

THE EFFECTIVE PHYSICIAN

Noninvasive Assessment of CAD in Women

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Background

Cardiovascular disease remains the leading cause of death in women, with more than 240,000 deaths from coronary artery disease annually. The American Heart Association recently released a synopsis of current evidence on noninvasive assessment of CAD in women.

Conclusions

Although the incidence of coronary death in men has declined in recent decades, the incidence in women has remained stable or increased, depending on the study cited.

Women, especially those younger than 55 years, have higher rates of recurrence and mortality from acute MI than similar-aged men, as well as greater short-term risk of adverse outcomes following revascularization.

Women are less likely than men of the same age to have obstructive CAD (left-main and triple-vessel disease, in particular). Women have higher rates of nonobstructive and single-vessel disease, which highlights the need for prevention, as well as recognition of the diagnostic challenge this poses for clinicians.

CAD is less common in premenopausal women, and the incidence remains lower than in men until approximately 70 years of age.

Classification of chest pain as "typical," "atypical," or "nonanginal" is based on studies of predominantly male populations; nevertheless, symptoms remain useful in developing pretest probability of disease to allow effective testing.

Implementation

The initial step in evaluating risk of cardiovascular disease in symptomatic and asymptomatic women is calculation of global risk using the Framingham risk score (FRS) or other validated charts or tools.

The risk of CAD is low in most asymptomatic premenopausal women; screening stress testing or imaging of such women is not supported by current evidence.

The selective use of imaging for risk stratification in asymptomatic women at intermediate cardiovascular risk (FRS 0.6%-2.0% annual risk) is controversial.

Women with diabetes or previously diagnosed vascular disease, and other asymptomatic women at high risk (annual risk of CAD > 2%), should be treated by using the secondary prevention goals applicable to patients with proven CAD. Emerging evidence suggests that women with chronic kidney disease may warrant use of similar prevention goals.

Since the publication in 2000 of the American College of Cardiology/AHA expert consensus statement, which noted that there were insufficient data to support routine cardiac CT to detect coronary calcium, one published trial of more than 4,000 women has shown that this technique may be useful for risk stratification of intermediate- or higher-risk women. In the absence of further data, this technique is recommended only for clinically selected women at intermediate risk.

Stress testing and/or imaging is recommended for symptomatic women at intermediate or high risk of CAD. Treadmill testing with ECG should be used in those symptomatic women with intermediate risk of CAD who have a normal resting ECG and who are capable of maximal exercise. The diagnostic ac-

curacy of treadmill ECG testing in women is improved by incorporation of physiologic parameters—such as Duke treadmill score, exercise capacity, and/or heart rate recovery—into interpretation of ST-segment changes.

Stress echocardiography or stress myocardial perfusion SPECT scanning is highly accurate for risk stratification and detection of CAD in symptomatic women with intermediate or high pretest likelihood of disease.

Imaging is warranted for symptomatic women with diabetes, due to their high risk of CAD, and in those with a prior abnormal or indeterminate treadmill ECG test.

Exercise stress echo or exercise SPECT imaging is recommended in women with an abnormal resting ECG who are able to exercise. Dobutamine stress echo or SPECT scanning with pharmacologic vasodilator stress is recommended for women incapable of exercise.

Dobutamine stress echocardiography has been reported in one metaanalysis to have higher sensitivity but lower specificity than stress echocardiography using adenosine or dipyridamole.

Myocardial perfusion imaging using thallium-201 in women has a higher incidence of false-positive results than technetium-99m sestamibi scanning. This is attributable to breast attenuation in the anterior and anterolateral segments and small left-ventricular chamber size.

Cardiovascular MRI is an area of active research. To date, limited data from expert centers support its use in the detection of CAD in symptomatic women.

Ultrasound measurement of carotid intima media thickness has been shown to have independent value for prediction of cardiovascular outcomes in women over 45 years of age, with greater predictive value than in men. However, more precise measurement standards and data indicating improved outcomes will be needed before this technique can be considered a clinical standard.

