


Letter to the Editor

Antibiotics against viruses: Brazilian doctors adrift

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To the Editor—As of the beginning of April 2021, Brazil is experiencing a unique moment in the coronavirus disease 2019 (COVID-19) pandemic. The number of cases of and deaths from the disease has never been so high. At the same time, drugs that have not been scientifically demonstrated to be effective against COVID-19 are increasingly being prescribed, both for early treatment and even for prevention.

This growing phenomenon is dangerous. An increasing number of doctors, and even doctors' associations, support the so-called COVID kit, a set of innocuous drugs, which supposedly would stop the progress of the disease. These doctors implicitly endorse a health policy¹ that wastes resources and efforts that could otherwise be directed to purchase of material to combat the disease, planning of pandemic control actions, and support of vaccination efforts.

Misinformation (ie, “fake news”) and conspiracy theories about the disease and supposedly effective treatments against the severe acute respiratory coronavirus virus 2 (SARS-CoV-2) virus abound.² In the academic world, there is no doubt that the improper and indiscriminate use of any medication can adversely affect the health of the population, and it is no different with COVID-19, even though many Brazilian doctors claim exactly the opposite on social networks. A responsible doctor would refrain from recommending (or prescribing) a medication without any discussion of its risks and possible side effects.³

One of the great achievements in the history of medicine, revolutionizing the treatment of bacterial infections, was the systematic discovery and use of antibiotics, starting with the work of Alexander Fleming⁴ in the first half of the last century and continuing to the present day. Antibiotics should be used to prevent and treat infections caused by bacteria, not those caused by viruses, since they are not effective against viruses.

Nevertheless, in the fight against COVID-19 in Brazil, azithromycin is prescribed on a large scale. In 2020, sales of the antibiotic increased 43.6%. This use of the drug is based on in vitro studies⁵ that demonstrated some antiviral effect. But it would be necessary to test it on patients to prove any practical results, which unfortunately did not occur before it started to be prescribed. Since the first months of the pandemic, azithromycin has been prescribed either preventively or in early treatment. When compared to the standard treatment, there were no significantly better results for azithromycin.⁶

Exacerbating the problem is that azithromycin is being widely prescribed in conjunction with other medications, such as the anthelmintic ivermectin, which had a large increase in sales in

Brazil in 2020, and the antimalarial hydroxychloroquine, which is widely touted for use against COVID-19, although clinical trials have found it ineffective and dangerous. Useless against COVID-19 and potentially dangerous separately, these drugs pose even more of a potential danger in combination.⁷

Azithromycin is a formidable drug, capable of fighting a broad spectrum of bacterial infections by inhibiting protein synthesis, very safe with relatively mild side effects at the doses indicated for its intended use and has proven to be very effective against infections of the respiratory tract, skin, and genital tract in particular. Azithromycin is an important tool for the control of diseases worldwide.⁸ It may play a limited role even in the treatment of COVID-19, if there is a bacterial coinfection of the lungs.⁹

But when used in a way inconsistent with its established protocol, dosage, and usage, it is unclear what its effect on patients who are ill with COVID-19 would be. Therefore, the first recommendation should be caution, abundant caution, until well-designed clinical trials can be developed and completed.¹⁰ But the Brazilian logic, even among many physicians, is that since we do not have any drug effective against SARS-CoV-2, we should try anything, at any dose, without considering the risks.

If the effect of the misuse of azithromycin on COVID-19 patients is unclear, the effect of its misuse on the general population is not. Intense use of azithromycin selects for bacterial resistance. A populous and diverse country suffering from social inequalities and chronic deficiencies in basic sanitation and prevention of sexual diseases, Brazil may serve as a perfect evolutionary laboratory for azithromycin-resistant strains of bacteria. Consequently, there is a very real risk that Brazil will have difficulties treating severe cases of many infectious diseases, such as childhood diarrhea, typhoid fever, syphilis, and gonorrhea, in the coming years. Thanks to the wide misuse of azithromycin to treat COVID-19 patients in Brazil, a well-tested and relatively inexpensive tool to combat diseases that disproportionately affect underserved populations in the country may be irretrievably lost.

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