

Antibiotic Resistance

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Abstract: The article is devoted to the actual problem of antibiotic resistance, in overcoming which behavioral factors of both consumers and pharmacists and doctors are important. The authors studied the most important behavioral factors of patients, doctors and pharmacists, which contribute to the irrational use of antibiotics and the growth of antibiotic resistance.

Keywords: antibiotic Resistance, behavioral factors

Introduction

Antibiotic resistance is a multifaceted, global and urgent problem of modern medicine [5].

Inadequate use of antibiotics is a widespread problem in human medicine. Inadequate antibiotic prescriptions, over-the-counter availability, poor patient adherence to prescribed drugs, use of substandard drugs, and self-medication with previously unused antibiotics all contribute to the development of resistance [2]. The current trend of mismanagement of antibiotics, according to US health professionals, will lead to 10 million deaths a year and a fall in gross domestic product of 2% - 3.5% by 2050, resulting in a total economic loss of \$ 60 to \$ 100 trillion. Delaying the development of resistance by 10 years will save the world \$ 65 trillion between 2014 and 2050 [4].

The targeted use of appropriate antibiotics is critical to minimizing the consequences of emerging resistance in individual patients and their communities [1].

To address this urgent threat, a multidimensional strategy is required, which should include the study of behavioral factors leading to the misuse of antibiotics by patients [3].

Objective of the study: To assess the situational risks of the formation of antibiotic resistance from the standpoint of patient-consumers and doctors and pharmacists-healthcare providers.

Materials and research methods. The developed tools were used to conduct a survey among consumers (198 patients) and healthcare providers (394 pharmacists and doctors), which reflect questions that reflect the knowledge of patients, doctors and pharmacists, their current views and beliefs regarding antibiotics and their prescribing practices. The surveys were conducted in Russian, including questions with alternative answers and gradations of the degree of agreement on the Likert scale. The survey data was entered into Excel format by interviewers and then exported to SPSS for statistical analysis. Data for each question in the questionnaire was analyzed by mean and by frequency, with cross-tabulation for demographic questions.

Research results and discussion. A study to assess the practice of using antibacterial drugs has shown that antibiotics are the most demanded "commodity" among the population. 63.6% of persons with

respiratory infections received a single course of antimicrobial drugs during the year, and a third of them more than 2 times a year (37.4%).

Non-prescription antibiotics (AB) are available in the Republic. According to a survey of pharmacy workers, up to 85.4% of patients go to pharmacies to purchase antibiotics without a prescription and up to 78.4% of patients come for antibiotics without first consulting a doctor. It was noted that 60.2% start taking an antibiotic without a doctor's prescription, "what is in the first-aid kit" or "what is left of the previous illness."

An assessment of the opinion of consumers of medical services about the benefits or potential dangers of antibacterial drugs showed that many patients understand that taking an antibiotic "at the moment" can reduce their effectiveness in the future (54.0%), antibiotics kill beneficial bacteria (53.5%) ... In parallel with this, among patients widespread misconceptions: about a "quick" recovery when taking AB (76.2%), a decrease in the risk of complications from colds (73.0%). 60.3% of patients believe that "respiratory infections are weak immunity and should be treated with antibiotics." 41.3% of patients, in general, do not see any danger in taking AB.

A survey of patients showed that they took antibiotics on their own at the first symptoms of a cold (76.2%), in the first days of a high temperature (68.3%), without a fever, but with a cough up to 3 or more than 10 days (49.3 % and 69.8%, respectively) and stopped at the first disappearance of cold symptoms (55.6%).

The study found that patients are subject to the mood and expectation of a particular therapy. To the question: "What treatment do you expect from a doctor if you have a runny nose, sore throat and body temperature below 38.5"? - unambiguously give the answer "antibiotic" up to 34.9% of patients, "anesthetic" - 4.8% of patients, "antipyretic" -1.6% of patients, 12.7% of patients expect the appointment of only vitamins and 6.3% - "Immune drugs". It should be noted that 23.8% of patients expect a doctor to prescribe AB in combination with pain relievers, cough medications, vitamins and immune drugs, and only 12.7% of patients do not expect AB prescriptions from a doctor, but prefer the complex administration of painkillers, antipyretic drugs, cough medications, vitamins and immune medications.

