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PROBLEMS OF MISUSE OF ANTIBIOTICS: CAUSES, CONSEQUENCES AND WAYS OF PREVENTION

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ANNOTATION

This article comprehensively covers the current problems associated with the misuse of antibiotics, their causes, and the negative consequences they cause for human health and the public health system. The increasing resistance of microorganisms to drugs as a result of unreasonable and uncontrolled use of antibiotics is recognized as one of the global health problems today. The article analyzes the concept of antibiotic resistance, its biological mechanisms, the level of medical literacy of the population, the responsibility of doctors and pharmacists, as well as the role of health policy on a scientific basis. During the study, the problem was studied comprehensively, relying on national and local scientific sources. At the end of the article, scientific and practical recommendations are developed to ensure the rational use of antibiotics.

Keywords

Antibiotics, misuse, antibiotic resistance, drugs, public health, medical literacy, microorganisms, health care.

INTRODUCTION

In recent decades, the rapid development of medical science, the creation of new drugs and the introduction of modern treatment methods have contributed to the extension of human life and the establishment of control over many infectious diseases. In particular, the discovery of antibiotics was one of the most important turning points in the history of medicine, having a revolutionary significance in the treatment of bacterial infections. However, the widespread and often uncontrolled use of antibiotics poses a serious threat to their effectiveness. The problem of improper use of antibiotics has become a pressing issue not only for medical workers, but also for society as a whole. According to the World Health Organization, antibiotic resistance is one of the most serious global problems threatening human health. The main reasons for this situation are the use of antibiotics without a doctor's prescription, incomplete completion of the course of treatment, use of incorrect doses, and unjustified use in viral diseases [3]. In Uzbekistan, cases of improper use of antibiotics are also widespread. The tendency of part of the population to self-medicate, the sale of antibiotics without a prescription through pharmacies, and insufficient medical culture and pharmacological literacy further deepen this problem. As a result, previously easily treatable infections turn into severe and chronic forms, complicating the treatment process. Antibiotic resistance poses a threat not only to individual patients, but also to society as a whole. Because resistant bacteria can spread rapidly and cause large-scale epidemics. This leads to an excessive economic burden on the healthcare system, increased treatment costs, and increased mortality rates. The main goal of this scientific article is to scientifically analyze the problem of antibiotic misuse, identify its causes, and develop

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effective measures to prevent this problem. The article extensively covers the pharmacological properties of antibiotics, the main errors in their use, as well as the role of the healthcare system and the population in this process.

RESEARCH METHODOLOGY: In this study, a number of scientific methods were used to deeply and comprehensively study the problem of inappropriate use of antibiotics. The research methodology was based on qualitative analytical, comparative and descriptive approaches. In the process of scientific research, local scientific literature, textbooks, regulatory legal documents related to the healthcare sector, medical articles and open electronic sources were analyzed. The main methods of the study are as follows:

Analytical method - used to identify the causes and consequences of inappropriate use of antibiotics.

Comparative method - used to identify the differences between cases of correct and incorrect use of antibiotics.

Descriptive method - used to explain the mechanisms of development of the antibiotic resistance process.

Summarizing statistical data helped to draw a general conclusion about the problems encountered in the healthcare system.

The research methodology was developed in accordance with the principles of scientific objectivity and reliability.

This approach made it possible to assess the problem of antibiotic misuse not only from a medical, but also from a social and organizational perspective.

