
Calcified Coronaries May Elevate Women Out of Low-Risk Heart Status

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WINSTON-SALEM, N.C., Dec. 11 -- Any amount of coronary calcification in women ostensibly at low risk for cardiovascular events doubles their adjusted risks, found investigators here.

Furthermore, as calcium scores rose, so, too, did the risk compared with women whose coronaries had no detectable calcium, Susan Lakoski, M.D., of Wake Forest, and colleagues reported in the Dec. 10 issue of the *Archives of Internal Medicine*.

The findings came from the Multi-Ethnic Study of Atherosclerosis (MESA), which included 3,601 women of diverse ethnic groups, ages 45 to 84, at baseline in the year 2000. Low risk was defined by the Framingham risk score, the standard approach to estimating the 10-year absolute risk for coronary disease. The calcium score was measured by coronary CT.

In the U.S., low risk is considered to be an estimated risk of a heart event less than 10% in 10 years, while a high risk would be 20% or greater during this period.

Although 95% of U.S. women younger than 70 are considered low risk and do not qualify for aggressive management, most women will ultimately die of heart disease, the researchers wrote. This suggests that the Framingham risk score does not adequately stratify women in ways that would be useful for prevention, they said.

Action Points

- Explain to patients who ask that in this study CT imaging of the heart found that women considered at low risk for cardiovascular events, such as heart attack or stroke, might need to be reclassified according to the level of calcium in their coronary arteries.
- Explain that more studies are needed of both these results and the possible risks and costs of routine heart imaging.

In their study, a coronary disease event was defined as MI, angina, resuscitated cardiac arrest, or coronary heart disease death. A cardiovascular event was defined as a coronary disease event, stroke or stroke death, other atherosclerotic death, or other type of cardiovascular death.

Excluding women with diabetes and those older than 79, 90% of women in the MESA study (mean age, 60 ± 9 years) were classified as low-risk. Four percent of these low-risk women had a high calcium score of 300 or more.

The prevalence of a coronary calcium score of more than zero in this low-risk subset of 870 women was 32%. Over a mean 3.75 years, 24 low-risk women had heart events such as MI or angina (0.9% risk), while 34 (1.3% risk) had a cardiovascular event.

Compared with women with no detectable coronary artery calcium, low-risk women with a calcium score greater than zero were at an increased risk for a heart event (HR: 6.5, 95% CI: 2.6 to 16.4) and for cardiovascular events (HR: 5.2, 95% CI: 2.5 to 10.8).

In addition, a calcium score of 300 or higher in 4% of the women was highly predictive of future heart events compared with women with nondetectable calcium. These putative low-risk women had an absolute 6.7% risk of a heart event and an 8.6% absolute risk of a cardiovascular event over 3.75 years.

This study had several limitations including the fact that the cohort, though ethnically mixed, came from six designated sites and may not be truly representative of the U.S. population, the authors pointed out. Also, modest effect sizes and moderate confidence intervals have left open the possibility of error.

These data shed new light on cardiovascular risk and the method used to evaluate and treat middle-age and older women, the investigators said. A longer follow-up will be required to understand the implications of calcium scoring and whether both screening and more aggressive pharmacologic therapy in lower-risk women with evidence of subclinical atherosclerosis will reduce overall the cardiovascular burden, they concluded.

In an accompanying editorial Sarah R. Preis, Sc.D., and Christopher J. O'Donnell, M.D., of the National Heart, Lung, and Blood Institute's Framingham Heart Study, wrote that, at present, it would not be possible to reclassify low-risk women according to their calcium score because for several reasons, including lack of better cut-points, the evidence is not there yet.

In addition, they wrote, there is concern about increased lifetime cancer risk from radiation exposure during CT angiography, as well as the allergic and nephrotoxic risks of contrast agents. Cost is another consideration, they said.

The researchers and the editorial writers reported no financial conflicts. The study was supported by contracts and a grant from the National Heart, Lung, and Blood Institute.

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Source reference:

Lakoski SG, et al "[Coronary artery calcium scores and risk for cardiovascular events in women classified as 'low risk' based on Framingham risk score: the multi-ethnic study of atherosclerosis \(MESA\)](#)" *Arch Intern Med* 2007; 167: 2437-2442.