

Validation of different clinical diagnostic test diagnostic for osteomyelitis

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Introduction: It is assumed that the gold standard for diagnosis of osteomyelitis in the diabetic foot is bone biopsy and histopathological examination, however it is a practical to obtain a piece of bone for microbiological culture. Several studies have validated other simpler tests such as the "probe-to-bone", with high sensitivity and specificity, as well as combined with plain radiography, which together exceed higher sensitivity data that diagnostic imaging techniques more standardized in many centers. **Objective:** Establish a validation of different tests for clinical diagnosis of osteomyelitis comparing with the gold standard, and to observe the correlation between them. **Material and Methods:** A longitudinal, prospective conducted in the Diabetic Foot Unit of the Complutense University of Madrid (Spain), involving 119 patients with diabetic foot ulcer, and clinical suspicion of osteomyelitis (two or more clinical signs of infection, radiological signs of osteomyelitis, sausage toe, and non-evolving ulcers despite being treated appropriately and/or probing to bone positive) surgically treated bone infection. Samples of bone tissue for microbiology and histopathology. **Results:** Of the 119 patients 85 (71.4%) were male and 34 (28.6%) women, average age 65.55 + 11.96. The average onset time of the ulcer was 29.77 + 21.72 weeks. 110 patients (92.43%) were "Probe-to-bone" positive and 104 (87.39%) radiological signs of osteomyelitis. 86 (72.3%) bone samples obtained for microbiological culture were positive and 33 (27.7%) negative. Samples for histopathological analysis, 107 (89.9%) were positive for osteomyelitis and 12 (10.1%) were negative. In 79 patients (66.4%) the result was positive in both analyzes. The concordance of positive results between microbiological and histopathological analysis is 66.38% and 70.58% of total. The bone culture had a sensitivity of 73.83% and a specificity of 41.66%, a PPV of 91.86% and 15.15% NPV. The "probe-to-bone" vs. bone biopsy has a sensitivity of 96.26% and a specificity of 41.66%, 93.63% PPV, NPV 55.55% and a sensitivity of plain radiography 87, 78% and a specificity of 25%, PPV 91.34% and NPV 20% and growing bone the sensitivity and specificity are at 93.02% and 50% respectively for the "probe-to-bone" VPP 72.72%, NPV 33.33%, 90.69% and 21.21%, PPV 75% and NPV 46.66% for radiography. The concordance of positive probe to bone with bone culture is 67.22% and total agreement of 69.74% and also with the biopsy is of 86.55% and 90.75% respectively. Regarding the concordance of positive radiology is 65.54% and 71.42% total of the cultivation bone and 79.83% and 82.35% respectively. **Discussion:** Due to limitations that may have the bone histopathology and culture, not only by the false positives and false negatives, but not including them in protocols centers that treat these patients, its cost and training professionals, interesting results are presented, since data show very high concordance of clinical diagnostic tests with the gold standard.