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

Evidence-based answer
Yes. Current guidelines suggest evaluating patients with premature ventricular contractions (PVCs) and associated risk factors for underlying coronary artery disease (CAD). 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 and are also associated with increased mortality.

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.

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. The 2006 American College of Cardiology/American Heart Association/European Society of Cardiology guideline defines frequent PVCs as >10 per hour. 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.
TABLE 1
Characteristics of patients with PVCs who are at higher risk of cardiac disease/death

<table>
<thead>
<tr>
<th>PATIENT CHARACTERISTICS</th>
<th>LOWER RISK</th>
<th>HIGHER RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphology</td>
<td>Unifocal PVCs &lt;10 PVCs per hour</td>
<td>Complex multifocal PVCs Ventricular tachycardia Ventricular fibrillation &gt;10 PVCs per hour</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Asymptomatic</td>
<td>Palpitations Presyncope Syncope</td>
</tr>
<tr>
<td>Preexisting conditions</td>
<td>None</td>
<td>Known history of CAD Structural heart disease Valvular heart disease Cardiomyopathy</td>
</tr>
</tbody>
</table>

CAD, coronary artery disease; PVCs, premature ventricular contractions.
Source: American College of Cardiology et al.3

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).7

References