

Cardiology today

NEWS & PERSPECTIVE FOR THE CARDIOVASCULAR SPECIALIST

Stress perfusion CT comparable to ¹³N-ammonia PET/CT for detecting ischemia

Agreement between the two modalities was high, according to researchers.

By

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Stress perfusion testing with computed tomography was similar to ¹³N ammonia positron emission tomography for the detection of myocardial ischemia.

The researchers acquired first-pass perfusion CT in 16 patients with known CAD from adenosine stress testing using 64-slice multidetector CT. An X-ray coronary angiography showed no stenosis in two patients, single vessel disease in four patients, double vessel disease in eight patients and triple vessel disease in two patients. All patients received beta-blockers prior to the CT examinations. Myocardial ¹³N-ammonia PET scans were then performed during adenosine stress test and in resting state. The presence or absence of perfusion defects was determined using a 17-segment model.

According to the study results, a vessel-based analysis revealed a sensitivity of 95% (in 18 of 19 patients), a specificity of 86% (25/29), a positive predictive value of 82% (18/22), negative predictive value of 96% (25/26) and an accuracy of 90% (43/48). A segment-based analysis (n=272) demonstrated sensitivity of 73.5% (50/68), specificity of 96.1% (196/204), positive predictive value of 86.2% (50/58), negative predictive value of 91.6% (196/214) and an accuracy of 90.4% (246/272). Vessel-based analysis (n=48) demonstrated a sensitivity of 94.7% (18/19), specificity of 86.2% (25/29), positive predictive value of 81.8% (18/22), negative predictive value of 96.2% (25/26) and an accuracy of 89.6% (43/48). Defect size was smaller with stress perfusion CT compared with the 13-N ammonia PET scan (2.9 ± 1.4 vs. 3.5 ± 1.3 , $P=.002$).

“Excellent agreement was observed between stress perfusion CT and ¹³N-ammonia PET/CT for detecting myocardial ischemia in patients with CAD,” **Kakuya Kitagawa, MD**, assistant professor of medicine at Mie University in Tsu, Japan, said in his presentation. “Although CT perfusion defect was smaller in size compared to PET/CT, stress perfusion CT can provide accurate assessment of presence and absence of myocardial ischemia in a vessel-based analysis and is useful for determining functional significance of CAD.” – *by Eric Raible*

For more information:

- Kitagawa K. Oral abstract #78. Presented at: [Society of Cardiovascular Computed Tomography 4th Annual Scientific Meeting](#); July 16-19, 2009; Orlando.