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Title: The Role of Coronary Artery Calcium (CAC) Scores in Predicting Cardiovascular Health

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Introduction: A coronary artery calcium (CAC) scan is a specific type of CT scan that detects the amount of calcium in a patient's coronary arteries. The existence of large amounts of calcified plaque in the arteries signals the presence of coronary artery disease, increasing the risk of heart attacks and chest pain(angina). An Agatston score, the sum of the area times the weighted density of each calcification, is often used to measure severity. The goal of this literature review was to assess the value of CAC scores both on their own and combined with traditional risk factors in predicting cardiovascular risk. We also determined if risk predictors could be used to improve cardiovascular health.

Methods: The PubMed/Medline database was used to acquire articles on the topic. The studies utilized CT technology to obtain the scores and many studies utilized data from population-based cohort studies from around the world.

Results: CAC scores accurately predict cardiovascular risk, especially when combined with traditional risk factors. They were most beneficial in reclassifying intermediate-risk patients. A CAC score of zero is associated with extremely low mortality rates even when other factors suggest otherwise. CAC imaging was also associated with positive lifestyle changes and better adherence to drug therapy.

Conclusions: CAC scores are highly valuable in predicting cardiovascular risk; however, they are still not widely used in the clinical setting. Early detection of heart disease through the use of CAC scores and improved adherence to disease-preventing drugs can save many lives."