

PROJECT REPORT ON BACTERIOLOGICAL PROFILE OF DIABETIC FOOT ULCERS AT A TERTIARY CARE HOSPITAL IN SOUTH KERALA

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Abstract

BACKGROUND: Foot infections are a frequent complication in patients with diabetes mellitus. The present study sought to reveal the bacterial etiology of diabetic foot ulcers in South Kerala, and to discover the antimicrobial susceptibility pattern of the bacteria.

METHODS: A two-month-long case series study was carried out in the records library to analyse the bacterial isolates of all patients admitted with diabetic foot infections. All 104 patients with diabetic foot infections were identified from the request forms sent along with the clinical specimens. These forms are designed to provide pertinent information regarding the age, sex, and in patient number of the patient, the nature of the specimen, examination required, diagnosis, and the details of antimicrobial therapy. The in patient records of the patient were then obtained from the Records Library for the relevant clinical details of the patient such as the type and duration of diabetes, the presence of other diabetic complications, and the treatment taken. The data obtained was analysed using proportions.

RESULTS: Males were predominant (59%) in the study subjects. Mean age at presentation was 57.3 ± 12.1 years. 76% of the patients had a random blood glucose

value greater than or equal to 200 mg%, thus immunocompromised. 48% of the patients suffered from gangrene and peripheral occlusive vascular disease, and had to undergo amputation of the affected part. A total of 113 isolates were detected from 104 ulcer specimens, averaging 1.08 species per patient. 7.7% of the subjects had infections due to 2 organisms. This is contrary to the viewpoint that diabetic foot infections are frequently polymicrobial. Gram positive organisms alone were found in 23 isolates, and 83 isolates had only Gram-negative organisms. *Pseudomonas aeruginosa* was the organism that was isolated the most often (23%), closely followed by *Staphylococcus aureus* (21%). 4% were MRSA. Other organisms that were seen include *Klebsiella* (17%), *Proteus mirabilis* (15%), *E. coli* (12%), and *Acinetobacter* (6%), streptococci (4%) and *Proteus vulgaris* (2%). The Gram positive cocci were found to exhibit a high degree of resistance to penicillin, erythromycin, and gentamicin. Vancomycin and linezolid showed good activity against these organisms. The Gram negative bacilli showed a good deal of resistance against ampicillin, gentamicin, and cephalosporins. Amikacin, cefoperazone-sulbactam, and meropenem were found to be the most effective against them. The recovery of multi-drug-resistant *Pseudomonas aeruginosa* isolates against which only piperacillin-tazobactam was effective, is of serious concern. *E. coli* strains have begun to show extended spectrum beta lactamase activity. Anaerobes could not be isolated due to the lack of facilities.