⚖ Putting Prevention into Practice

An Evidence-Based Approach

Using Nontraditional Risk Factors in Coronary Heart Disease Risk Assessment

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EB CME

This clinical content conforms to AAFP criteria for evidence-based continuing medical education (EB CME). See CME Quiz on page 389.

The case study and answers to the following questions on using non-traditional risk factors in coronary heart disease risk assessment are based on the recommendations of the U.S. Preventive Services Task Force (USPSTF), an independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services. More detailed information on this subject is available in the USPSTF Recommendation Statement and evidence synthesis on the USPSTF Web site (http://www.uspreventiveservicestaskforce.org/). The practice recommendations in this activity are available at http://www.uspreventiveservicestaskforce.org/uspstf/uspscoronaryhd.htm.

Case Study

A 47-year-old man with no history of coronary heart disease (CHD), diabetes mellitus, or any CHD risk equivalent asks about smoking cessation therapies. His past laboratory results include a total cholesterol level of 230 mg per dL (5.96 mmol per L) and a high-density lipoprotein level of 35 mg per dL (0.91 mmol per L). He has never been treated for hypertension, and his average blood pressure is 130/80 mm Hg. His CHD risk score, as calculated by the National Cholesterol Education Program, Adult Treatment Panel III Framingham risk calculator, is 18 percent, placing him at intermediate risk of a CHD event in the next 10 years.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF), how should this patient's risk of a CHD event be determined?

- ❏ A. Use the patient's Framingham model score to assess CHD risk and guide risk-based preventive therapy.
- ❏ B. Use carotid intima-media thickness or the Framingham model score.
- ❏ C. Use the Framingham model score in combination with nontraditional CHD risk factors, such as ankle-brachial index and lipoprotein (a) level.
- ❏ D. Use the coronary artery calcification score on electron beam computed tomography.

2. The patient is motivated to stop smoking because his friend, who smoked, recently died of a heart attack. His friend had a high homocysteine level, and he wonders whether his own homocysteine level should be checked. Which one of the following responses is best?

- ❏ A. Tell him that his homocysteine level would not change the assessment of his CHD risk.
- ❏ B. Tell him that you do not recommend measuring his homocysteine level, but you do recommend determining his coronary artery calcification score.
- ❏ C. Tell him that checking his homocysteine level would be helpful, because aggressive therapy is recommended in patients with high homocysteine levels.
- ❏ D. Agree to measure his homocysteine level, as well as his high-sensitivity C-reactive protein (CRP) and fasting blood glucose levels to better assess his CHD risk.

3. Although there is not enough evidence to determine the net benefit of using nontraditional risk factors in CHD screening, which of the following risk factors could potentially reclassify someone from the intermediate-risk category to the high-risk category?

- ❏ A. Leukocyte count.
- ❏ B. High-sensitivity CRP level.
- ❏ C. Ankle-brachial index.
- ❏ D. Periodontal disease.

Answers appear on the following page.

Answers

1. The correct answer is A. The USPSTF concludes that physicians should use the Framingham model to assess CHD risk and guide risk-based preventive therapy. This should continue until there is sufficient evidence on the magnitude of the reduction in CHD events and CHD-related deaths obtained by using nontraditional risk factors in CHD screening. The nontraditional risk factors included in this recommendation are high-sensitivity CRP level, ankle-brachial index, leukocyte count, fasting blood glucose level, periodontal disease, carotid intima-media thickness, coronary artery calcification score on electron beam computed tomography, homocysteine level, and lipoprotein (a) level.

2. The correct answer is A. Knowing the patient's homocysteine level does not change the assessment of his CHD risk. In the absence of evidence of the effectiveness of adding nontraditional risk factors to CHD risk assessment, patient and clinical staff time and effort may be better used to provide other important health services of proven benefit.

3. The correct answers are B and C. Adding high-sensitivity CRP and ankle-brachial index to CHD screening could reclassify some persons with intermediate Framingham CHD risk scores to the low- or high-risk group. This would better target treatment and maximize screening benefit while minimizing harms. However, there is insufficient evidence to determine the ultimate effect on the occurrence of CHD events and CHD-related deaths.

About 11 percent of men with an intermediate CHD risk would be reclassified into the high-risk category by high-sensitivity CRP screening, and about 12 percent of men would be reclassified into the low-risk category. National estimates of the number of women who would be reclassified by high-sensitivity CRP screening are not reliable because of small study samples. The available meta-analysis of individual data on ankle-brachial index does not yield a clear picture on the proportion of intermediate-risk men who would be reclassified, but it does suggest that approximately 10 percent of women would be reclassified from intermediate to high risk of CHD.

There is insufficient evidence to determine the percentage of persons with an intermediate CHD risk who would be reclassified by screening with nontraditional risk factors other than high-sensitivity CRP and ankle-brachial index.

SOURCES

U.S. Preventive Services Task Force. Using nontraditional risk factors in coronary heart disease risk assessment: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2009;151(7):474-482.

Helfand M, Buckley DI, Freeman M, et al. Emerging risk factors for coronary heart disease: a summary of systematic reviews conducted for the U.S. Preventive Services Task Force. *Ann Intern Med.* 2009;151(7):496-507. ■