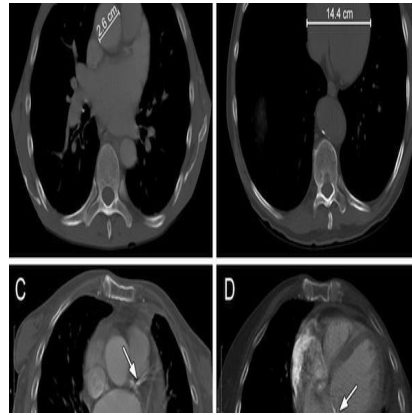




Chest CT Predicts Cardiovascular Risk



New research from the Netherlands suggests that computed tomography (CT) has the potential to identify individuals at high risk for cardiovascular disease and its related events such as heart attack. The study, carried out at the University Medical Center in Utrecht and published online in the journal *Radiology*, looked at the use of chest CT for predictive purposes rather than its typical role as a diagnostic tool. An imaging-based prediction model stands to complement standard methods of cardiovascular risk assessment.

Call for Clinical Risk Assessment

Existing models for predicting cardiovascular events are notoriously uncertain, with many heart attacks occurring in people for whom the conventional risk stratification tool does not detect any danger. Risk factors included in the current model include high blood pressure, tobacco usage, diabetes, elevated cholesterol levels and advanced age; gender also plays a role.

The ability to directly measure the likelihood or existence of early atherosclerosis represents a necessary shift in risk assessment strategy, according to the study's authors. Their imaging-based prediction model considers the contributions of so-called incidental findings, which are unexpected or unrelated to a patient's original chest CT indication. As of now, there is no guideline for how such findings should be weighted.

A Retrospective Study for Predictive Improvements

The study, conducted by Pushpa M. Jairam, MD, PhD and her colleagues, examined follow-up data from patients who had chest CT exams for indications unrelated to cardiovascular disease. 1,148 cardiovascular events occurred in the group of 10,410 patients during a mean follow-up period of 3.7 years. The goal was to determine whether radiologic data may complement existing clinical strategies for cardiovascular risk screening.

To develop their prediction model, the researchers first examined the CT scans from the patients who had experienced a cardiovascular event and from a sample of 10 percent of the other patients, selected at random. After visually grading the scans for a set of cardiovascular findings, they finalised a model which accurately identified the individuals with relevant clinical risks. In addition to age and gender, variables included in the model were cardiac diameter, CT indication, and calcifications of the descending aorta, left anterior descending coronary artery and mitral valve.

"With this study, we have taken a new perspective by providing a different approach for cardiovascular disease risk prediction strictly based on information readily available to the radiologist", said Dr. Jairam. The hope is that clinicians will use the radiologic information to refer at-risk patients for prompt preventive management of cardiovascular issues.

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Figure 1. Examples of cardiovascular chest CT findings. A, Ascending thoracic aorta diameter measurement. B, Cardiac diameter measurement. C, Calcifications in the left anterior descending coronary artery and the descending thoracic aorta (arrows). D, Calcifications on the mitral valve (arrow).

Source: Radiological Society of North America

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