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This series is coordinated by Sumi Sexton, MD, Associate Medical Editor.

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No Benefit to Screening with CTA for Asymptomatic CAD in Adults with Diabetes

Clinical Question

Does screening for asymptomatic coronary artery disease (CAD) with computed tomographic angiography (CTA) improve outcomes for adults with type 1 or type 2 diabetes mellitus?

Bottom Line

Using coronary CTA to screen for CAD in adults with type 1 or type 2 diabetes and no indication of existing CAD does not improve outcomes more than standard care. This should come as no surprise because screening for asymptomatic CAD with electron beam tomography (*JAMA*. 2003;289(17):2215-2223), carotid intima-media thickness (*Stroke*. 2001;32(7):1532-1538), and stress myocardial perfusion imaging (*JAMA*. 2009;301(15):1547-1555) also did not improve outcomes. Knowing with additional certainty that a patient is at risk of CAD rarely results in different medical therapy or improved compliance. Perhaps it is time to put the money spent on these types of studies toward more productive endeavors. (Level of Evidence = 1b-)

Synopsis

These investigators wished to determine whether routine screening for CAD with coronary CTA improves outcomes in adults with type 1 or type 2 diabetes without any clinical evidence of CAD. Study eligibility criteria included a history of type 1 or type 2 diabetes, age 50 years or older for men and 55 years or older for women, and no

evidence of existing CAD. Consenting patients (N = 900) randomly received (uncertain allocation concealment) screening for CAD with coronary CTA or no screening. Scan results were divided into four categories: (1) severe stenosis: greater than or equal to 70% stenosis in at least one major proximal or large coronary artery; (2) moderate stenosis: 50% to 69% stenosis; (3) mild stenosis: 10% to 49% stenosis; or (4) normal: less than 10% stenosis.

Patients with severe stenosis were encouraged to undergo diagnostic coronary angiography; those with moderate stenosis underwent stress cardiac imaging and, if the result was abnormal, diagnostic coronary angiography. No further imaging was recommended for patients with mild stenosis or normal coronary arteries. All patients received cardiac risk factor management by their primary care physicians, and surgery or stenting as recommended on the basis of the coronary angiography results. Outcomes were assessed by a team masked to the treatment group assignment and the imaging results. Complete follow-up occurred for all patients for a median of 3.9 years. The study participants had a mean age of 62 years and a diagnosis of diabetes for an average of more than 12 years.

Using intention-to-treat and per-protocol (including only patients who underwent imaging as assigned and recommended) analyses, no significant differences occurred in the composite rate of all-cause mortality, nonfatal myocardial infarction, or unstable angina requiring hospitalization. Patients in the coronary CTA group did have a significantly increased use of statin therapy and high-intensity statin therapy at one year. However, the success rate for reaching prespecified aggressive risk factor reduction care targets at one year in the coronary CTA group was below 50%.

Study design: Randomized controlled trial (single-blinded)

Funding source: Industry plus government

Allocation: Uncertain

Setting: Outpatient (any)

Reference: Muhlestein JB, Lappé DL, Lima JA, et al. Effect of screening for coronary artery disease using CT angiography on mortality and cardiac events in high-risk patients with diabetes: the FACTOR-64 randomized clinical trial. *JAMA*. 2014;312(21):2234-2243.

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