

# Cardiology today

NEWS & PERSPECTIVE FOR THE CARDIOVASCULAR SPECIALIST

## Perfusion defects detected by CT associated with myocardial necrosis

The perfusion defects were also associated with elevated troponin I levels.

By

### Society of Cardiovascular Computed Tomography 4th Annual Scientific Meeting

First-pass perfusion defects detected with contrast-enhanced multidetector CT were closely associated with myocardial necrosis and elevated troponin I levels.

Researchers enrolled 38 patients with one-vessel CAD and a single culprit lesion and a clinical diagnosis of non-ST elevation acute coronary syndrome, including patients with non-ST elevation MI (n=24) or unstable angina (n=14). All patients underwent dual-source CT prior to revascularization of the culprit lesion. The CT images were analyzed for the presence and location of perfusion defects using a 17-segment model.

According to the study results, perfusion defects were identified in 21 of 24 patients with non-ST elevation and two of 14 patients with unstable angina. Elevated troponin I levels between 0.72 ng/mL and 37.97 ng/mL were observed in 26 patients. The researchers reported a sensitivity of 88% (21 out of 24 patients), a specificity of 88% (12/14), a negative predictive value of 80% (12/15) and a positive predictive value of 91% (21/23) per patient. They also reported sensitivity of 86% (19/22), specificity of 75% (12/16), negative predictive value of 80% (12/15) and positive predictive value of 83% (19/23) per culprit artery. Thirty seven of the patients were referred for percutaneous coronary intervention with stenting of the culprit artery.

“In patients with non-ST elevation ACS, first-pass myocardial perfusion defects detected on contrast-enhanced multidetector CT are correlated closely to the presence of myocardial necrosis, as determined by increases in cardiac troponin I levels,” **Tiziano Schepis, MD**, a cardiologist at the University of Erlangen in Germany, concluded in his presentation. *by Eric Raible*

For more information:

- Schepis T. #75. Presented at: [Society of Cardiovascular Computed Tomography 4th Annual Scientific Meeting](#); July 16-19, 2009; Orlando.

#### PERSPECTIVE

One thing we should all be looking to do in perfusion imaging is to standardize the window level, so that from patient to patient you really know what you are looking at. A window set between zero and 200, or perhaps zero to 300, seems to be good because in myocardial imaging, myocardial Hounsfield units should be somewhere between 40 to 150 tops. You want to display your grayscale so that you can get as much detail as possible within that range. Also, by placing the bottom end of the window at zero, anything that is perhaps an artifact or fatty infiltration will often have a negative Hounsfield unit number and therefore will be very black on the image. So this is a way to identify these things visually. If you see

something that is very black on the image, it is really outside of the range of Hounsfield units for myocardium.

â€“ **Richard T. George, Jr., MD**

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