

Coronary Disease Risk Score Predicts Progression of Atherosclerosis on Computed Tomography

CT angiography might be useful to personalize decision-making about preventive therapies in low- or intermediate-risk patients.

Coronary computed tomography angiography (CCTA) can assess the degree and progression of coronary atherosclerosis and higher-risk plaque features, such as remodeling of the blood vessel wall, low attenuation lesions, and spotty calcification. In this analysis, 1005 patients (mean age, 60; 69% with atypical chest pain) from 7 countries were categorized as having low (<7.5%), intermediate (7.5%–20%), or high (>20%) risk based on their 10-year atherosclerotic cardiovascular disease (ASCVD) risk score (*NEJM JW* Dec 15 2013 and *J Am Coll Cardiol* 2014; 63:2935). These patients also underwent serial CCTA (mean time between scans, 3.3 years).

Progression in atherosclerosis volume was significantly greater in those with high ASCVD risk than those with low or intermediate risk. Moreover, development of adverse plaque characteristics was significantly more likely in the high-risk group (e.g., low attenuation lesions developed in 15.4% of high-risk patients vs. 9.5% and 9.4% of intermediate- and low-risk patients, respectively).

COMMENT

In this imaging study, atherosclerosis progressed faster with more adverse plaque features in those with high ASCVD risk scores, which might explain, in part, their higher adverse event risk. The authors point out that as many as two thirds of “low-risk” patients had discernible atherosclerotic plaque by CCTA and that progression was relatively similar in the low- and intermediate-risk groups; therefore, they believe CCTA might be useful as a risk-enhancing factor to personalize decision-making about preventive therapies in those groups. However, it is not yet clear to me that CCTA would improve outcomes in a cost-effective manner over calcium scoring for this purpose. Moreover, the relatively high incidence of reported symptoms suggests that this data registry might not reflect true primary prevention. — **Kirsten E. Fleischmann, MD, MPH, FACC**

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