Advanced Topics in Cardiac Radiology: Coronary Calcification Scoring

Q.   What is Coronary Calcification Scoring?

A.   Coronary calcification scoring or cardiac scoring is a CT technique to determine the amount of calcium build up in the coronary arteries. Coronary artery calcification is a specific marker for coronary atherosclerosis. The amount of calcification correlates with severity of coronary atherosclerosis and the probability of obstructive disease.

Q.   How is it performed?

A.   The scan is performed on an ultrafast CT (either helical or electron beam CT with similar accuracy) in one breathhold. At AIC an ultrafast multi-slice, multi-detector helical CT is used, and the whole procedure takes just a few minutes.
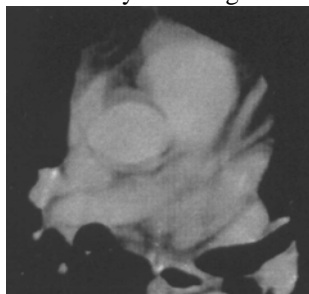
Q.   What happens after the scan?

A.   The data are processed via a special cardiac scoring software package. A radiologist then evaluates the images and puts region of interests (ROI's) on the calcified coronary arteries. At the end, individual scores for four arteries (left main, LAD, circumflex, and right coronary) and a total score are calculated. The total score falls under one of the following categories: **0-1:** NO CALCIFICATION (extremely low likelihood for obstructive coronary disease); **1-10:** MINIMAL CALCIFICATION; **11-100:** SMALL AMOUNT CALCIFICATION; **101-400:** MODERATE CALCIFICATION; **>400:** LARGE AMOUNT CALCIFICATION (high likelihood for extensive coronary atherosclerosis).
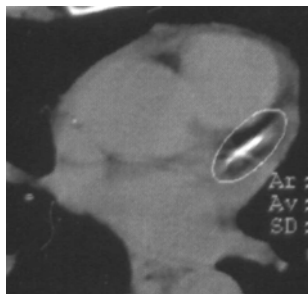
Q.   What's the accuracy of the test?

A.   It has a nearly 100% sensitivity for calcifications and nearly 100% negative predictive value for future coronary events. The positive predictive value ranges from 50 to 80. A zero or very low score implies virtually no coronary obstructive disease with the exception occurring in young patients who smoke (soft plaques). A high score indicates a significant plaque burden and risk for future cardiovascular event. It should be understood that calcification is not site specific for stenosis but rather indicates the extent of atherosclerosis in the coronary arteries overall. The score may be used as benchmark to measure subsequent disease development or assess preventive programs.

Q.   Who should get this test?

A.   Individuals who have any of the following: history of smoking, diabetes, hypertension, hypercholesterolemia, family history of coronary artery disease, obesity, sedentary lifestyle, high level of stress, atypical chest pain, asymptomatic males over 45 and females over 55 years of age.

No calcification   Calcification   in LAD coronary artery

For more information, please call me personally at (661) 949-8111.

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