

[P09] FACTORS ASSOCIATED WITH POSITIVE BONE CULTURES IN PATIENTS WITH DIABETIC FOOT ULCERS

Veronika Woskova¹, Alexandra Jirkovská¹, Robert Bem¹, Michal Dubský¹, Vladimíra Fejfarová¹, Andrea Němcová¹, Kamil Navrátil², Bedrich Sixta²

¹Diabetes Centre, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

²Clinic of Transplant Surgery, Institute for Clinical and Experimental Medicine, Czech Republic

Background and aim: Osteomyelitis (OM) is a major complication in patients with diabetic foot ulcer and can be difficult to precisely diagnose and effectively treat. The aim of this study was to assess factors which could be associated with positive cultures from a bone specimen in patients with diabetic foot ulcers with respect to their medical history of previous foot ulceration, duration of antibiotic use prior to surgery, X-ray bone changes, presence of foot ischemia, long-term diabetes control, and chronic inflammatory markers.

Method: Our retrospective study included 93 diabetic patients (76M/17F, 26 Type 1/67 Type 2 DM, mean age 62±12 years) treated at a diabetic foot clinic for chronic foot ulcer Wagner 2-4 over a one-year period (Jan-Dec 2015). In all these patients, bone samples for culture were collected because of suspected OM during open surgery or by direct bone biopsy. Indications for foot surgery and bone sampling included deep chronic ulcer with the underlying bone, a positive probe-to-bone test and/or worsening of chronic wound often with cellulitis and suspected bone involvement. The following medical record data were included into the statistical analysis: history of open wound of foot, previous antibiotic use > 3 months, positive/negative X-ray bone changes, transcutaneous oxygen tension (TcPO₂) on the foot dorsum, glycated hemoglobin (HbA_{1c}) > 70 mmol/mol, and C-reactive protein (CRP) > 25 mg/l. Patients were divided into two groups according to positive or negative bone microbiology results and both groups were compared.

Results: Positive microbiology results of bone samples were obtained in 67 (72%) patients while, in 26 (28%) patients, microbiology was negative. When comparing both groups, patients with bone positive microbiologic findings had significantly more often CRP elevation (56% vs. 28%, $p = 0,019$) and a history of > 3-month antibiotic treatment (54% vs. 12%, $p < 0.0001$). A non-significant trend toward uncontrolled diabetes in patients with positive bone samples was also found (33% vs 19%, NS). No differences between both groups in TcPO₂ (43.7±12 mmHg vs. 44.2±13.9 mmHg, NS), positive X-ray bone changes (73% vs. 77%, NS) or previous history of ulcer or foot surgery (34% vs. 34%, NS) between patients with positive and negative bone samples were observed.

Conclusion: Based on our results, it seems that elevation of CRP, though mild, together with longer previous antibiotic treatment and unsatisfactory diabetes control may be associated with positive bone culture and predispose to chronic OM. Ischemia may contribute to persistent positivity of bone culture but is probably not necessarily a predisposing factor to it if foot TcPO₂ is satisfactory. Long-term soft tissue-guided antibiotic treatment may be not effective enough to eliminate bone infection and bone biopsy is highly recommended.

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