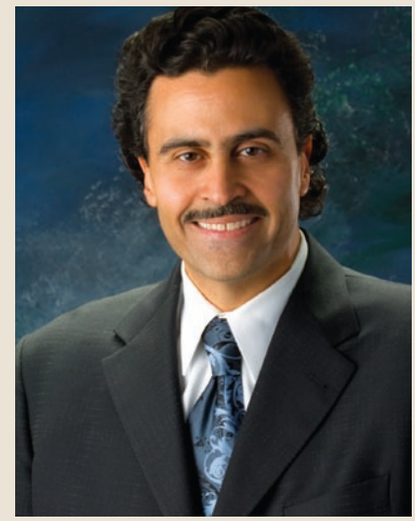
Screening for Coronary Heart Disease

The death rate from coronary heart disease (CHD) has fallen significantly during the past 40-50 years. Yet, CHD remains the leading cause of death in adults in the United States.



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FOR MANY PEOPLE, ADVANCED CHD can be present with little or no symptoms and can progress rapidly. How rapidly? The first signs of coronary heart disease can be catastrophic: heart attack or sudden death! As a result, there is considerable interest in finding CHD in individuals before they develop symptoms. Some seek their doctor's advice, while others choose to go to establishments that offer screening tests that are available without a doctor's prescription. The intention is to identify individuals with CHD at a point in time when appropriate treatment can make a difference.

What is the best screening test for CHD? Should everybody be screened with a test or is a consultation with a doctor sufficient? If not, who should undergo testing for CHD? Sometimes, the answers to these questions are not straightforward. If screening tests for CHD are not used judiciously and in the appropriate patients, these can lead to falsely abnormal results that lead to further tests and procedures that can be expensive and unnecessary.

What most people don't realize is that testing (especially in people without symptoms) is not black or white. An abnormal test does not necessarily mean that disease is present, nor does a normal test rule out disease. How can this be? The reality is that on a daily basis doctors use something called conditional probability to assist with their decision making.

Before ordering a test, the physician estimates the probability – low, intermediate or high – that a patient has the disease (such as CHD) in question. The doctor uses information such as a patient's symptoms or risk factors to figure that out. Depending on that probability, the test results can have different meanings. For example, if the chance that a disease is present before the doctor orders the test (pretest probability) is thought to be low, an abnormal test will likely be falsely abnormal. However, if the pretest probability of disease is thought to be high, then an abnormal test result is more likely to correctly identify the presence of disease.

When a patient without symptoms goes to a physician for a screening evaluation of CHD, it is important to identify any risk factors that patient may have. These include smoking, high blood pressure, high cholesterol, diabetes, and premature heart disease (heart attack or sudden death) in a first degree relative under the age of 60. Is the patient at increased risk for CHD due to other diseases such as peripheral arterial disease or chronic renal failure? Does the patient have a job which is linked to public safety, such as pilots, air traffic controllers, police officers, or firefighters? Is the patient someone who is sedentary and wishes to start a vigorous exercise program? If the evaluation suggests that the patient is at low risk for CHD, most clinicians would agree that screening is not necessary.

Once the physician has identified an individual with multiple risk factors for CHD, what would be the best screening test? For most patients, exercise EKG testing is readily available the easy, to perform, and has the longest track record regarding diagnostic accuracy. It is not perfect however, and depends on the patient being able to perform exercise. Also, the accuracy of the test can be limited in some individuals who have certain EKG abnormalities. In those patients, nuclear imaging or echocardiography can be performed which can improve the accuracy of the stress test.

Many people are aware of other tests which have been advertised in the media to screen people for CHD. This includes the CT calcium score as well as the CT coronary angiogram. These tests can potentially give very useful and important information. However, the main limitation of these tests is the fact that they expose patients to medical radiation, and in the case of the CT coronary angiogram, intravenous contrast. For these reasons, most major medical societies do not recommend either of these tests for routine screening of low risk individuals, but there can be benefits with selective use in higher risk patients.

CHD continues to pose a significant public health problem, particularly in those individuals who do not have symptoms. However, with proper evaluation and testing those patients at high risk can be identified and treatment started which can positively impact health. If you think you may be at risk or benefit from screening, please consult your doctor.