**A Crystal Ball of Cardiovascular Health: The Coronary Artery Calcium Score**

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Atherosclerosis affects over 26 million people in the United States and is estimated to result in over 2 million hospitalizations every year. A key aspect to reducing the morbidity associated with atherosclerotic cardiovascular disease (ASCVD) is effective preventive therapies. The ASCVD risk calculator is commonly used for individuals aged 40-75 years without known atherosclerosis and an LDL- C level of 70-189 mg/dL. While there are clear-cut guidelines for low-risk and high-risk patients (classified as ≦5% and ≧20% 10-year risk of a cardiovascular event, respectively), there is clinical uncertainty when assessing patients younger than 40 years or those classified as borderline/intermediate-risk. This clinical branch-point is where a coronary artery calcium scoring (CAC) can be useful in determining next steps. This score, reported as Agaston units, quantifies the extent of atherosclerotic burden through the use of an EKG-gated CT scan of the heart. The score can be broken down as follows:

0 units = no identifiable disease

1-99 units = mild disease

100-399 units = moderate disease

≧400 units = severe disease

Risk assessments such as the Multiethnic Study of atherosclerosis (MESA) calculator can then be used to compare CAC in an individual to a reference standard matched age/ethnicity/gender adjusted manner. A recent algorithm by the American Heart Association suggests that those a calcium score of 0 (CAC 0) can consider postponing lipid lowering therapy and undergo a repeat scan after 3- 5 years. Those with CAC ≧ 100 units or ≧75th percentile for their subgroup should receive aggressive LDL-C lowering and additional prevention therapies. It should be noted that CAC does not take into account non-calcified plaque which is more likely to be found in younger populations. In carefully selected patients, CAC can be a helpful, early, risk stratification tool that can jumpstart important conversations regarding primary prevention of cardiovascular events such as heart attacks and strokes.

**References:**

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