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MY APPROACH to Risk Assessment of Asymptomatic Patients

Whether Carotid Intima-Media Thickness (IMT) Should Be Part of Routine Risk Assessment

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Dr. Matthew Budoff is Professor of Medicine at the David Geffen School of Medicine at UCLA in Los Angeles California. Here he offers pointers on evaluation of risk stratification of the asymptomatic patient at risk of heart disease.

Commentary

When patients are seen who may need further risk assessment, the clinician must decide on lifelong statin therapy and/or other pharmacologic interventions. The concern is that making an uninformed decision based upon family history or borderline cholesterol may lead to significant under- or over-treatment.

Prognostication of the individual patient still requires judgment. All guidelines dictate that the key determinate be a risk stratification tool, such as the new ACC/AHA Pooled Cohort Analysis or the Framingham Risk Score (FRS). When patients are very low risk or high risk, the decision tree is fairly straightforward. However, many patients will fall into the intermediate or low intermediate risk estimates, and then decision making is unclear. The new ACC/AHA cholesterol and prevention guidelines suggest that coronary artery calcium (CAC) testing is best in this situation, but allow other estimates of risk including family history, C-reactive protein or ankle-brachial index. Each has its weaknesses and sometimes reverting to a direct measure of atherosclerosis such as carotid intimal media thickness (IMT) is beneficial. C-reactive protein is too non-specific and use is fading rapidly in the US and abroad. Ankle-brachial index is too insensitive, only picking up severe cases of atherosclerosis, when intervention with a statin is unlikely to fully benefit patients. Family history of a first-degree relative suffering premature cardiac death does not add predictive value to the FRS or Pooled cohort in large studies of risk stratification such as the Multi-Ethnic Study of Atherosclerosis or Framingham Heart. Thus, direct measures of atherosclerosis gives a direct target for therapies, such as high dose statins.

When the situation arises for additional risk stratification, I typically use a coronary artery calcium scan to ascertain vascular age and actual risk of heart disease in the patient. No test can compare to the 10-fold increased risk associated with a score >100 on this test. However, calcium artery scanning, while shown to be superior to carotid IMT in studies of middle age or older (>45 year old) patients, is somewhat insensitive in the young. So, when faced with a young patient (<45 years old) with a significant family history of coronary heart disease or high cholesterol, I use carotid intimal media thickness (for both measure of carotid wall thickness and plaque) to determine whether statin use would be helpful for this patient. It is clearly shown that statin algorithms of treat all, especially in younger patients, is both cost ineffective and associated with measurable side effects and risk. Having a target such as carotid plaque enhances the benefit and reduces the number needed to treat to prevent an event remarkably. Also, both carotid IMT and coronary artery calcium scans have been shown to

improve compliance, as a “Picture is worth 1,000 words” and demonstrating atherosclerotic plaque to the patient enhances their desire to eat well, exercise and take cardiovascular medications when appropriate.