Simple test helps predict heart attack risk

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The use of common and readily available screening tests—like the ankle brachial index (ABI)—along with traditional risk scoring systems—such as the Framingham Risk Score—has the potential to prevent devastating heart attacks in thousands of individuals who are not originally thought to be at high risk (according to Framingham alone), say researchers at the Society of Interventional Radiology's 34th Annual Scientific Meeting. About 25 percent of all heart attacks or sudden cardiac deaths in the United States occur in individuals thought to be at low risk.

In the study, information was analyzed from the 1999-2004 National Health and Nutrition Examination Survey (NHANES)—a nationally representative cross-sectional survey of the U.S. population for 6,292 men and women ages 40 and older without known history of heart disease, stroke, diabetes or atherosclerotic vascular disease—along with available data on standard cardiovascular risk factors and screening tests (like the ABI, which is a comparative blood pressure test). For the first time, researchers determined the prevalence of peripheral arterial disease (PAD) in a large population of women and men who were not considered at high risk for cardiovascular disease. And the results are surprising: novel risk factors (those not traditionally considered in the Framingham Risk Score) are abnormal in up to 45 percent of those not considered high risk for coronary heart events.

"This is significant news that can profoundly impact public health. If novel risk factors are shown to improve risk prediction, they could be very valuable because the prevalence of abnormal values is high in populations not known to have high risk," said Timothy P. Murphy,

M.D., an interventional radiologist and director of the Vascular Disease Research Center at Rhode Island Hospital in Providence. "These simple tests—like ABI screening—have the potential to improve the accuracy of cardiovascular risk prediction and thereby have significant public health impact by helping identify people for intensive medical therapy and preventing heart attacks and strokes," said Murphy.

While 91 percent of the NHANES group was considered at low or intermediate risk of cardiovascular disease, according to Framingham criteria alone, almost 45 percent of them were found to have at least one of three conditions: an abnormal ABI or elevated plasma fibrinogen or elevated plasma C-reactive protein (CRP). "Even with abnormal ABI, which was the least prevalent of the three novel risk factors evaluated, that number translates into about 2.1 million Americans, age 40 and older, who have no known history of heart disease, stroke, diabetes or atherosclerotic vascular disease," said Murphy. "There is also a good chance that ABI, which actually detects subclinical already-established atherosclerotic disease, may actually perform better in terms of risk prediction than fibrinogen or C-reactive protein because it may be more specific," Murphy said.

About 1.1 million Americans every year have heart attacks, and almost a third of those heart attacks results in death. Another 750,000 individuals experience stroke each year. Risk factors—like smoking, diabetes, high blood pressure and obesity—increase one's risk of heart attack and are associated with 75 percent of all heart attacks. However, the other 25 percent of heart attacks or sudden cardiac deaths occur in individuals not known to have risk factors and thought to be at low risk for cardiovascular disease. "The earlier the detection of who's at risk for heart attacks is crucial. Primary prevention—such as initiating lifestyle changes and medical intervention directed at modifying risk factors (smoking cessation, blood glucose and blood pressure control, lowering cholesterol and exercise)—can be started to improve one's health before

costlier and more intensive interventions are needed," said Murphy.

"Interventional radiologists often provide PAD screening tests like the ABI. Primary care doctors, who oversee medical management of the vast majority of the public at risk for cardiovascular disease, should partner with interventional radiologists in evaluating patients' risk for cardiovascular disease, as well as for managing established PAD," said Murphy. ABI, used to diagnose PAD, is a painless test that compares the blood pressure in the legs to the blood pressure in the arms to determine how well the blood is flowing and whether further tests are needed. Elevated results for plasma fibrinogen and plasma C-reactive protein, laboratory-based tests, can indicate inflammation.

Source: Society of Interventional Radiology

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