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Letter to the Editor

Concerns about COVID-19 and tuberculosis in Brazil: Social and public health impacts

Preocupaciones sobre COVID-19 y tuberculosis en Brasil: impactos sociales y de salud pública

Dear Editor

On December 2019, the SARS-CoV-2, the Coronavirus-19 (COVID-19) disease agent, was first reported in China. In Brazil, it was first reported on February 26th, and since then, Brazil has been witnessing a massive increase in the number of cases and deaths resulting from COVID-19, becoming the new Coronavirus-19 hotspot.[1] We read with interest the paper by Parras et al.[2], reporting a case of coinfection of COVID-19 and Influenza A, which may impact the diagnosis and the diseases development. Giving the possibility of coinfection with other respiratory pathogens (with similar symptoms), we would like to highlight the coinfection by SARS-CoV-2 and Tuberculosis (TB) and the increased risk of complications and fatality rates. Nevertheless, here we raise awareness of the Brazilian pandemic scenario, which can be aggravated in the exposition of vulnerable and marginalized population, who are likely to be the most affected by both diseases and more exposed to socioeconomic and epidemiologic risks.[3]

TB is the most mortal infectious disease in the world, where 1.5 million people died, and another ten million people were affected by the disease in 2018.[4] Although Brazil is developing several actions to reduce morbidity and mortality (*i.e.*, BCG vaccine implementation, investigation of latent infection, treatment, incorporation of technologies to fight TB in the National Health System – Sistema Único de Saúde - SUS), in 2019, 73,864 new TB cases were registered (200 new cases/day), with an incidence of 35 cases *per* 100,000 habitants, and increased incidence coefficient in the years of 2017 and 2018.[5]

A higher rate of TB is observed in Southeast and North regions, where there is an incidence above 51 cases *per* 100,000 inhabitants, while the highest mortality rates are seen in Southeast, North, Northeast and South regions, with a mortality rate between 2,1 and 4,3 deaths *per* 100,000 habitants.[5] The TB persistence in Brazil is highly linked to poverty conditions, social and economic inequalities, the lack of diagnostic in some regions and the adhesion difficulties to the treatment. Moreover, in Brazil, until August 4th, 2020, almost 3 million cases and 100,000 deaths were registered, and the highest incidence of COVID-19 was mainly observed in the Southeast, Northeast and North regions, where local health systems declared collapse, although South and Center-West regions are reporting a rampant increase in cases,[1,6] with possible impact and dissemination of COVID-19 in Brazilian regions and with the highest rates of contamination by TB (Fig. 1). Furthermore, it was reported that cases of TB patients with COVID-19 coinfections progress to the severe type of COVID-19 and showed more extended recovery period,[7] as well as TB-HIV coinfection or chronic lung disease, which are will more likely to succumb to COVID-19.[8,9]

Due to the high transmissibility of the *Mycobacterium tuberculosis* as well as SARS-CoV-2 thriving with crowding, close contact, and aerosol,[1,4] some important focuses have been observed in Brazil, not only in regions with high population density but also in the high incidence of TB in carceral system (8154 new cases of TB in Brazil in 2019), with also a high number of cases of COVID-19.[5] In parallel, COVID-19 cases have risen in indigenous populations, which are historically known for the devastating epidemic cases in Latin-America. These problems require extreme attention since the impact of COVID-19, plus the pre-existent TB conditions, represent a major concern in more vulnerable populations, where access to basic sanitation, recurrent infections and chronic diseases are not unusual. Of note, the possibility of a coinfection caused by COVID-19 and TB would be an aggravating situation, beyond the clinical manifestations, the diagnostic would be more complicated since the suspicion of having TB does not exclude the possibility of having COVID-19.

In view of this scenario, not only social inequalities must be highlighted, but also the possibility of coinfections between SARS-CoV-2 and other respiratory pathogens. Clinical features and treatment of patients with TB and COVID-19 remain poorly under-

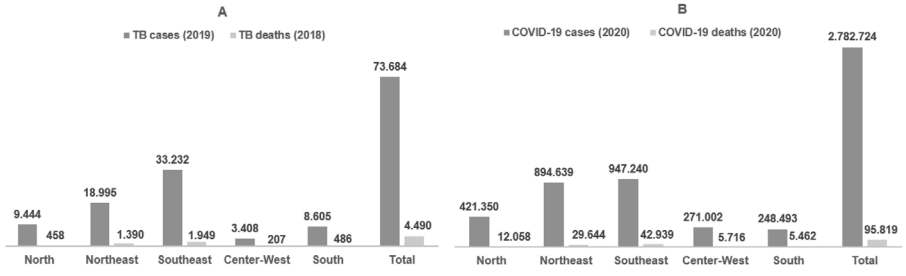

Fig. 1. (A) Distribution of the registered cases (in the whole year of 2019) and deaths (in the whole year of 2018) of Tuberculosis in Brazil and (B) Distribution of registered cases and deaths caused by COVID-19 in Brazil (from February 26th to August 4th, 2020).

stood, which can further impact the Brazilian health system, since this type of coinfection is more likely to develop sequelae and complicate the clinical evolution. Moreover, barriers to rapid and complete diagnosis and management for both TB and COVID-19 may be an aggravating in long-term consequences in economic, social and health sectors in all Brazilian society and public health,[10] which requires urgent actions and the need of more research for the prevalence of coinfections in the Brazilian scenario.

