Echocardiography was useful in evaluating unexplained syncope

Sarasin FP, Junod AF, Carballo D, et al. **Role of echocardiography in the evaluation of syncope: a prospective study.** Heart. 2002;88:363-7.

QUESTION

What role does echocardiography have in determining the causes of unexplained syncope?

DESIGN

18-month cohort study.

SETTING

Emergency department (ED) and inpatient services of a university hospital in Geneva, Switzerland.

PATIENTS

650 consecutive patients who were ≥ 18 years of age (mean age 60 y, 54% women) and presented to the ED with the main symptom of syncope (sudden loss of consciousness and of postural tone with spontaneous recovery). Follow-up was 95% at 18 months.

DIAGNOSTIC STRATEGY

The initial diagnostic workup included a standardized clinical evaluation; baseline laboratory tests; 12-lead electrocardiography (ECG); and testing for orthostatic hypotension. Selected additional testing was done based on abnormal findings after the initial workup. Patients in whom the cause of syncope remained undetermined received serial cardiovascular diagnostic tests: bidimensional Doppler transthoracic echocardiography, bilateral carotid sinus massage, prolonged monitoring with ECG, and passive upright tilt testing. Electrophysiologic studies were done on the basis of current recommendations. Echocardiography findings considered to be diagnostic of syncope were severe aortic stenosis, hypertrophic cardiomyopathy with outflow tract obstruction, severe pulmonary artery hypertension, and left atrial myxoma or thrombus with protrusion and outflow tract obstruction. An abnormal, relevant, but nondiagnostic finding was reduced left ventricular ejection fraction (LVEF) ≤ 40%.

MAIN OUTCOME MEASURE

Final diagnosis.

MAIN RESULTS

The initial evaluation identified probable causes of syncope in 495 patients (76%). 8 of 20 patients (40%) with suspected aortic stenosis (murmur and suggestive history) had severe stenosis on echocardiography, and no more cases were diagnosed during follow-up. Of 155 undiagnosed patients, cardiovascular testing identified cardiac causes (ventricular tachycardia, atrioventricular block, and sinus bradycardia or pause) in 24 patients (16%) and noncardiac causes (vasovagal, hypotension, and carotid sinus hypersensitivity) in 22 (14%). The echocardiography result was normal (n = 50) or nonrelevant (n = 17) in all patients with a negative cardiac history and a normal ECG result (n = 67 [43%]). In those with a positive cardiac history or an abnormal ECG result (n = 88 [57%]), echocardiography was normal or nonrelevant in 64 patients (73%) and showed systolic dysfunction (LVEF ≤ 40%) in 24 patients (27%). Of the patients with normal or nonrelevant findings, 19% had a final diagnosis of arrhythmia, whereas 50% of those with LVEF ≤ 40% had a final diagnosis of arrhythmia.

CONCLUSION

In patients with unexplained syncope, echocardiography was useful in stratifying risk in patients with a positive cardiac history or abnormal results on electrocardiography.

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COMMENTARY

The prognosis of patients with syncope varies. Those with cardiac syncope or syncope of unknown cause have an increased risk for death compared with patients without syncope or those whose syncope is determined to have a vasovagal or orthostatic cause (1). Because syncope may be a harbinger of sudden death in some patients but benign in others, appropriate diagnostic evaluation is warranted to stratify risk for patients with syncope.

The study by Sarasin and colleagues supports routine use of echocardiography in patients with cardiac syncope or patients with unexplained syncope and a history of cardiac disease or abnormal ECG results. In the latter subgroup of patients, echocardiography helps primarily by identifying patients with decreased LV systolic function. This is an important finding, since many of these patients are at high risk for sudden cardiac death and may benefit from implantation of a cardiac defibrillator (2).

The results also suggest that patients with a negative cardiac history and a normal ECG result do not require routine echocardiography. Definitive conclusions cannot be drawn, however, because the sample size of this subgroup was relatively small. It is possible that occurrences of LV dysfunction or other rare cardiac causes of syncope may have been detected if a larger sample size was evaluated, although the overall usefulness of echocardiography in this subgroup would probably have remained low.

The findings of the study by Sarasin and colleagues support the ACC/AHA guidelines, which recommend that echocardiography be done in patients with syncope and clinically suspected heart disease and those with periexertional syncope (3). The guidelines also state that the usefulness of echocardiography in patients without findings suggestive of cardiac disease is less well established and emphasize the need for a prospective study (3). The study by Sarasin and colleagues is the first such study and is an important addition to the medical literature in this regard.

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