

## P12

### Differential diagnosis of osteomyelitis in the complicated diabetic foot: value of inflammatory blood markers, radiography and radionuclide methods

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**Aim:** Diagnosis of osteomyelitis (OM) in the diabetic foot is often complicated by the presence of coexisting soft tissue infections, Charcot arthropathy (CA) or amputations.

The aim of this prospective study was to evaluate the efficacy of Tc99m-HMPAO-labelled leucocyte scan (HMPAO-LS) for the diagnosis of OM in the complicated diabetic foot, in comparison with other commonly used diagnostic modalities. **Patients and methods:** Forty five diabetic patients with clinical suspicion of OM in 54 pedal sites were enrolled in the study. All patients had pre-existing pedal abnormalities including pedal ulcers (80% of pts), CA (60%) and toe or foot amputation (46,7%). C-reactive protein levels (CRP), erythrocyte sedimentation rate (ESR) and white blood cell count (WBC) were measured at inclusion.

All patients underwent plain radiography, three-phase Tc99m-MDP-bone scan (MDP) and HMPAO-LS. Tc-99m-tin colloid bone marrow scan (BMS) was additionally performed in 6 patients to interpret abnormal leucocyte uptake in CA. Congruent bone/leucocyte findings were interpreted as positive for OM. Incongruent HMPAO-LS /BMS indicated OM superimposed on CA. Diagnosis was confirmed by long-term clinical and radiological follow-up or bone biopsy. **Results:** Among the 54 pedal sites investigated, 26 foci of OM, 6 cases with acute Charcot arthropathy (ACA) and 22 sites with simple soft tissue infection (STI) were diagnosed. Patients with OM had higher CRP compared with those with ACA or STI (24.6 vs 10.3 and 7.5 mg/L,  $p < 0.05$ ). ESR and WBC were not significantly different among the three groups of patients. Plain radiography was insensitive (34.6%), but very specific (96.4%) while three-phase bone scan was extremely sensitive (100%), but not specific (10.7%) for the diagnosis of diabetic foot OM. The sensitivity, specificity and accuracy of HMPAO-LS were 95%, 88% and 91.1%, improved to 95%, 100% and 97.8% respectively with the addition of BMS. **Conclusion:** Among laboratory tests, elevated CRP seems to be better marker of OM in the diabetic foot, although not specific, compared with leucocytosis or elevated ESR. Plain radiography is the least sensitive imaging method and bone scan is the least specific method for detecting OM in the diabetic foot. Tc99m-HMPAO-labelled leucocyte scan is an accurate imaging method for the diagnosis of OM in the diabetic foot. The addition of bone marrow scan improves the specificity of leucocyte scan for diagnosing OM superimposed on CA.