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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-

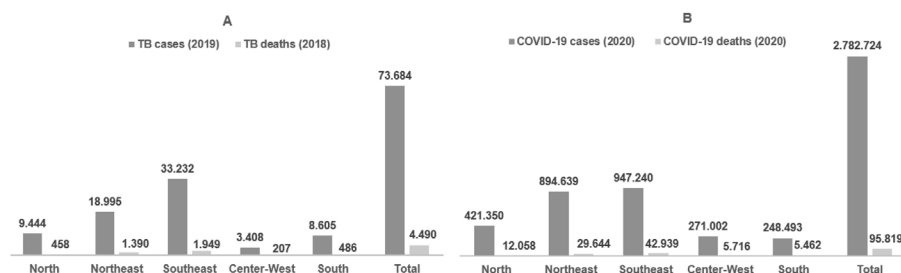


Fig. 1. (A) Distribution of the registered cases (in the whole year of 2019) and deaths (in the whole year of 2018) of Tuberculosis in Brazil and (B) Distribution of registered cases and deaths caused by COVID-19 in Brazil (from February 26th to August 4th, 2020).

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=CjwKCAjwr7X4BRA4EiwAUXjbt51H3RTDZ6sGmnSelNk9.byWWN0FR6K6vswldlwV930ojKmhnlbhoCtrkQAvD.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 Clin.* 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](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. Painei 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](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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Uso racional de antimicrobianos en hospitalización a domicilio



Rational use of antimicrobials in home hospitalisation

Sr. Editor:

En el artículo publicado por Sánchez Fabra et al.¹, los autores llaman la atención sobre el margen de mejora en la calidad de la prescripción de antimicrobianos en hospitalización a domicilio (HaD) en los pacientes con neumonía, fundamentalmente en lo que se refiere a la desescalada (reducción del espectro antimicrobiano) y la terapia secuencial (paso de la vía intravenosa a la vía oral).

Desde hace algunos años, diversos estudios vienen llamando la atención sobre el uso inadecuado del tratamiento antimicrobiano parenteral en régimen ambulatorio^{2–6}, sobre todo en modelos asistenciales en los que el control clínico y mantenimiento de la terapia parenteral no está en manos de profesionales experimentados, sino que depende de agencias o servicios externalizados que de esta manera tratan de facilitar el alta precoz de los hospitales. Además, en varias publicaciones se ha alertado también de un número inusualmente elevado de complicaciones del tratamiento intravenoso ambulatorio, sobre todo referidas al acceso venoso⁷.

El modelo de HaD basado en el hospital no parece estar expuesto al nivel de riesgo de inadecuación del tratamiento antimicrobiano y complicaciones que presentan otros estudios⁸. Sin embargo, como Sánchez Fabra et al. señalan, no es ninguna trivialidad que en cerca de la mitad de los pacientes del estudio no se realizase desescalada o terapia secuencial cuando estaba indicado. Analizar esta situación y adecuarse a las recomendaciones de las guías representa una exigencia para cualquier modelo asistencial –también para la hos-

pitalización a domicilio–, y queda demostrado que hay un margen de mejora.

No obstante, el trabajo presenta algunos interrogantes que merecen un análisis más detallado. Como los autores argumentan, pudo haber circunstancias no recogidas en la historia clínica que condicionasen una duración del tratamiento antibiótico i.v., más prolongado de lo que recomiendan las guías de práctica clínica. En cuanto a la desescalada, a veces, reducir el espectro de actividad antimicrobiano puede suponer el uso de fármacos con mayor frecuencia de administración, y esto puede ser una limitación en función de la organización, recursos y horario de cobertura de las unidades de hospitalización a domicilio. Quizás este no sea un argumento suficiente para mantener un antibiótico de mayor espectro de actividad, pero la alternativa en ocasiones será que el paciente permanezca hospitalizado. Tampoco esta opción está exenta de riesgos.

Además, los autores observaron que los pacientes procedentes de Urgencias tuvieron una calidad de prescripción (solicitud de pruebas, adecuación de la prescripción, desescalada, terapia secuencial, duración de tratamiento), mejor que los que procedían de planta. Esta diferencia sería preocupante si la asignación a un ingreso convencional o en hospitalización a domicilio directamente desde urgencias hubiera sido aleatoria; pero no fue así, y el hecho de que los pacientes admitidos directamente desde urgencias fuesen más jóvenes y con menos comorbilidad no permite concluir que las diferencias observadas pudieran deberse a que la atención por un único facultativo (el de la HaD) fuera más óptima que la atención por dos (el de planta y el de HaD). Como bien argumentan los autores, en el caso de los reingresos a los 30 días, el aspecto que más pareció pesar en la calidad de la prescripción fueron las características del paciente y no las dinámicas de la HaD.