

Colomycin and its role in the Era of antibiotic resistance (case study)

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Abstract

Increasing antibiotic resistance in multidrug-resistant (MDR) Gram-negative bacteria (MDR-GNB) presents significant health problems worldwide, since the vital available and effective antibiotics, including; broad-spectrum penicillins, fluoroquinolones, aminoglycosides, and β -lactams, such as; carbapenems, monobactam, and cephalosporins; often fail to fight MDR Gram-negative pathogens as well as the absence of new antibiotics that can defeat these “superbugs”. All of these has prompted the reconsideration of old drugs such as polymyxins that were reckoned too toxic for clinical use. Only two polymyxins, polymyxin E (colistin) and polymyxin B, are currently commercially available. Colistin has re-emerged as a last-hope treatment in the mid-1990s against MDR Gram-negative pathogens due to the development of extensively drug-resistant GNB. Unfortunately, rapid global resistance towards colistin has emerged following its resurgence. In this research, we intend to discuss the progress over the last two decades in understanding the alternative colistin mechanisms of action and different strategies used by bacteria to develop resistance against colistin, besides providing an update about what is previously recognized and what is novel concerning colistin resistance.

Our study was designed as a descriptive, cross-sectional study using structured predesigned questionnaires which were distributed among ICU patients registered at El Hawari isolation center. The study was conducted for the period from January to March 2022. The data was statistically analyzed through using Excel Microsoft and the results were expressed in frequency and percentages. Sample size, all patients over 18 years of age diagnosed with SARS-CoV-2 Acute Respiratory Infections (SARI) who are using colomycin as an antibiotic. All patients were verbally unable to participate in the study, because they were all on ventilators and considered critical cases.

From the collected data, we found that the medical staff changed the antibiotics they were using to colomycin based on the medical examination and not on the microbial spotum culture, to ensure that the patient respiratory tract was colonized with Gram-negative organisms, including P aeruginosa. This is a serious indication of hospital failure, ignorance or lack of knowledge of the medical staff.

In addition, the study displayed that all the patients' vital functions were normal (Lf and RF), during using colomycin IV, which indicates that these results are irrational, as all patients were infected with corona and with comorbidities, and of course were in intensive care unit due to their poor condition.