). A specific cause

was undetermined in 155 patients (24%); 122 of these patients had an extensive workup, and probable cause was established in 30 of these patients (25%). The final diagnoses are summarized in the Table.

CONCLUSION

A standardized clinical evaluation provided a probable cause of syncope in 69% of patients presenting to the emergency department with a chief symptom of syncope.

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Final diagnoses in patients presenting with syncope

Diagnosis	Number of patients (%)
Cardiac causes	69 (11)
Arrhythmias	44 (7)
Acute coronary syndrome	9 {1}*
Aortic stenosis	8 {1}*
Pulmonary embolism	8 {1}*
Noncardiac causes	456 (70)
Vasodepressor syncope	242 (37)
Orthostatic hypotension	158 (24)
Carotid sinus hypersensitivity	6 (1)
Neurologic	30 (5)
Psychiatric	11 (2)
Other	9 {1}*
Unknown	92 (14)

*Calculated from data in article.

COMMENTARY

Determining a cause of syncope is often difficult. Previous studies have shown that cause could be assigned in 59% to 87% of patients (1-4).

Vasovagal syncope is common in an ED population (37% to 40%), but orthostatic hypotension has only accounted for up to 7.6% in previous studies (1-3). These 2 diagnoses accounted for 61% of the causes in the study by Sarasin and colleagues. The reason for the high proportion of patients with orthostatic hypotension is not clear. Older patients have a higher prevalence of orthostatic hypotension, a possible consequence of the physiologic effects of aging, comorbidity, and multiple medications. Patients in previous U.S. studies had a mean age of 41 to 44 years (1-3), whereas patients in the study by Sarasin and colleagues had a mean age of 60 years. Thus, the older age of the patients in this study might account for the higher prevalence of orthostatic hypotension.

Many syncope investigators expect that wider use of loop event monitoring, electrophysiologic studies (EP), and tilt testing will lead to diagnoses in virtually all patients with syncope. Although the authors reported a final diagnosis in 86% of patients, the high rate was because of the result of the history and physical examination, not the result of diagnostic tests.

The tilt-testing protocol did not use chemical stimulation. In most laboratories, this protocol has a relatively low yield. Furthermore, EP testing was only done in 16 patients. It is possible that with chemical stimulation (isoproterenol or nitroglycerine) during tilt testing and wider use of EP testing, many of the remaining patients could have been assigned diagnoses.

This study confirms the central role of careful clinical assessment of patients with syncope. The role of extensive testing with EP studies and tilt testing in the remaining patients requires further study.

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