INTERNATIONAL SEVEN JOURNAL
OF HEALTH RESEARCH
ISSN: 2764-9415

A literature review: Bacterial resistance

Uma revisão bibliografica: Resistência bacteriana

DOI: 10.56238/isevjhv2n5-021
Receipt of originals: 17/10/2023
Acceptance for publication: 27/09/2023

Janielly Maria da Silva
E-mail: j.anyelly@hotmail.com

ABSTRACT
The discovery and use of antibiotics was a major step forward for global public health. Since then, it has been possible to treat several types of infection with this class of drugs. For a long time, it was done in a disorderly way, which caused the most resistant bacteria to emerge. This work addresses how these microorganisms acquire this resistance, and the consequences. The present study aimed to analyze, through a literature review, about bacterial resistance, thus also showing the consequences and solutions to alleviate the situation. To this end, a bibliographic review of articles and books was carried out on several websites, available in the Google Scholar electronic library, Scielo. This is a topic that deserves attention today.

Keywords: Bacterial resistance, Antibiotics, Rational use of medications.

1 INTRODUCTION

Bacterial resistance continues to increase and become a concern, where treatments using antibiotics are administered less. The indiscriminate use of antibiotics, often in an accelerated and over-the-counter way, has led to a process of mutation of the bacteria, making them increasingly resistant.

In the last decade, the discovery of antibiotics in the treatment of infections caused by bacteria has led to a breakthrough in medicine, considerably reducing the number of deaths from infectious diseases. As a result, the potentiated use of antibiotics has been increasing, causing the selection of strains of different bacteria resistant to these drugs. (BARBOSA, 2014)

The resistance of these bacteria to the inappropriate use of antibiotics is worrisome in today's world, and recent studies by scientists on antimicrobials affect not only users, but the entire planet where they live. (DE OLIVEIRA; MUNARETTO, 2023).

As antibiotics have different types of treatments and action, bacteria develop different means of resistance. Bacterial resistance occurs due to the following: a) A change in the cell membrane that requires the entry of the antibiotic to reach the cell, causing the entry of the antibiotic to reach the cell, causing the antibiotic to be thrown out of this membrane; b) Create the

ability to inactivate the antibiotic; c) A new phase of mutations arises, nullifying the action of the antibiotic. (BEJAMIN, ET.AL.; 2017).

As a result, various diseases are emerging and creating an increase in bacterial resistance is becoming more and more formed. In this way, in a few years these resistances can worsen severely, even without antibiotics to treat these infections caused by the bacteria. (PHELAN, 2020).

This article was carried out several biobibliographic searches of articles and books on several websites, available in the Google Scholar, Scielo, PUbemd and Lilues electronic library, during the period from March 2023 to August 2023. I made some selection criteria with reliable sites and articles about bacterial resistance, and used as exclusion criteria, unreliable sites as well as topics that ran away from the topics. Regarding risk, it brought a minimal risk due to the fact that it was researched in reliable websites and being a literature review, so the research brought relevance to the academic community such as: Up-to-date information on the complications of these bacterial resistances in the current world, data made available to those who want to update when reading this article.

The present study aimed to analyze, through a literature review, about bacterial resistance, thus also showing the consequences and solutions to alleviate the situation.

2 DEVELOPMENT

The use of antimicrobials is one of the main factors that causes bacterial resistance, arguing that the reduction of these drugs has a positive impact on the reduction of this factor. However, in the laboratory setting, this regression is very difficult to test due to large changes in prescriptions. (MINISTRY OF HEALTH, 2012).

According to Lima (2021), bacterial resistance is a major global public health problem, where it can cause many deaths annually, and which is neglected. Consequently, the issue worsened due to the indiscriminate use of antibiotics during COVID-19, which had been treated with antimicrobial drugs.

One of the reasons that may have led to the exaggerated use of this self-medication of antibiotics and consequently to the resistance of these bacteria was the discredit in science, causing the population to submit to the dangers with their own health, creating a kind of false sense of protection. Such an attitude, associated with not believing in science, led the population to commit several disrespects to social isolation, distancing rules, biosafety protocols and, as a consequence, increasing the infection curve. (CARVALHO, 2020).

According to ISHII (2011), antimicrobial therapy should not be passed without supporting tests such as culture and antibiogram and highlights the need to monitor the resistance profile of these bacteria, which vary over the years and differ from site to site. These tests should not be neglected, as they favor the prudent choice of the appropriate use for each type of infection caused by different types of bacteria.

According to Nascimento (2003), there are problems with the exaggerated use of antibiotics and inadequate doses. Another way is the discontinuity of the use of the medication, due to the disappearance of the infection in the first doses, generating the proliferation of bacterial bacteria and the acquisition of resistance.

On the other hand, in other studies in which the prescription was not questioned, the mode of use or the risks of use, the lack of knowledge of the patients may be related to the mismanagement of medications. (OLIVEIRA, 2004).

3 CONCLUSION

Bacterial resistance can and should be avoided by making use of some guidelines such as: use antibiotics only if necessary and under medical prescription; do not interrupt the treatment of any infection month when in the first doses you are already better; Do not take medications that have been prescribed to another user and do not use antibiotics left over from previous treatments, even if the symptoms are the same. This study will serve to raise awareness and deepen the scientific knowledge of health professionals and the population about the irrational use and prescription of antibiotics.

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