PRIZE O2

Impact of implementing guidelines on microbiology and costs of diabetic foot ulcers: A prospective study (2003-2007)

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Aim: To evaluate the impact of implementation of guidelines on bacterial ecology and costs of diabetic foot ulcers (DFU). **Patients and Methods:** In 2003, guidelines for diagnosing and treating diabetic foot infection were written by our team according to the IWGDF and American and French guidelines on the diabetic foot infection; a special emphasis was put on indications and techniques of wound sampling. From 2003 to 2008, in every diabetic patient with a new foot ulcer, clinical and bacteriological data were collected including sampling techniques, number and type of organisms and antimicrobial susceptibilities. Bacterial identification and antibiotic susceptibility testing were performed using the VITEK 2® automated system; multidrug-resistant bacteria (MDRB) were identified according to the recommendations of the Antibiotic Committee of the French Society for Microbiology. We evaluated the potential impact of implementing guidelines by comparing the data along the time on the number of bacterial samples, number of organisms isolated in cultures, frequency of MDRB, presence of colonizing flora and costs related to use of antibiotic agents and microbiology laboratory workload. Statistical analysis was carried out using the S-Plus 2000® software package. **Results:** 405 patients (median age: 70.6 years) referred to our unit for a DFU were consecutively included in the study. 56.5% of wounds were graded 2 according to the IDSA-IWGDF classification system. From 2003 to 2007, we cultured a total of 1,146 samples, 76.4% of which obtained by deep swab technique after wound debridement: Gram-positive cocci were the most frequent pathogens (59% of all isolates; the predominant aerobic species was *S. aureus* comprising 24% of all aerobic strains. MDRB were recovered in 29.8% of specimens, most of them being methicillin-resistant *S. aureus* (37.7% of all MDRB). From 2003 to 2007, the yearly number of samples has almost halved from 323 to 163. In parallel, the median number of bacteria per sample significantly decreased from 4.1 to 1.6, number of MDRB from 35.2% to 16.3% and MRSA from 52.2% to 18.9% ($P<0.001$). Moreover, number of pathogens considered as colonizers dramatically fell from 23.1% to 5.8% of all isolates ($P<0.001$). Decrease in number of bacterial samples and of MDRB induced a saving of 20,255 € related to decreased microbiology laboratory workload and 210,585 € by decrease in prescription of extended spectrum antibiotic agents. **Conclusion:** Implementation of guidelines on diabetic foot infections is cost-effective. Our results suggest that the cost savings are mainly related to a decrease in number of wound sampling as only clinically infected ulcers were sampled and to better sampling methods as superficial swabbing was progressively replaced by deep swab technique. Moreover, number of pathogens per sample (notably MDRB) significantly decreased. So, costs due to aggressive and expensive antimicrobial agents and to microbiology laboratory technician workload decreased in parallel.