Reference

J.H. Mieres, et al. Role of noninvasive testing in the clinical evaluation of women with suspected coronary artery disease: Consensus statement from the Cardiac Imaging Committee, Council on Clinical Cardiology, and the Cardiovascular Imaging and Intervention Committee, Council on Cardiovascular Radiology and Intervention, American Heart Association. *Circulation* 2005;111:682-96.



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Urge Hypertensives To Change Habits

BY SHERRY BOSCHERT
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SAN FRANCISCO — Most physicians believe in urging hypertensive patients to alter their lifestyle in beneficial ways, even though this seldom comes to pass, Norman Kaplan, M.D., said at the annual meeting of the American Society of Hypertension.

"I'm not sure that we're going to be depending as much on lifestyle modifications as we have in the past" because of the recognition that high blood pressures need to be lowered quickly, said Dr. Kaplan, professor of medicine at the University of Texas, Dallas.

He described lifestyle modifications that do and don't work in treating hypertension:

► **Smoking cessation.** Usually found at the bottom of lists of lifestyle modifications for treating

hypertension, smoking cessation deserves first mention because it is the major reversible cardiovascular risk factor in hypertensive smokers. Until recently, physicians didn't recognize the pressor effects of nicotine because patients weren't allowed to smoke during blood pressure measurements.

Ambulatory monitoring consistently shows higher BPs while smoking.

Advise patients repeatedly to stop smoking, and explain or show to them the pressor effect of smoking, Dr. Kaplan said. Nicotine replacement products such as patches should not have persistent pressor effects, but advise patients to check their BP on these products anyway because some people may be particularly sensitive.

► **Weight loss.** Significant weight loss reduces blood pressure, but most dieters put the pounds back on in a short amount of time. Studies comparing weight loss diets suggest that the cheapest and "probably the most logical" method—Weight Watchers—may be the best diet strategy, he said.

For morbidly obese people (body mass index greater than 40 kg/m²), gastric bypass surgery typically results in a 30% weight loss over 10 years, as shown in a study of 1,000 patients. The surgery reduced the incidence of diabetes by about one-third and lowered the risk of dyslipidemia and hyperuricemia, compared with not having gastric bypass surgery, Dr. Kaplan said. But

the surgery did not radically alter the risk for hypertension.

Gastric banding surgeries have been less successful in morbidly obese patients. It appears that enough food is forced past the banded stomach over time that the patient regains the weight initially lost after surgery.

► **Physical activity.** Unhealthy diets and physical inactivity share the blame equally for Americans' march toward morbid obesity.

Duration is more important than intensity of physical activity for lowering BP, studies have shown. Thirty minutes on a treadmill exercising at 50%-75% of maximal heart rate significantly reduced BP and the effects persisted over 24 hours, one study found.

A metaanalysis of studies on diabetic patients found that walking as little as 2 hours each week reduced mortality by about 40%,

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compared with less active patients, Dr. Kaplan said.

► **Sodium reduction.** Patients who reduce their sodium intake typically return to old habits over time. The result is that no difference is seen after 5 years, according to an analysis of about 30 studies.

People are surrounded by high-sodium foods in U.S.

Some fast food items pack 1,000-3,000 mg sodium each. "Most people have no perception of what they're eating when they eat this kind of food," he said.

► **Moderation of alcohol.** Drinking modest amounts of alcohol while eating food does not increase the risk of hypertension and may even provide some cardiovascular benefits, he said. Consuming alcohol without food or having more than three drinks per day increases the risk for hypertension and other health problems.

► **Increasing potassium.** Hypertensive patients can reduce their BP by taking 40-80 mmol/day of supplemental potassium, but it's better to recommend that patients eat more fruits and vegetables to boost their potassium intake. One reason the Dietary Approaches to Stop Hypertension diet works is that it triples the typical potassium intake, Dr. Kaplan noted.

► **Reducing caffeine.** The first cup of the day causes a pressor effect in many people. Advise patients monitoring their BP to check before and after drinking coffee or tea containing caffeine, Dr. Kaplan said. ■