

Fewer amputations in diabetic patients with dual isotope SPECT/CT

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Research introduced at SNM's 58th Annual Meeting reveals the extent to which an ongoing study can help save life and limb for patients with diabetes-related foot infections. Diabetes can cause nerve damage and reduced blood flow to the bones and tissues of the feet, leaving diabetics vulnerable to infection. This study shows that combining two imaging agents with molecular imaging techniques provides diabetic patients an excellent infection screening method that has already spared a number of patients from aggressive amputation of infected feet.

"As a result of this study we have concluded that dual isotope SPECT/CT is an important method for detecting infection in diabetic patients who might otherwise receive unnecessarily [aggressive treatment](#) such as amputation," says Sherif Heiba, MD, associate professor of radiology at Mount Sinai School of Medicine, New York, N.Y. "We want to avoid amputation whenever possible, because it has been shown to be detrimental to patients in terms of both quality of life and survival."

According to the [American Diabetes Association](#), an estimated 25.8 million people, including children, have diabetes, and approximately 79 million people across the country could be prediabetic or at serious risk of developing diabetes, which is associated with a range of other debilitating diseases. Of all the complications of this disease, infections of the bone and tissues of the feet result in the highest number of hospitalizations among [diabetic patients](#) due to their hampered ability to heal from even minor ailments.

A total of 191 patients have participated in this study and undergone [molecular imaging](#) with two imaging agents known for their superior effectiveness with infected tissue and bone. Subjects were scanned with single [photon emission](#) computed tomography and computed tomography (SPECT/CT), which produces images with both functional and anatomical information about the body.

As of the publishing of the abstract, the study comprised 227 scans performed with dual isotopes Tc-99m HDP and In-111 WBC. Scans were performed using Tc-99m SC and In-111 WBC for patients suspected of having mid- or hind-foot infection.

Results showed 84 cases of osteomyelitis (infected bone), 93 infections of the soft tissue, 25 combinations of both and 25 other pathologies. These diagnoses were accurately confirmed by tissue culture in 66 of the cases and follow-up examinations for 161 scans. There were only five false negative and one false positive diagnosis for the entire cohort. Patient treatment planning was directed by 94 percent of imaging studies (207 scans). Of the 207 clinical decisions based on each scan, 72 percent (150) were followed with conservative therapy including local debridement of affected tissues and antibiotics, and 24 percent (49) of scans led to minor procedures such as partial bony resection and toe [amputation](#) in order to salvage the limb.

This research continues to provide additional proof that dual isotope SPECT/CT is highly effective for the evaluation of diabetes-related soft-tissue infection and osteomyelitis, as well as for conservative treatment planning and limb salvage whenever possible.

More information: Scientific Paper 14: S. Heiba, D. Kolker, L. Ong, S. Khan, V. Teodorescu, S. Ellozy, F. Novruzov, L. Kostakoglu, I. Savitch, J. Machac, Mount Sinai School of Medicine, New York, NY; "The beneficial influence of dual isotope SPECT/CT use on

management of patients with suspected diabetic foot infection," SNM's 58th Annual Meeting, June 4-8, 2011, San Antonio, TX.

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