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Conflict of interest

FFT is a CNPq researcher. The other authors declared no competing interests.

References

1. Coronavirus disease (COVID-19) pandemic. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=CjwKCAjwr7X4BRA4EiwAUXjbt51H3RTDZ6sGmnSeInK9_byWWN0FR6K6vszwldIwVV930ojKmhnlbhoCtrkQAvD_BwE [Accessed 05 August 2020].
2. Parras MAL, Arévalo MA, Martínez MC, López EC. COVID-19 and influenza A coinfection: a matter of principle. Enferm Infecc Microbiol Clín. 2020, http://dx.doi.org/10.1016/j.eimc.2020.06.017.
3. Zumla A, Ippolito G, Ntoumi F, Margolies VS, Nagu TJ, Cirillo D. Host-directed therapies and holistic care for tuberculosis. Lancet Respir Med. 2020, http://dx.doi.org/10.1016/S2213-2600(20)30078-3.
4. World Health Organization. Global tuberculosis report 2019, https://apps.who.int/iris/bitstream/handle/10665/329368/9789241565714-eng.pdf?ua=1 [Accessed 08 May 2020].
5. Boletim Epidemiológico, Secretaria de Vigilância em Saúde, Março de 2020. https://www.saude.gov.br/images/pdf/2020/marco/24/Boletim-tuberculose-2020-marcas–1-.pdf [Accessed 08 May 2020].
6. Painel Coronavírus. https://covidsaudegovbr/ [Accessed 05 August 2020].
7. He G, Wu J, Shi J, Dai J, Gamber M, Jiang X, et al. COVID-19 in Tuberculosis patients: a report of three cases. J Med Virol. 2020, http://dx.doi.org/10.1002/jmv.25943.
8. Adepoju P. Tuberculosis and HIV responses threatened by COVID-19. Lancet HIV. 2020, http://dx.doi.org/10.1016/S2352-3018(20)30109-0.
9. Zumla A, Marais BJ, McHugh TD, Maeurer M, Zumla A, Kapata N, et al. COVID-19 and tuberculosis—threats and opportunities. Int J Tuberc Lung Dis. 2020, http://dx.doi.org/10.5588/ijtld.20.0387.
10. Cimerman S, Chebabo A, Cunha CA, Morales AR. Deep impact of COVID-19 in the healthcare of Latin America: the case of Brazil. Braz J Infect Dis. 2020, http://dx.doi.org/10.1016/j.bjid.200.04.005.

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Rational use of antimicrobials in home hospitalisation☆

Uso racional de antimicrobianos en hospitalización a domicilio

Dear Editor,

In the article published by Sánchez Fabra et al.,[1] the authors draw attention to the margin for improvement in the quality of prescribing of antimicrobial agents in hospital at home (HaH) for patients with pneumonia, mainly in terms of de-escalation (reduction of the antimicrobial spectrum) and sequential therapy (change from intravenous to oral).

For some years now, a range of studies have drawn attention to the inappropriate use of outpatient parenteral antimicrobial treatment,[2–6] particularly in care models in which the clinical monitoring and maintenance of parenteral therapy is not in the hands of experienced professionals, but rather depends on outsourced agencies or services used in an attempt to facilitate early discharge from hospitals. Moreover, several publications have also warned of an unusually high number of complications of outpatient intravenous treatment, particularly associated with venous access.[7]

The hospital-based model of HaH does not appear to be exposed to the level of risk of inappropriate antimicrobial treatment and complications that other studies describe.[8] However, as Sánchez Fabra et al point out, the fact that about half of the patients in the study did not have de-escalation or sequential therapy when indicated is no trivial matter. Analysing this situation and adapting to the recommendations of the guidelines is a requirement for any healthcare model -no less for hospital at home- and it has been shown that there is room for improvement.

Nonetheless, the study leaves unanswered questions that deserve a more detailed analysis. As the authors argue, there could be circumstances not included in the medical records which might require IV antibiotic therapy to continue for longer than recommended in the clinical practice guidelines. As far as de-escalation is concerned, at times, reducing the spectrum of antimicrobial activity can mean the use of drugs with greater frequency of administration, and this may be a limitation, depending on the organisation, resources and coverage hours of the hospital-at-home units. That may not be a sufficient reason to continue an antibiotic with a higher spectrum of activity, but the alternative may sometimes be for the patient to remain in hospital, an option which is also not without risk.

In addition, the authors observed that patients coming from Accident and Emergency (A&E) had a better quality of prescription (request for tests, adequacy of the prescription, de-escalation, sequential therapy, duration of treatment) than those who came from the ward. This difference would be worrying if the assignment to a conventional admission or hospital at home directly from A&E had been random. However, this was not the case, and the fact that the patients admitted directly from A&E were younger and had less comorbidity does not allow us to conclude that the differences are due to the care by a single physician (for the HaH) being more ideal than the care by two (ward and HaH). As the

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