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NEW ULTRAFAST COMPUTED-TOMOGRAPHY ALGORITHM CAN ACCURATELY PREDICT MASS OF CALCIUM IN DISEASED CORONARY-ARTERIES

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901 Ultrafast Computed Tomography and Quantitative Coronary Angiography

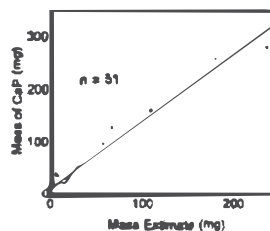
Tuesday, March 15, 1994 Noon-2:00 PM
Georgia World Congress Center, Hall H
Presenting Hour: Noon

901-45

New Ultrafast Computed Tomography Algorithm Can Accurately Predict Mass of Calcium in Diseased Coronary Arteries

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The reliability and validity of currently used ultrafast computed tomographic (CT) coronary calcium scoring systems have been called into question. We derived a simple calibrated subtraction algorithm which estimates the actual mass of calcium phosphate (CaP) in diseased arteries. We tested it using diseased human coronary arteries embedded in an anthropomorphic chest phantom. This was imaged using a coronary screening protocol and the arteries were then incinerated and the actual mass of CaP determined. The algorithm was applied to the images to compute the CT mass estimates (see figure). The linear fit was excellent, ($y = 1.2x + 8.5$; $r = 0.99$). This new algorithm was applied to 20 clinical cases by two independent and blinded observers. Interobserver agreement was good ($r = 0.97$). This new method may be preferable to presently used scoring systems.



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