

Coronary artery calcium scan most effective in predicting risk of heart disease: research

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Heart calcium scans are far superior to other assessment tools in predicting the development of cardiovascular disease in individuals currently classified at intermediate risk by their doctors, according to researchers at Wake Forest Baptist Medical Center.

The test, known as [coronary artery calcium](#) (CAC), uses a [CT scan](#) to detect calcium build-up in the arteries around the heart. The study findings are presented in the Aug. 22 issue of the [Journal of the American Medical Association](#).

Current [medical guidelines](#) recommend classifying individuals as high, intermediate or low risk using the Framingham Risk Score (FRS), a cardiovascular [risk-prediction](#) model. However, doctors realize that the model isn't perfect and that the intermediate group actually includes some individuals who could benefit from more aggressive drug therapy, as well as individuals who could be managed solely with lifestyle measures.

"We know how to treat patients at low and high risk for heart disease, but for the estimated 23 million Americans who are at intermediate risk, we still are not certain about the best way to proceed," said Joseph Yeboah, M.D., assistant professor of cardiology at Wake Forest Baptist and lead author of the study.

The Wake Forest Baptist study, which was funded by the National Heart Lung and Blood Institute (NHLBI) of the National Institutes of Health, evaluated which of the top-tier assessment tools best identified people within the intermediate group who were actually at higher or lower risk. Determining the relative improvements in prediction afforded by various tests, especially when used in conjunction with the FRS, could help identify intermediate-risk people who may benefit from more aggressive primary [prevention interventions](#), including the use of aspirin and the setting of lower targets for drug treatment of LDL cholesterol and blood pressure, Yeboah said.

Using data from the NHLBI's Multi-[Ethnic Study](#) of Atherosclerosis (MESA) study, the researchers did a head-to-head comparison of six top assessment tests for [cardiovascular risk](#) prediction in intermediate-risk people: CAC score, ankle-brachial index, brachial flow mediated dilation, carotid intima-media thickness, high sensitivity C-

reactive protein and family history of heart disease.

Of the 6,814 total MESA participants from six communities across the country, 1,330 were considered at intermediate risk and were included in this study. The researchers determined that the CAC score proved the best in predicting which among the intermediate-risk people would go on to have heart disease in the ensuing 7.5 years (average) of follow-up observation.

"If we want to concentrate our attention on the subset of intermediate-risk patients who are at the highest risk for cardiovascular disease, CAC is clearly the best tool we have in our arsenal to identify them. However, we have to look at other factors such as costs and risks associated with radiation exposure from a CT scan before deciding if everyone in the intermediate group should be screened," Yeboah said.

Additional research is needed to explore the costs, benefits and risks of widespread use of CAC screening in people at risk of heart disease, he said.

More information:

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JAMA. 2012;308[8]:816-817.

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