

### Evaluation of SPECT/CT as a new imaging technique in patients with diabetic foot infections

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**Introduction - aim of the study** Correct diagnosis and treatment of osteomyelitis is a challenge in patients with a diabetic foot ulcer. Actually, osteomyelitis is diagnosed on clinical grounds, or after bone biopsy, X-ray, bone scintigraphy, and magnetic resonance imaging (MRI). The aim of this study is to present an initial experience with SPECT/CT, available in our hospital since august 2010. **Materials and methods** All patients with a new diabetic foot ulcer, presenting from august 2010 - february 2012, underwent a SPECT/CT. The system used was the GE Discovery Tandem NM/CT 670, which is a combination of a dual head gamma camera and a 16 slice helical CT.

**Results** One hundred eighteen ulcers (113 patients, 74 male/39 female, mean age 65 years) were evaluated. The majority of patients suffered from neuropathy (74%), nephropathy (67%), and peripheral arterial disease (58%). Distribution of the lesions was: toe (71), metatarsophalangeal joint (27), ankle (4), heel (10), and other (6). Ulcers were Wagner grade 1 (with evidence of infection: 17), 2 (47), 3 (41), 4 (10); 3 patients had a sausage toe without evident ulcer (3). In 100/118 ulcers, a higher tracer uptake was detected by SPECT/CT at the level of the ulcer; an underlying osteomyelitis was suspected in 59/100 SPECT/CT-scans. When relating these results to the findings of (in order of importance) bone biopsy (available for 19 patients after amputation), MRI (44 patients), and clinical degree of suspicion for osteomyelitis (all patients), we could calculate a sensitivity of 86% and a specificity of 80% for SPECT/CT for diagnosing osteomyelitis. On the other hand, when SPECT/CT was considered negative for osteomyelitis, another diagnosis could be proposed in several patients, such as osteitis (without osteomyelitis: 6), charcot arthropathy (3), fracture (3), or degenerative changes (majority of patients). **Conclusion:** Although this is a preliminary evaluation, SPECT/CT seems to offer a good sensitivity and specificity for diagnosis of osteomyelitis. In addition, SPECT/CT can differentiate between osteomyelitis and other pathologies of the diabetic foot.