

Abstract Number: 18105

Diabetic foot ulcer PEDIS III: microbiological assessment and clinical outcome in chronic osteomyelitis secondary to neuropathy

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ABSTRACT

Introduction: Infectious agents are associated with amputation of the infected diabetic foot if not promptly treated. It is estimated that 25% of patients with diabetes will present with a foot ulcer at some point of their lives. Our hypothesis is that the microbiological profile isolated from chronic osteomyelitis (CO) secondary to neuropathic foot ulcers is different from the standard profile relayed in the literature.

Objective: To determine the microbiological profile and antimicrobial susceptibility patterns of organisms isolated from chronic osteomyelitis (CO) secondary to neuropathic foot ulcers. Furthermore, we aimed to describe the clinical outcomes of 52 patients admitted to a referral diabetic foot center.

Methods: Medical charts of 52 patients with clinically infected neuropathic foot ulcers between 2005 and 2013 were reviewed. Osteomyelitis was diagnosed based on suggestive changes on radiographs and magnetic resonance imaging (MRI), and confirmed with a microbiological exam. All cases were followed for at least six months. Only results of bone culture obtained at the time of surgical debridement following antisepsis were considered for microbiological characterization.

Results: One hundred and eleven bacterial isolates were identified as causative agents of infection, with a mean 2.13 isolates per patient. There was a predominance of Gram-positive cocci (51%), followed by Gram-negative bacilli (GNB) (43%). The most prevalent agents were *Staphylococcus aureus* (18%), *Enterococcus faecalis* (18%) and coagulase-negative *Staphylococci* (CoNS) (14%). Among *S. aureus* isolates, the prevalence of methicillin resistance (MRSA) was 48%, and 77% CoNS were methicillin resistant (MRCoNS) with 100% susceptibility to sulfamethoxazole/trimethoprim (SMT/TMP). At 6-month follow-up, 75% of patients were in remission, without signs of infection, 23% of patients presented recurrence of infection, and 2% were lost to follow-up.

Conclusion: In diabetic patients with chronic osteomyelitis secondary to neuropathic ulcers, *S. aureus*, *E. faecalis* and CoNS were the most frequent agents. The occurrence of MRSA and MRCoNS was high, but with 100% susceptibility to SMT/TMP. Extensive surgical debridement associated with prolonged antimicrobial therapy led to infection remission in 77% of patients after 6 months of follow-up.

Keywords: Diabetic foot; Osteomyelitis; Bacterial.

