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EDITORIAL

Tuberculosis and its future in the COVID-19 era: The Pulmonology series 2021



In spite of on-going continued effort and COVID-19, TB remains a major cause of preventable morbidity and mortality and public health priority.¹

Pulmonology tuberculosis (TB) 2018 series was very successful and highly cited,^{2–10} contributing to the journal's Impact Factor (which increased from 2.096 to 2.778, and moving it into the second quartile of Respiratory Medicine journals) (Table 1). The topics covered ranged from state-of-the-art review on new points of care diagnostic tests,⁴ to the new drugs pipeline,⁵ while discussing important clinical issues like management of TB in children⁷ or how to manage comorbidities and social determinant of TB.⁸

COVID-19 has created an unprecedented situation affecting everybody's life (restricting social activities, travelling, attendance at school and educational activities, etc.), damaging economies (increasing poverty, lowering countries' GDP, which are core determinants of TB) and overwhelming healthcare systems.^{1,11,12} Recently Global Tuberculosis Network (GTN) studies have shown the devastating impact of COVID-19 on TB Programmes and activities,^{12–16} and WHO has warned that previous estimates of mortality decline for TB will be reversed by COVID-19 in the absence of rapid and effective support to health programmes and TB services.¹

As a contribution to the global fight against TB, *Pulmonology* has planned a 2021 TB series focusing on important priorities to be published in conjunction with World TB day. The choice of topics and the global perspective will be ensured by involving TB officers of the European Respiratory Society (ERS) and the Global TB Network (GTN) and contributors from experts all over the world.

We asked the GTN to report on the outcomes of their cohort of patients treated with the new TB drugs (bedaquiline and delamanid, alone or in combination). A previous global report on adverse events was published in 2019¹⁷; the prospective update of the cohort (project works like an ongoing register) allows researchers to report on a

variety of outcomes (sputum smear and culture conversion as well as time to bacteriological conversion) on one of the largest available datasets, to date it includes more than 850 patients from 29 countries. The global nature of the cohort involved will ensure generalizability and cross fertilisation.

A second contribution will report on a potential interaction between TB and COVID-19, reviewing what has been published so far and covering both clinical and public health perspectives, proposing the next steps to better understand this new '*cursed duet*'.¹⁸

The third paper will discuss hospital admission criteria for TB patients, based on the analysis of available data (including data of duration of hospitalization from the ongoing global TB/COVID study¹⁸ and will include recommendations on the precautions required to minimise airborne transmission in healthcare settings during COVID. The document will have a consensus component to ensure a wide view, as recently performed by the GTN.^{15,19}

It is well known that HIV co-infection, diabetes mellitus, malnutrition, tobacco use and/or alcoholism may increase the risk of progressing to TB disease. It has also been shown that settings with the highest TB incidence rates are also those with higher incidence of HIV infection, incarceration, household overcrowding, unemployment, poor working conditions and migration. New risk factors may be on the horizon, relating to a possible direct or indirect effect of the COVID-19 pandemic (e.g. poverty, fear, lockdown, difficulty accessing health services etc.). The last article of the *Pulmonology* TB series will be a case study on a country's response (Portugal) within a global review of risk factors and social determinants of TB.

While calling on the scientific community, civil societies and all stakeholders involved to combine their efforts to reinforce the fight against TB, we hope the 2021 *Pulmonology* TB series will be useful for the cause and highlight further areas for cooperation.

Table 1 Pulmonology tuberculosis series 2018: articles and citations.

First author	Title	Citations*
Duarte et al. ²	Strengthening tuberculosis control to advance towards elimination: the 2018 Rev. Port. Pneumol. (RPP) TB Series.	1
Lopes et al. ³	Tuberculosis in the news: how do Portuguese media cover TB.	0
García-Basteiro et al. ⁴	Point of care diagnostics for tuberculosis.	28
Tiberi et al. ⁵	New drugs and perspectives for new anti-tuberculosis regimens.	47
Rendon et al. ⁶	Migration, TB control and elimination: whom to screen and treat.	9
Carvalho et al. ⁷	Managing latent tuberculosis infection and tuberculosis in children.	7
Duarte et al. ