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Letter to the Editor | Open Access

Emergence of Antibiotic Resistance in Pakistan; A Clear Problem for Future

Muhammad Sohail Afzal*

School of Science, University of Management and Technology (UMT), Lahore, Pakistan

***Corresponding author:** Muhammad Sohail Afzal, School of Science, University of Management and Technology (UMT), Lahore, Pakistan, Tel: +92-321-5244808; E-mail: sohail.ncvi@gmail.com

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Letter to the Editor

Dear Editor,

The capacity of bacteria to resist against the effects of an antibiotic is called antibiotic resistance. Antibiotic resistance is due to the change in bacteria by some approach that eliminates or reduces the efficiency of chemicals, drugs, or other agents designed for treatment against infections. The survival and continuously multiplication of bacteria causes more destruction in human body [1]. A few years back, main focus of research was centered regarding gram-positive bacteria resistant. Currently, clinical microbiologists strongly are in view that multidrug-resistant gram-negative bacteria are the major risk for human health. The gram-negative bacteria resistance increasing faster than in gram-positive bacteria [2]. There are rarer developing and new antibiotics active against gram-negative bacteria [3] and drug enhancement programs look adequately on the matter to provide therapeutic protection in last two decades [4].

In the present time, it was reported from different hospitals situated at different places in Pakistan that bacteria isolated from different infections were becoming gradually resistant to traditional antibiotics [5]. In Pakistan the usage of antibiotic is unnecessarily high and due to over exposure of the drugs bacteria are getting resistance against these drugs. There are very few reports evaluating the antibiotic resistance in bacteria associated with different infections in Pakistan. Here are some examples of antibiotic resistance occurred in Pakistan at different places. *A. baumannii* are displaying resistance to numerous kind of antibiotics at high level. *Acinetobacter* species, through the formation of diverse carbapenemase enzymes, class D oxacillinases (OXAs) and class B metallo-b-lactamases (MBLs), showed resistance to carbapenems. The resistance against ceftriaxone and quinolones, used in non typhoidal *Salmonellae* (NTS), is increasing in Pakistan [6,7]. Even the resistant potential was introduced against penicillin [8]. In general, the rate of resistance to novobiocin, amoxicillin, cefaclor, and ampicillin were from 62 to 75% [9]. Multi drug resistance (MDR) is increasing in Pakistan and it has been highlighted in a study that 77.5% of all the screened isolates were resistant to three or more than three of the tested antibiotics [10]. Different reports regarding the development of antibiotic resistance in Pakistan confirm the drastic increase of antibiotic resistance or even the development of MDR across the country [11-18].

Previously a large no of reasons were reported about the increasing resistance to antimicrobial agents in all over the world but these factors are more dominantly in third world countries like Pakistan, India etc. Herein some reasons are reported for increasing the resistance of antimicrobial species. Mobile genes on plasmids are the main factor for increasing the resistance of gram-negative bacteria that can voluntarily transmit between bacterial populations. In addition, unscreened traveling and migration of human permit bacterial plasmids to transport speedily across the countries [19]. Perseverance and extend of antibiotic resistance genes are not only due to pathogenic bacteria that are in human body but also among environmental bacteria [20]. The selective pressure because of quantity and over exposure to antibiotic is also an important factor for resistance development [21].

In conclusion, resistance against frequently used antibiotics is increasing day by day in Pakistan like other under developed third world countries. It is need of the hour to develop strategies for future reduction of antibiotic resistance. Community education programmes must be carried out for general population as well as for health care professionals regarding the selective usage of antibiotics. It is also proposed for the researchers and physicians to develop local antibiotic susceptibility profiles. A revised line of management should be developed locally in accordance with the susceptibility pattern of the pathogens to avoid further resistance as well as morbidity of the patient. Antibiotic susceptibility studies should be carried out in each hospital situated at different geographical locations of the country to develop local susceptibility profile against each bacteria circulating in the local population of that area. Future studies are proposed at larger scale from different cities of the country to resolve this serious problem.

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