

High fosfomycin concentrations in bone and peripheral soft tissue in diabetic patients presenting with bacterial foot infection.

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Source

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Abstract

OBJECTIVES: Appropriate antimicrobial therapy and surgical intervention may be required in diabetic patients presenting with severe bacterial foot infection. Methicillin-resistant *Staphylococcus aureus* (MRSA) agents such as fosfomycin are increasingly in demand because of recent concern regarding vancomycin and daptomycin efficacy and constant use. Intravenous fosfomycin is approved for the therapy of severe soft tissue infections and is highly active against methicillin-susceptible *S. aureus* and MRSA. In the present study we investigated fosfomycin's ability to penetrate bone tissue in diabetic patients suffering from severe bacterial foot infection.

PATIENTS AND METHODS: The well established microdialysis technique was utilized to determine fosfomycin concentrations in metatarsal bone in nine patients scheduled for partial bone resection due to bacterial foot infection and osteomyelitis. Plasma and unaffected subcutaneous adipose tissue served as reference compartments.

RESULTS: After a single intravenous dose of approximately 100 mg of fosfomycin per kg of body weight, the mean C(max), T(max) and AUC(0-6) for bone were 96.4 mg/L, 3.9 h and 330.0 mg x h/L, respectively. The degree of tissue penetration as determined by the ratios of the AUC(0-6) for bone to plasma and for subcutaneous adipose tissue to plasma were 0.43 +/- 0.04 and 0.76 +/- 0.05, respectively.

CONCLUSIONS: On the basis of relevant pharmacokinetic-pharmacodynamic indices, it seems that fosfomycin is an effective antibiotic for the treatment of deep-seated diabetic foot infections with osseous matrix involvement.

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