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Clinical Characteristics of Diabetic Foot Osteomyelitis produced due Gram negative and Methicillin-resistant *Staphylococcus Aureus* (MRSA).

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Introduction: Diabetic foot Osteomyelitis are serious complications of diabetic foot ulcers (DFU) being the main cause of bad prognostic and outcome and in some occasions even amputation. Infections caused by Gram negative and MRSA had been demonstrated worse outcomes therefore knowledge of some clinical conditions implicating in this type of infections could be useful in patients clinical management.

Aims: To define clinical characteristics of Diabetic Foot Osteomyelitis (DFO) caused by Gram negative and MRSA by cultures taken from infected bone. **Methods:**

Between January 2010 to December 2012 we analyzed the results of 152 bone cultures from patients with clinical suspects from DFO taken during surgical procedures. General, demographical and clinical variables from the patients and the ulcers were analyzed. **Results:** 112 (73,7%) bone cultures were positives. There were not concordance between bone culture and histopathological results ($p=0.229$).

Gram negative cultures were associated with longer suffering time from Diabetes (15.40 ± 9.59 vs. 18.78 ± 13.29 ; $p=0.027$), longer suffering time from ulcer (20.42 ± 23.04 vs. 32.91 ± 33.59 ; $p=0.001$), male gender ($p=0.045$), Hypertension ($p=0.013$), mid-foot and rear-foot ulcers location ($p=0.013$) and Chronic Acute Osteomyelitis ($p=0.006$).

MRSA cultures were associated with shorter suffering time from Diabetes (17.02 ± 10.98 vs. 10.67 ± 5.17 ; $p=0.049$), male gender ($p=0.049$), Cardiovascular diseases ($p=0.004$), sedentary habits ($p=0.017$), previous ulcer ($p=0.045$), lower TcPO₂ values (37.76 ± 11.96 vs. 31.19 ± 14.01 ; $p=0.039$), Hallux ulcer location ($p=0.005$), lesser toes ulcer location ($p=0.008$), and clinical signs of infections presenting ($p=0.001$)

Conclusions: DFO caused due Gram negative and SARM have a different clinical profile especially in infections caused by SARM in which clinical signs of infection were more evident. Longer suffering time from Diabetes and male gender were risk factors for both types of infections. Gram negative was associated to mid and rear foot locations while SATM was associated with forefoot locations. Lesser TcPO₂ values were a risk factor to SARM infections.