

TOP STORIES

ACC Feature: New F18-labeled PET perfusion tracer trumps technetium



ATLANTA—A novel F18-labeled PET perfusion imaging agent has shown higher specificity for detecting right coronary artery disease (CAD) compared to SPECT imaging with technetium-99m (Tc-99m). In addition, the PET agent detected more severe and extensive stress perfusion abnormalities in the territories of diseased coronary arteries, according to an oral presentation Tuesday at the American College of Cardiology Meeting (ACC).

Lead principal investigator Jamshid Maddahi, MD, professor of molecular and medical pharmacology and cardiology at the David Geffen School of Medicine at UCLA, presented data on behalf of he and his colleagues from his institution, although the study of flurpiridaz F18, formerly known as BMS747158 (Lantheus Medical Imaging), is ongoing at multiple centers.

Of the nine patients included in this presentation, six with CAD were abnormal by both SPECT (technetium-99m) and PET. Of the three normal patients, three were normal by PET and two were normal by SPECT, Maddahi said.

There were nine diseased coronary arteries: four left anterior descending (LAD), three left circumflex (LCX) and two right coronary arteries (RCA). PET detected nine/nine and SPECT detected eight/nine (false negative in one LAD).

There were 18 normal coronary arteries (five LAD, six LCX and seven RCA). PET identified 16/18 and SPECT identified 13/18 normal coronary arteries. The specificity for the RCA was significantly higher by PET than SPECT (100 vs. 43 percent).

The overall accuracy for correct identification of diseased coronary arteries was 93 percent for PET and 78 percent for SPECT. In myocardial segments that were supplied by diseased coronary arteries, summed severity score was significantly higher by PET than SPECT (16.3 vs. 8.8).

Maddahi told *Cardiovascular Business News* that a preliminary analysis of 40 more patients at UCLA showed similar results. "The trend is positive for flurpiridaz F18," he said.

With traditional SPECT imaging, the diaphragm may cast a shadow on the inferior wall and the uptake in the liver can interfere with the tracer activity, creating artifact and leading to false positives, he said. Having a higher specificity for the RCA with flurpiridaz F18 means that RCA false positives can be dramatically reduced, suggesting that fewer patients will have unnecessary catheter angiography.

The second important finding is that the defects identified with this PET agent are more prominent than with SPECT, Maddahi said. "This means that even though we may see mild or small defects with SPECT, we are uncertain whether they are real. With flurpiridaz F18, these defects are very pronounced and they are unequivocal."

While this study of nine patients didn't reveal any difference in sensitivity to detect myocardial ischemia, Maddahi expects to find a difference as they analyze data from more patients.

Having an F18-labeled perfusion agent has several advantages over current PET perfusion tracers including a longer half-life (109 minutes versus less than 10 minutes) and no need for an onsite generator or cyclotron.

"This agent can be manufactured at regional cyclotron centers that already exist to produce F18-FDG, and it can be shipped as a unit dose to a medical or imaging center," Maddahi said.

An F18-labeled tracer also could help nuclear cardiologists during times of molybdenum shortages, he said. While this tracer is only in phase two studies, Maddahi does not believe the current shortage of Tc-99m agents will be resolved to every one's satisfaction. "It will get better, but there will still be some issues," Maddahi added.

3/18/2010

ACC Feature: New F18-labeled PET pe...

In addition, the process of shipping the parent agent from other parts of the world to the U.S., manufacturing it, shipping it to regional pharmacies and then producing the Tc-99m agents is a cumbersome process. "With this agent, you eliminate all that," he said.

Last updated on March 17, 2010 at 9:41 am EST

Copyright © 2010 TriMed Media Group, Inc.