The prevalence of multidrug resistance bacteria in surgical intensive care unit

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Abstract

Background: Multidrug resistance (MDR) bacteria are a common phenomenon that had a serious effect on the life of pathogens on earth. MDR was defined as acquired nonsusceptibility to at least one agent in three or more antimicrobial categories. Antibiotic resistance is associated with a huge clinical and economic burden, including increased mortality, increased hospital stays and antibiotic costs. Controlling the infection of gram-negative drug-resistant bacteria requires a comprehensive approach, including risk factor identification strategies, the detection and identification of drug-resistant bacteria, and the implementation of infection control and prevention strategies. The aim of study was to determine the prevalence of MDR bacteria in surgical intensive care unit (SICU) in Palestine.

Methodology: This is a retrospective observational review chart study of all patients admitted to SICU at a tertiary university hospital in Nablus that were diagnosed and documented with positive MDR bacterial culture. Data regarding demographics, comorbidities, source of sampling, type of microorganism, antimicrobial susceptibility and outcome over a period of 4 years (2017 – 2020).

Results: A total number of 167 patients were included, 103 patients (61.67%) were with microbial growth on their routine collected sample. The mean age was 57.569 years with a SD ± 20.1227. the prevalence of MDR bacteria was (53.29%) of all patients, (52.8%, 47.2%) for male and female respectively. Hypertension and Diabetes mellitus was the leading comorbidities encountered in them. Among them *Extended-spectrum beta lactamase* (ESBL) was the most common microorganism found (27.0%) with MDR feature, followed by the fungal infection *Candida* (18.0%). Ciprofloxacin (22.8%) was found to be the most common insensitive antimicrobial drug. Sampling had a significant value in distribution of MDR among participant, blood, urine and body fluid was detected in (39.7%, 36.6%, 77.8%) respectively, with ($p < 0.05$). The average mortality in relation with MDR was (56.2%) in a significant value of ($p<0.05$).

Conclusion: MDR bacteria carry high morbidity and mortality rates, and they are very frequent among critically ill patients. Political and social influence are crucial in regard MDR bacterial spread, and conducting an educational program for the inappropriate use of antimicrobial as the leading cause of this threat, will control and prevent this phenomenon.