

Inadequate and unnecessary antibiotic prescription; an increasing problem

Among the less promising characteristics prevalent in today's health care, an excessive use of ancillary diagnostic methods and an inadequate and unjustified drug prescription stand out. These problems have increased at a fast pace in the past decades, and they relate, among other things, to the detrimental changes observed in medical practice. Different external factors have influenced such changes, e.g., the overwhelming technological development and the commodization that has invaded the medical profession.

In this technological age, physicians are more and more dependant on technology, thus giving people the false expectation that medicine will solve all their problems. The inadequate use of new techniques has led to a progressive "distancing" between doctors and patients and to a remarkable increase in health care costs, i.e., it has turned medicine into a more dehumanized and gradually less sustainable practice.

Among other reasons, unjustified prescription of drugs and diagnostic methods is the result of lesser time devoted to medical consultation, the fact that health care providers do not listen to patients, spurious interests caused by the commodization of medicine, and believing that technology is capable of developing a better and "more modern" medicine.

This time, I would like to describe one of the aspects that has given place to greater concern in the past years: inadequate antibiotic use among children and adults.

This is a serious problem that mainly comprises two scenarios: the prescription of an inadequate antibiotic for the bacterial infection to be treated and the unjustified prescription of antibiotics. The US Centers for Disease Control and Prevention (CDC) have reported that this problem reaches an alarmingly high percentage, approximately 50% of prescribed antibiotics are unnecessary, and this occurs with inpatients and outpatients alike. Inadequate prescriptions are clearly predominant in upper respiratory tract infections, including the common cold, cough and flu, even when such conditions are viral in most patients. Such incorrect antibiotic prescription for viral infections is the most common cause of inadequate use. And this practice leads to several risks and consequences. One of the most

important risks is increased bacterial resistance, a significant reason for concern in today's world since antibiotic administration is certainly one of the fundamental measures available in the medical field to remarkably reduce infection-related mortality. Data collected worldwide show increased resistance, even with antibiotics which, until recently, had low resistance rates. In general, the most commonly used antibiotics are broad spectrum, especially those used in an excessive and inadequate manner, either because they were incorrectly prescribed or administered for too long.

In April 2014, the World Health Organization (WHO) published the first global analysis on antibiotic resistance with data from 114 countries. The report indicates that the situation is serious and no longer a forecast, it has become a reality that could affect any person, at any age, in any country around the world. At present, the report focuses on seven bacteria resistant to antibiotics used to treat common serious infections, such as sepsis, diarrhea, pneumonia and urinary tract infections. Antibiotics most affected by resistance are carbapenems and fluoroquinolones, and today they are both ineffective in more than half of the patients treated with them. It should be noted that, in recent years, there have been outbreaks of bacteria-resistant infections that have led to severe consequences.

However, several agencies from different countries have joined their efforts, especially in the past year, and are implementing promising global measures aimed at controlling bacterial resistance with programs that include both health care providers and patients at all health care sites (Antibiotic Resistance - Problems, Progress, and Prospects NEJM, October 2, 2014).

Now I would like to discuss how the inadequate antibiotic use has affected children in an increasingly concerning manner. In the past, drug prescription in the pediatric practice was a carefully made decision. Unfortunately, at present, the inadequate use of antibiotics and of other drugs has increased in an alarming proportion. In the United States, drug adverse events in children account for the most common cause of visits to emergency departments.

Data from the CDC indicate that four out of ten children seen at the doctor's office for a common cold receive antibiotics. Such worrisome

and reprehensible behavior is an example of how serious the situation has become, knowing that colds are a very common condition in children and should never be treated with antibiotics. A recent study (Pediatrics. 2014;134:e956-65) indicates that 57% of children seen at a doctor's office due to an acute upper respiratory infection were prescribed antibiotics.

The American Academy of Pediatrics (AAP) in a report on upper respiratory infections (Pediatrics 2013;132:1146-1154) has pointed out that, out of a total of 50 million pediatric antibiotic prescriptions written in the United States annually, 10 million are related to respiratory conditions with no precise antibiotic indication, and this reaches nearly 12 million when including other infections. The report also focuses on the need to make an adequate antibiotic prescription for acute otitis media according to the guidelines, which indicate that no antibiotics should be prescribed initially if there is no clear bacterial infection and that progression should be assessed only after a few days. It is estimated that, following this approach, at least 50% of children will not require antibiotics. The report also highlights the excessive and unnecessary use of amoxicillin-clavulanate for upper respiratory infections and otitis, which is associated with usually moderate adverse events (diarrhea, rash), but also severe ones, such as Stevens-Johnson syndrome.

Another aspect to be taken into consideration is the natural duration of respiratory conditions in children. When these last longer than a few days, pediatricians usually end up prescribing antibiotics, either because they consider it necessary or due to parents' pressure. Duration was assessed in a systematic review on 48 published studies with children seen at the doctor's office due to upper respiratory infections to establish symptom duration until their resolution or clear improvement (BMJ 2013; 347: f7027). Patients (1409 children younger than 18 years old) were given only symptomatic drugs or no treatment at all and were followed-up until symptom resolution. The main findings indicate that 90% of patients seen due to an earache had no pain at seven days; most of those who had a common cold were better at approximately 15 days; and almost all who had a cough improved at approximately 25 days. In

the study conclusions, authors emphasize that the duration of earache and common cold are considerably longer than current guidance given to parents in the United Kingdom and the United States, and that, based on the evidence found in this review, modifying such guidance would be beneficial for both parents and pediatricians.

In addition to the factors mentioned above, what are the reasons that lead to inadequate antibiotic prescription in the medical practice? Let us take a look at what doctors have replied in surveys. According to data from the CDC, they predominantly point out lack of time during office visits, patients' or parents' pressure, and uncertainty in diagnosis. They admit that prescribing an antibiotic is faster than taking time to explain, giving advice and clarifying why antibiotics are not good for viral infections. In addition, there is also concern about the fact that they are not diagnosing a severe condition; therefore, prescribing an antibiotic makes them feel reassured in case they made a mistake and a legal action was taken against them.

What can we do?

In spite of the outstanding and constant effort made for decades by hospital infection committees, scientific societies and other institutions to reduce such inadequate practice trends, attempting to make doctors modify their behavior is difficult. The thought that results in clinical judgment is highly complex and is influenced by several factors. Only a critical attitude leading us to reflection and enabling us to review our deeds will guide us to making an adequate decision.

Infection committees have developed adequate guidelines and educational programs aimed at doctors and parents, which can be really effective provided they are complied with. It is our responsibility to respect such recommendations and make essential modifications that will allow us to substantially improve antibiotic prescription. Only then we will be able to prevent the damage caused by this inadequate practice. ■

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