

# FDG-PET Highly Accurate In Diagnosing Osteomyelitis

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SAN DIEGO — Fluorodeoxyglucose PET scan results reflected a diagnosis of chronic osteomyelitis with 93% accuracy in a single-center study.

“Chronic osteomyelitis is a big area of morbidity for our society,” Dr. Abass Alavi said in an interview at the annual meeting of the Society of Nuclear Medicine. “A

test that can accurately detect and monitor these patients is needed” because current modalities, including structural imaging and combined nuclear medicine techniques, are either insensitive or not specific. “Therefore, a lot of people are not getting treatments that are needed.”

He and his associates at the University of Pennsylvania Medical Center, Philadelphia, studied 57 patients with suspected chronic osteomyelitis who underwent fluorodeoxyglucose (FDG) PET imaging in full-ring PET scanners. The researchers then compared the images with the final diagnosis based on surgical findings, microbiology, and clinical follow-up.

Dr. Alavi, chief of the division of nuclear medicine at the medical center, reported that FDG-PET correctly diagnosed the presence or absence of chronic osteomyelitis in 53 of the 57 patients.

Among the 57 patients, 27 had chronic osteomyelitis and 30 were free of bone infection. The procedure correctly identified 26 of the 27 patients with chronic osteomyelitis, but there were false positives in 3 patients.

FDG-PET had a sensitivity of 96.3%, a specificity of 90%, and an accuracy of 93%. The positive predictive value was 90% and the negative predictive value was 96.4%, he reported.

The potential cost advantages of FDG-PET for diagnosing osteomyelitis “are clearly there, because we have a test that has an accuracy of better than 90%,” said Dr. Alavi, who was the first clinician to apply FDG-PET technology in humans. “Before I started this technique, we had to do white cell imaging, which costs about \$2,000. Then we had to do a bone scan [and] a bone marrow scan. A patient had to do these over 2 days. The cost of FDG-PET should not be more than \$1,500.”

He predicted that FDG-PET will become the diagnostic tool of choice for other common inflammatory diseases, such as rheumatoid arthritis and ulcerative colitis.

He described a recent case in which FDG-PET was used in a patient who was in and out of the hospital for 6 weeks with a fever of unknown origin.

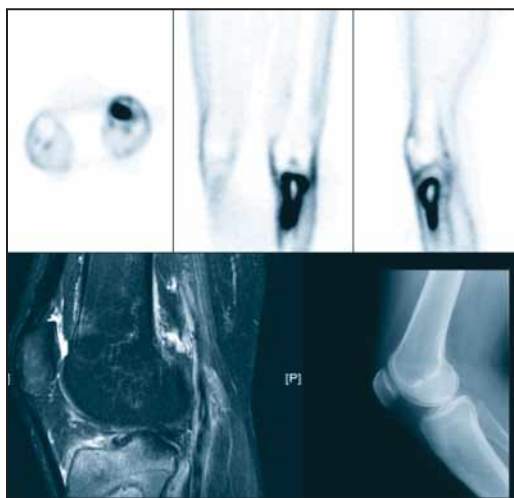
“One single FDG-PET showed an infection in the mediastinum,” he said. “It looks like FDG-PET is going to be the way to go whenever there’s infection.” ■

## VERBATIM

*‘If you ask them meaningless questions and then don’t pay them to answer those questions, it just irritates them.’*

Dr. Carlos Hamilton on doubts about the relevance of the 9% criterion for hemoglobin A<sub>1c</sub> in Medicare’s pay-for-performance program, p. 67

Axial, coronal, and sagittal FDG-PET images (top, left to right) contrast with sagittal MRI image (bottom left) and plain radiograph (bottom right), lateral view, of a left knee without detectable bony abnormality.



COURTESY DR. WICHANA CHAMROONRAT AND DR. ABASS ALAVI

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