V. General conclusion

Beginning with a comprehensive clinical and microbial survey, our study generated an antibiogram based on the data gathered from antimicrobial susceptibility (AMS) patterns in hospitalized patients with diabetic foot infections (DFIs) in a South-Indian tertiary care teaching hospital. Knowledge about the common causative organisms in DFIs and their AMS patterns, which helped us to generate the antibiogram, is highly relevant in the Indian context, particularly because of the mounting incidence of antimicrobial resistance (AMR) in our country coupled with lack of guidelines for antimicrobial agent (AMA) prescriptions. This antibiogram will enable clinicians to make informed choices on employing AMA based on clinical context: for instance doxycycline and meropenem would be primary AMA choice for the empirical therapy of Gram-positive and Gram-negative organisms, respectively. Our preliminary study has also revealed the disquieting presence of multidrug-resistant (MDR) Acinetobacter spp. in DFIs, which is either relatively or totally resistant to all the AMAs tested. All these observations are very important, especially for DFI management and the development of antimicrobial treatment guidelines. The study also highlights the importance of initiating antibiotic stewardship program in preventing the emergence of AMR organisms.

A combination of multiple elements such as low health literacy, rural background, occupational hazards, poor socioeconomic status, coupled with suboptimal implementation of antibiotic guidelines, lack of antibiotic stewardship programs and the rising emergence of antibiotic resistance, severely limit the scope of effective management of diabetic foot ulcer (DFU). In this context, the role of the pharmacist assumes great significance, particularly in playing a proactive role in enhancing compliance and improving health-related quality of life (HRQoL) in patients. DFU and associated infections, especially with MDR organisms, severely compromise HRQoL in DFU patients even beyond diabetes pathology. The diminished HRQoL of our patient population is further compounded by cultural and regional peculiarities of rural India, such as walking barefoot, neglect of self-care, inadequate diabetes care facilities, poor socioeconomic status and illiteracy. Our findings imply that compared to diabetics, DFU patients have much poorer HRQoL in all domains especially, physical functioning, role limitations due to physical health and role limitations due to emotional health. As DFU victims are dominantly from the lower socio-economic class, many of whom
are the sole bread-winners of their family, the physical and mental hardships associated with DFU would compromise the quality of life (QoL) of the entire family and dependents. Therefore, improving HRQoL and treating DFIIs become effective management strategies for the resource-limited rural populations of India. This study helped in developing a patient-education (PE) model for DFU patients by examining the various HRQoL domains that are adversely affected by DFU and associated complications.

We found pharmacist-led PE with patient information leaflet (PIL) has a significant positive impact on the patient’s knowledge on DFU. Our educational intervention supplemented with the PIL, which is the first of its kind to be reported from India, has been systematically demonstrated the central role of PE in improving HRQoL of DFU patients, which is particularly relevant in the context of resource poor developing countries. The relevance of our study probably extends to other South-Asian countries that share common demographic and cultural features. DFU is particularly hazardous to poor uneducated Indian patients from rural areas, who subsist on labor intensive occupations with negligible insurance support. DFU is a double whammy that deprives poor patients of not only their health but also their livelihood. Our study has successfully demonstrated that PE by clinical pharmacists, which is either completely ignored or minimally implemented in India’s physician-centric healthcare system, is remarkably successful in improving HRQoL. To the best of our knowledge, this is the first Indian study that unequivocally confirms the demonstrable impact of structured PE per se on HRQoL of DFU patients. This study also lays great emphasis on the need to develop an inclusive health care team by way of ‘Task-sharing’ with non-physician health professionals like clinical pharmacists. Besides being both feasible and minimally resource intensive, this would go a long way in alleviating familial, social and economic hardships owing to DFU.

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