Pathogenesis of wound infections among burnt patients at kenyatta National Hospital, Nairobi county.

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Abstract:

Burn wound infection (BWIs) result from the colonization of burn wounds by micro organisms which cause inflammatory host reactions that lead to a delay in burn wound healing. It is estimated that 70% of Burn wound infections are bacterial and 75% of all deaths within the first five days post-burn are linked to BWIs. Prevalence studies done worldwide though varying in their findings have come to a similar conclusion that BWI is a leading problem world over and a major cause of morbidity and mortality. A 72.5% prevalence of BWI was reported in an Iranian burns hospital, 31% in Malawi and 15-34% in different Nigerian regions. This was a hospital based cross sectional study whose aim was to identify the micro organisms associated with causation of BWIs and their antibiotic susceptibility patterns. It was conducted among 81 in-patients with burns admitted at Kenyatta National Hospital (KNH) burns unit and burns ward for four weeks from June to July 2013. Both quantitative and qualitative methods were employed. Prior approval was sought from ethical review committee before commencing the study.

Quantitative data was collected using a provider initiated standard questionnaire where a total of 81 wound swabs specimens were obtained using purposive sampling method and immediately transported to the microbiology laboratory for culture and sensitivity tests. For the qualitative data, in-depth interviews were conducted using convenient sampling method among 3 doctors and 10 nurses all working within the burns unit and ward using an interview guide. Their opinions and experiences in the prevention of BWIs were explored until saturation levels were reached. Qualitative data was analysed manually according to emerging themes while quantitative data was analyzed using Stata® version 12.0 xv In the present study, there was a high prevalence of bacterial BWIs (86%). The isolates among the subjects were mainly gram negative (60%) of which 44.4% had staphylococcus aureus and 32.1% had pseudomonas aeruginosa isolated. The isolates were highly multi drug resistant to the commonly used antibiotics at both the burns unit and burns ward. Staphylococcus aureus had above 60% resistance levels to all but two antibiotics; Teicoplatin (0%) and Levofloxacin (31 %). Days post bum was the only independent predictor of antibiotic sensitivity and predicted sensitivity to Levofloxacin. The odds of sensitivity to Levofloxacin reduced by 2% (OR = 0.98, P<0.05) for each additional day post bum. All care givers interviewed were unanimous that the prevalence of bum wound infections was high among bum patients. Overcrowding, understaffing, poor infection control practices and inadequate equipment and appropriate supplies were some of the factors identified to be associated with the causation of bum wound infections. None of the nurses working at burns unit and ward was formally trained on burns management. Aggressive infection prevention measures should be instituted urgently to limit the emergence and spread of...
multidrug-resistant pathogens. Regular wound cultures and periodical analysis of resident organisms and their antibiotic susceptibility patterns should be done in keeping with best practices of other modern burn treatment centres worldwide. Long term goals include fast tracking the construction of the proposed burns centre at KNH. The hospital should train nurses working at burns unit and ward on burns management just like it does for those working at the other specialized units at the hospital. The central government should build capacity at the lower level four and five government hospitals to facilitate effective burns management which will help in decongesting KNH.