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Short Communication

FACTORS THAT FAVOURS THE SPREAD OF BACTERIAL RESISTANCE

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ABSTRACT

Antimicrobial agent resistance has increased globally in different bacterial pathogens, which leads to treatment failure in human and animal infectious diseases. The occurrence of resistance to antibiotics in bacteria often develop as a result of non-essential and improper use of antimicrobial agents. An estimated 700,000 individuals die yearly from drug-resistant infections. Many studies also illustrated the financial consequences of antimicrobial agent resistance, including very high hospital costs owing to an increase in hospital admission, extended hospital stays etc. This article describes the various factors that favours the spread of bacterial resistance.

Keywords: Antibiotics, Bacterial resistance, Spread, Susceptibility pattern

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INTRODUCTION

Antibiotic resistance has been narrated as one of the substantial global threats of the 21st century [1]. The occurrence of resistance to antibiotics in bacteria often develop as result of non-essential and improper use of antimicrobial agents [2]. Resistance to antibiotics occurs when a microorganism is able to remain or grow in the presence of a concentration of antimicrobial agents that is conventionally sufficient to hinder or kill microorganisms of the same species [1]. This article describes about various factors that favours the spread of bacterial resistance.

Factors affecting bacterial resistance

The sale of the antimicrobial drug is big a business. In the United States millions of pounds of antimicrobial agents valued at billions of dollars are manufactured annually. Because of the huge quantities of antibiotic being produced and used, a rising number of diseases are resisting therapy due to the spread of drug resistance [3].

Misuse of antibiotic by the doctors is common especially in the intensive care unit (ICU) in hospital which are fast becoming a breeding ground for the development and spread of antimicrobial resistance due to exposure of heavy antibiotic use in a high-density population. When patients are discharged to continue drugs at home, it further facilitating antimicrobial agent resistance spread to other in contact humans [4, 5]. The unnecessary prescription of antimicrobial agents noticed in industrialized nations although for different reasons has also been documented in many developing countries [6].

This is a major problem in developing countries where qualified and well-trained health personal are scarce and ill-trained or self-trained quacks parade themselves as medical personnel in rural areas. In developing countries, self-medication is common and antibiotics are readily available across the counter in pharmaceutical stores, market stall, by the road side, and from hawkers [7, 8]. Self-medication by consumers has been recognized as one of the major reasons for the development of antimicrobial resistance. In an attempt to manage their own illness, patients take the guidance of false media sources, friends, and family causing them to take antibiotics unnecessarily or in excess. This practice usually leads to antibiotic under use (sub-optimal dosages) that in variably increases selective pressure and antimicrobial resistance [9].

Antibiotics deteriorated by exposure to temperatures higher than 20 °C by hawkers, harsh adverse conditions during shipment to the tropics or when laid out on the hot payment, expired drug which receive new labels, sometimes dumped without labels or donated rather than destroyed are common in developing countries all of which promote development and spread of antimicrobial resistance when used [10].

Enormous increase in international travel in last decade means that individuals may be exposed to resistant microbes in one country and carry them to other countries, where resistance can then spread. A typical example is the resistant strains of Neisseria gonorrhoea which originates in the Philippines and Asia and has now spread throughout the world [11].

CONCLUSION

In this article we have make an effort to mention some important factors that favours antimicrobial resistance. Antimicrobial resistance is increasing globally due to increased prescription and dispensing of antibiotic drugs in developing countries and it is also caused by the misuse of these drugs by the general public. In this aspect, we recommend to provide continuous education to all health care workers and the general public regarding antimicrobial usage and also we emphasized the need for continuous monitoring of the antimicrobial susceptibility pattern of bacterial pathogens towards commonly used antimicrobial agents for the selection of appropriate therapy.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICTS OF INTERESTS

Declared none

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