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Intravenous antimicrobial therapy of diabetic foot ulcers: An effective outpatient program in Tanzania

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Introduction: Foot ulcers cause substantial morbidity and mortality among persons with diabetes in Tanzania, and are associated with prolonged hospital stays and increased hospital costs. Because of these limitations, we initiated a program for intravenous (IV) antibiotics in the diabetes outpatient clinics at two centers in Dar es Salaam, Tanzania: Muhimbili National Hospital (MNH) and Abbas Medical Center (AMC). **Methods:** During February 2005 -December 2011 (study period), adult patients with diabetes presenting to two diabetes clinics with infected foot ulcers were evaluated then started on IV antibiotics for 10-20 days. Patients were followed up daily by a nurse assistant for IV therapy, ulcer assessments, and dressing changes in both clinics. Antibiotics included various combinations of second and third-generation cephalosporins, penicillins, macrolides, quinolones, and anti-anaerobic agents. Multivariate analysis was carried out and adjusted odds ratio (AOR) and 95% confidence intervals (CI) were calculated. **Results:** Of 909 patients treated during the study period, 595 (65%) were male; median age and duration of diabetes was 55 years and 8 years, respectively. Nine hundred patients received an extended spectrum third-generation cephalosporin; complete ulcer healing was attained in 760 (84%). Independent factors associated with poor ulcer healing included macrovascular disease (AOR: 2.1, CI: 1.4-3.2); hypertension (AOR: 1.6, CI: 1.04-2.4); and concomitant administration of amoxicillin/clavulanic acid (AOR: 2.7, CI: 1.5-4.7) or quinolones (AOR: 5.1, CI: 3.3-7.9). Independent factors associated with complete ulcer healing included palpable foot pulses (AOR: 3.1, CI: 2.1-4.5), ulcers of area <1,000 mm² (AOR: 2.1, CI: 1.4-3.1), or concomitant receipt of an anti-anaerobic agent (AOR: 4.5, CI: 3.0-6.8). No deaths or side effects were documented. **Conclusion:** We established the feasibility of affordable, outpatient IV antibiotics in the management of diabetic foot ulcer infections in Tanzania. Complete healing was realized in 84% of patients; patients who received a single extended spectrum third-generation cephalosporin with an anti-anaerobic agent had the best outcomes. Addition of other agents, such as penicillins, macrolides, or quinolones, did not enhance ulcer healing rates. These findings potentially have cost saving implications for the management of infected diabetic foot ulcers in Tanzania.