

Antibiotic abuse and development of bacterial resistance

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Abstract

The aim of this literature review is to detect the rate of the development of the antibiotic resistant bacteria and the antibiotic abuse by either the healthcare providers or the patients. Antibiotic abuse and the Resistance to antimicrobial agents is a major health problem that affects the whole world, Providing Information on the past state of antimicrobial resistance in Libya may assist the health authorities in addressing and reduce the problem more effectively in the future. Data and information were obtained from 1 article and 5 published studies about Libya by using (PubMed) and (Google scholar) using the terms 'antibiotic resistant bacteria' 'multidrug resistant bacteria in developing countries' 'antibiotic abuse in north Africa' however the data on Libya were very scarce. The term of multidrug-resistant (MDR) is defined by the (NIH) as the acquired non susceptibility to at least one agent in three or more antimicrobial categories, other terms are extensively drug-resistant (XDR) and the pandrug-resistant (PDR) these are more devastating and dangerous to community than (MDR), the problem of the emergence of antibiotic resistance is primarily due to excessive and often unnecessary use of antibiotics in humans and animal agriculture without prescription from healthcare providers. According to the data we examined in each study they showed evidences of the multidrug resistant bacteria isolated and cultured from different sources.

After the introduction of antibiotics in the mid-20th century, clinicians soon witnessed clinical failures secondary to bacterial resistance. Despite scientists' efforts to synthesize more potent antibiotics during the last five decades, bacterial resistance continues to evolve, in large part because of the overuse and misuse of antibiotics. The treatment of several pathogens, including methicillin-resistant *Staphylococcus aureus*, penicillin-resistant *Streptococcus pneumoniae* and vancomycin-resistant enterococci, is problematic.

New solutions are needed to preserve the activity of our current antibiotic armamentarium, to lower the overall risk of bacterial resistance and to successfully treat patients with resistant bacterial infections. Options include: development of new antibiotics to treat resistant organisms; vaccination to prevent infections; and improved use of antibiotics. Because bacteria will eventually develop means to avoid being killed by antibiotics, judicious use of antibiotics by all clinicians is imperative. Appropriate antibiotic use involves selection of a "targeted spectrum" antibiotic, as well as an appropriate dose and duration.

The current epidemic of bacterial resistance is attributed, in part, to the overuse of antibiotics. Recent studies have documented increases in resistance with over-use of particular antibiotics and improvements in susceptibility when antibiotic use is controlled. The most effective means of improving use of antibiotics is unknown.

Conclusion

Antibiotics/antibacterial drugs are the most commonly used and abused antimicrobial agents in the management of bacterial infections globally. They have been used for more than 50 years to improve both human and animal health since and during the antibiotic golden age and post-antibiotic golden age. The discovery of the antibiotics and antibacterial agents revolutionized the treatment of infectious bacterial diseases that used to kill millions of people during the pre-antibiotic golden age worldwide. The major sources of antibiotics/ antibacterial agents include *Streptomyces*, *Penicillium*, *Actinomycetes* and *Bacilli*.

Introduction

In developing countries, acquired bacterial resistance to antimicrobial agents is common in isolates from healthy persons and from persons with community-acquired infections. Complex socioeconomic and behavioral factors associated with antibiotic resistance, particularly regarding diarrheal and respiratory pathogens, in developing tropical countries, include misuse of antibiotics by health professionals, unskilled practitioners, and laypersons; poor drug quality; unhygienic conditions accounting for spread of resistant bacteria; and inadequate surveillance.