

Should you evaluate for CAD in seniors with premature ventricular contractions?

Michelle B. Nobles, MD, and John P. Langlois, MD
Mountain Area Health Education Center Geriatric Medicine Fellowship, Asheville, NC

Sue Stigleman, MLS
Mountain Area Health Education Center Health Sciences Library, Asheville, NC

Evidence-based answer

Yes. Current guidelines suggest evaluating patients with premature ventricular contractions (PVCs) and associated risk factors for underlying coronary artery disease (strength of recommendation [SOR]: **C**, expert opinion).

Frequent PVCs are associated with acute myocardial infarction and sudden death in patients without known coronary artery disease (CAD). They are linked to

increased mortality from all causes in elderly patients with a history of CAD, left ventricular dysfunction, hypertension, or valvular heart disease. Frequent PVCs during recovery from exercise stress testing are also associated with increased mortality.

There is strong evidence against suppressing PVCs with antiarrhythmics (SOR: **A**, randomized controlled trials [RCTs]).

Clinical commentary

Stress preventive measures

I find myself discussing PVCs most often with young women who don't have known heart disease—rather than the elderly. I often discover PVCs on physical examination in the office or see them on a Holter monitor ordered to rule out other more worrisome arrhythmias.

This reminds me that I need to not only consider the issue of treatment aimed at suppressing PVCs (not helpful except when

the patient has significant symptoms), but also to consider whether the patient has risk factors for CAD.

In future discussions with patients about PVCs, I plan to shift the focus to measures to prevent CAD—specifically tobacco cessation, weight management, daily physical activity, and a healthy diet.

Jennifer Lochner, MD
Oregon Health and Sciences University, Portland

FAST TRACK

Frequent PVCs are linked to acute MI and sudden death in patients without known coronary artery disease

Evidence summary

A consistent definition of frequent PVCs doesn't exist in the literature. Some studies have found a significant risk of death or acute myocardial infarction associated with >30 PVCs per hour.^{1,2} The 2006 American College of Cardiology/American Heart Association/European Society

of Cardiology guideline defines frequent PVCs as >10 per hour.³

Despite the association between frequent PVCs and increased risk of death and cardiac events, our review didn't find studies that indicate the utility of evaluation strategies for higher-risk patients.

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TABLE

Characteristics of patients with PVCs who are at higher risk of cardiac disease/death

PATIENT CHARACTERISTICS	LOWER RISK	HIGHER RISK
Morphology	Unifocal PVCs <10 PVCs per hour	Complex multifocal PVCs Ventricular tachycardia Ventricular fibrillation >10 PVCs per hour
Symptoms	Asymptomatic	Palpitations Presyncope Syncope
Preexisting conditions	None	Known history of CAD Structural heart disease Valvular heart disease Cardiomyopathy

CAD, coronary artery disease, PVCs, premature ventricular contractions.

Source: American College of Cardiology et al.³

FAST TRACK

There is strong evidence against suppressing PVCs with antiarrhythmics

Frequent PVCs predict increased mortality

The Framingham study looked at the prognostic implications of frequent PVCs (>30 per hour) in a cohort of symptomatic patients examined over a 6-year period.¹ Men, but not women, had a significant increase in all-cause mortality (relative risk [RR]=2.36; 95% confidence interval [CI], 1.65-3.2) and myocardial infarction or sudden death (RR=2.12; 95% CI, 1.33-3.38). The Copenhagen Holter study of a cohort of healthy patients demonstrated an increased risk of myocardial infarction or cardiovascular death in patients with >30 PVCs per hour (hazard ratio [HR]=2.85, 95% CI, 1.16-7.0).²

Frequent PVCs occurring during recovery from stress testing are also associated with increased mortality. A large prospective cohort study followed more than 29,000 patients with varying degrees of risk for 5 years. After adjusting for confounding variables, frequent PVCs (≥ 7 per minute or more complex ventricular ectopy) during recovery predicted an increased risk of death (HR=1.5; 95% CI, 1.1-1.9). Frequent PVCs arising during exercise stress testing were not associated with increased risk.⁴

Suppressing PVCs is a bad idea

Studies have evaluated whether suppressing PVCs with antiarrhythmic agents improves prognosis. Both Cardiac Arrhythmia Suppression Trials (CAST I: encainide and flecainide; CAST II: moricizine) showed that suppressing frequent PVCs significantly increased mortality in the treatment groups.^{5,6}

Recommendations

In 2006, the American College of Cardiology, American Heart Association, and European Society of Cardiology published their *Guidelines for Management of Patients with Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death*.³

The **TABLE** summarizes characteristics of patients with PVCs who were at higher risk of underlying cardiac disease and death. All patients with PVCs should have a history and physical examination, electrocardiogram, and electrolyte studies. Higher-risk patients should be considered for further evaluation, including stress testing, echocardiography, and ambulatory electrocardiogram (SOR: C, opinion). ■

References

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