

Coronary Calcium Scoring: Personalized Preventive Care for Those Most at Risk

A commentary published July 6 in *Mayo Clinic Proceedings* by Carl E Orringer, M.D., of the University of Miami Miller School of Medicine, and Kevin C Maki, Ph.D., of Indiana University's School of Public Health, examined the usefulness of coronary artery calcium (CAC) scoring to help individualize preventive cardiovascular care and to help guide clinicians to prescribe statin therapy for those most likely to benefit.

The 2018 American Heart Association/American College of Cardiology/Multi-Society Cholesterol Guideline recommends that clinicians use the Pooled Cohort Equations (PCE) risk calculator to help guide decision-making about the need for statin therapy in those without clinical atherosclerotic cardiovascular disease (ASCVD). The calculator requires entry of risk factor data and provides a population-based estimated 10-year risk for heart attack or stroke.



Dr. Carl Orringer

Most middle-aged individuals are classified as borderline or intermediate risk (5 to 19.9% 10-year risk), a level at which statin therapy is either recommended or considered. The guideline advises consideration of CAC scoring for those in whom the decision about the need to initiate statin therapy is uncertain after a patient-clinician discussion.

A large multi-ethnic study in which risk factor data and CAC scoring were done showed that 40 to 50% of those estimated to be at borderline or intermediate risk have no detectable coronary calcium, a finding that re-classifies such individuals as low risk, for which statins provide little benefit. The test also identifies a group with a high score, who are likely to sustain significant benefit from statin treatment.

Thus, this rapid, widely available test, with less radiation

exposure than a mammogram, and often available for less than \$100, can help direct the use of statins to those most likely to benefit and avoid the need for the risks and expenses of treatment, follow-up testing and medical visits for those likely to derive, at most, minimal benefit from statin therapy. This conclusion was supported in this manuscript by application of the above findings to a large primary prevention randomized controlled trial examining the value of statin use in borderline- or intermediate-risk subjects, and supports the view that CAC scoring information aids in better identifying those most likely to benefit from statin therapy.

The commentary also discusses the potential benefit of the use of calcium scoring in women 50 and older. Women in that age group undergo annual or semi-annual screening mammography. Radiation exposure from a single CAC test is similar to or less than that of a mammogram. As lifetime risk of death from ASCVD is 5 to 10 times higher than for breast cancer, it may be reasonable in women in that age group, who are not at high genetic risk and do not carry other factors associated with heightened breast cancer risk, to substitute a single CAC scoring test for one screening mammogram.

“We hope that our paper will raise awareness of the evidence supporting the use of CAC scoring, both to help patients at low risk to avoid or delay statin therapy, and to more accurately identify those people with coronary plaque in whom statin therapy has well established benefits,” said Dr. Orringer, associate professor of medicine, and Dr. Maki.

The article is posted in the [Mayo Clinic Proceedings](#), which is published by Elsevier.