A study of the behavioral reactions of patients in relation to antibiotic therapy showed that 33.3% of patients insist on prescribing antibiotics or beg for them from a doctor, 44.4% of patients are sure that antibiotic injections are more effective than oral drugs, and 42.9% of patients were dissatisfied if the antibiotics were given in tablets rather than injections. According to the survey, it was found that up to 30% of patients do not comply with the dose, frequency and duration of taking prescribed antibiotics, 42.9% admit that they take antibiotics for fewer days than the doctor recommended. The detailing of compliance with the dose, frequency and course of antibiotic administration showed that 10.5% of all interviewed patients did not comply with the doses recommended by the doctor, 21.1% of patients did not withstand the frequency of use and 44.5% of patients violate the course recommendations for taking antibiotics. 8.5% of patients are persistent violators of antibiotic use in all parameters: dose, frequency and course.

A study of the level of accessibility of pharmacy workers to information on clinical recommendations in the prescription of antibiotics (indications, doses, choice of drugs) showed that 62 out of 98 interviewed workers (63.4%) confirm the statement about accessibility to information and only 36 out of 98 interviewed (36, 6%) note limited access to reliable information. The results of the study showed that pharmacists provided guidance to advice on the use of antibiotics for patients "always", either in "most cases" or "often": clinical protocols (29.6%), textbooks (24.5%), pharmaceutical reference

books (61.2%), the Internet (63.3%), training materials of pharmaceutical companies (73.5%), the experience of colleagues (60.2%).

An analysis of the claims of pharmaceutical workers about the sources they were guided by when giving advice on the use of antibiotics showed among them a low share of sources with a high level of data reliability (clinical protocols and textbooks) and an extremely high percentage of sources with a low level of reliability (training material of pharmaceutical companies, the Internet and colleagues' experience of antibiotic approaches). Apparently, this fact led to the fact that in certain clinical situations the majority of pharmacy workers show an erroneous opinion and in 73.5% are mistaken in their statements that "antibiotics help to recover faster in bronchitis" and in 71.4% - that "antibiotics help to reduce frequency of complications in acute respiratory infections".

The results of the study noted that very decisive and highly decisive factors for the recommendations of antibiotic prescription by pharmacists in acute respiratory infection of unspecified (viral or bacterial) etiology are: purulent nasal discharge (31.6%), productive cough with green or yellow sputum (25.5% and 35.7%, respectively), the duration of cold symptoms is more than 3-4 days (33.7%), as well as the patient's statement that "he / she got better last time with the same symptoms after prescribing antibiotics" (31.6%). For doctors with an unspecified acute respiratory infection (viral or bacterial), very decisive factors for the appointment of an antibiotic are: purulent nasal discharge (32.8%), less often a productive cough with green or yellow sputum (26.6%). Doctors consider a productive cough with green or yellow sputum (45.6%) and the duration of cold symptoms for more than 3-4 days (32.8%) to severely bruising factors in prescribing an antibiotic. The patient's assertion that "he / she got better last time with the same symptoms after prescribing antibiotics" is very little decisive for doctors (39.1%) and in no way decisive (23.4%).

The tactics of recommending and prescribing antibiotics are often related to human factors, both in relation to patients and colleagues providing services. It was noted that up to 37.7% of pharmacists and 21.9% of doctors confirm that it is difficult for them to give recommendations not to take antibiotics for acute respiratory infections, because other pharmacists or doctors advise taking them, as well as 37.7% of pharmacists and 3.2% of physicians say they find it difficult to advise against antibiotics when asked by patients, even if antibiotics are not indicated. A fairly significant percentage of doctors do not agree with these statements and reserve the right to prescribe antibiotics, which sharply differs from the actions of pharmacy workers.

Conclusions

1. Low educational level and awareness of patients in the rational use of antibiotics determine the need to strengthen information and educational work with patients on AMT at all levels.
2. Pharmacists should be included in the target audience of the national strategy to support the rational use of antibiotics, given the frequency with which patients consult with them about treatment without going to a doctor. Our research has highlighted the need to improve the knowledge of pharmacists about the correct use of antibiotics, side effects and risks of antibiotic therapy.

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