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Multi-detector CT can Predict Future Myocardial Viability

Studies conducted by doctors at the Departments of Cardiology and Radiology at the Rambam Medical Center in Haifa, Israel have revealed that early defects or dark spots of myocardial enhancement on multi-detector CT can provide valuable predictions for myocardial viability in patients who have suffered a heart attack.

The researchers conducted gated CT coronary angiography on 34 consecutive patients admitted with a heart attack diagnosis and then followed it up with an initial and follow-up echocardiography examination two to four months later. A comparison was drawn on the heart muscle state between the two test results to understand the condition of the heart. A radiologist, kept unaware about the clinical diagnosis and the results of the echocardiography, was then asked to assess the multi-detector CT data for the presence, position and size of early myocardial enhancement defects/dark spots. The assessment was clear that the dark spots did indicate regions of the heart muscle, where blood flow was reduced due to the heart attack.

Dr. Eduard Ghersin, MD, the leading radiology researcher of the study stated, "We wanted to be able to see the heart muscle at the time of the heart attack and then compare that to the muscle's functional recovery on the follow-up echocardiography examination later. Dr. Ghersin added their main conclusion was that early myocardial enhancement defects showing up on cardiac multi-detector CT were clear and valuable predictors of possible future myocardial viability in patients who had a heart attack recently.

"In essence, what we found is that dark spots on the early CT predicted those patients who would have reduced myocardial viability on follow-up echocardiography," said Dr. Ghersin. "Consequently, imaging physicians and clinicians should be aware of the potential advantages of systematic assessment of myocardial enhancement on routine CT coronary angiography studies in the clinical context of heart attack patients."

The primary focus of the study was on imaging the coronary arterial tree through the latest advances in multi-detector CT technology and through that, supply valuable additional information at negligibly increased additional costs; costs that can otherwise be in the form of prolonged radiation exposure to patients. The above results will help significantly amplify the future use of cardiac multi-detector CT.

The full results of this study will be presented at the annual meeting of the American Roentgen Ray Society to be held in Vancouver, BC this month.