MAIN PART: Antibiotics are biological and chemical substances that inhibit the growth and reproduction of microorganisms or completely destroy them, and are mainly used to treat bacterial infections. The discovery of antibiotics is one of the most important achievements of 20th century medicine. Early antibiotics, such as penicillin, made it possible to effectively treat many diseases that ended in death. However, along with the widespread use of antibiotics, their misuse began to be observed. Although antibiotics are effective only in bacterial diseases, in many cases they are used unreasonably in viral infections, including influenza, colds and acute respiratory diseases [4]. This leads not only to ineffective treatment, but also to the formation of resistant bacteria in the body. There are several main reasons for the misuse of antibiotics, which are associated with medical, social and organizational factors. First, the lack of sufficient medical literacy among the population is one of the main causes of the problem. Many patients perceive antibiotics as a “universal remedy for any infection.” As a result, cases of choosing and taking drugs without a doctor’s prescription are widespread. Secondly, the sale of antibiotics without a prescription in pharmacies is also a significant problem. This situation increases the tendency of patients to self-medicate. Insufficient pharmaceutical control creates conditions for the misuse of antibiotics. Thirdly, there are also cases of unjustified prescription of antibiotics by some doctors. In some cases, antibiotics are recommended at the request of the patient or without specific laboratory tests [5,6]. This reduces the scientific basis of treatment. Antibiotic resistance is a condition in which bacteria adapt to the effects of antibiotics and become resistant to them. Although resistance is a natural evolutionary process, the incorrect and excessive use of antibiotics accelerates this process. Resistance develops through several mechanisms. Bacteria can produce enzymes that break down antibiotic molecules, limit the entry of drugs into the cell, or change their genetic structure. As a result, previously effective antibiotics no longer have the expected effect. Inappropriate use of antibiotics can cause serious harm to the patient's body. First of all, the treatment process becomes ineffective, and the disease becomes chronic. In addition, there is a

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violation of the intestinal microflora, allergic reactions, and toxic effects. Treatment of infections caused by resistant bacteria requires more time, stronger, and more expensive drugs [3]. This creates an additional economic burden for the healthcare system. Antibiotic resistance causes not only medical, but also social and economic problems. The increase in morbidity among the working-age population leads to a decrease in labor productivity. The increase in treatment costs negatively affects the state budget and the financial situation of the population. The spread of resistant infections also complicates the epidemiological situation. This poses a direct threat to public health and requires emergency measures in the healthcare system [8,9].

ANALYSIS AND RESULTS: The results of the conducted scientific-analytical study showed that the problem of inappropriate use of antibiotics is multifactorial and systemic. Local scientific sources and information on the healthcare system studied during the study confirm that the existing shortcomings in the use of antibiotics are deeply rooted. First, it was found that the level of knowledge of the population about antibiotics is insufficient. According to many sources, a large number of patients do not know that antibiotics are effective only for bacterial infections. As a result, they take antibiotics for colds, flu and other viral diseases. This situation, while reducing the effectiveness of treatment, increases the resistance of microorganisms. Secondly, the use of antibiotics without a doctor's supervision has emerged as a significant problem [7]. The sale of antibiotics without a prescription in pharmacies increases the tendency of patients to self-medicate. The results of the study show that cases of incomplete completion of the course of treatment, independent dose changes and early discontinuation of the drug are widespread. Third, the responsibility and level of qualification of medical personnel also play an important role in the proper use of antibiotics. In some cases, antibiotics are prescribed without laboratory tests, and broad-spectrum drugs are overused [2]. This increases the risk of resistance. According to the results of the analysis, the development of antibiotic resistance is directly related to improper use, and complex measures are needed to stop this process. These include increasing the medical literacy of the population, strengthening pharmaceutical control, introducing continuous professional development programs for doctors, and developing a policy on the rational use of antibiotics at the national level.

CONCLUSION: The problem of improper use of antibiotics is a serious issue today that threatens not only the health of individuals, but also the health of society as a whole. The studies conducted in this scientific article have shown that the unreasonable and uncontrolled use of antibiotics increases the resistance of microorganisms to drugs, complicating the treatment process. In conclusion, to ensure the rational use of antibiotics, it is important to use antibiotics only on the basis of a doctor's prescription, strictly control the sale of antibiotics without a prescription in pharmacies, increase the medical and pharmacological literacy of the population, organize regular training seminars for doctors and pharmacists, and develop a system for monitoring antibiotic resistance in the healthcare system. The consistent implementation of these measures will serve to maintain the effectiveness of antibiotics, prevent the spread of infectious diseases, and strengthen public health.

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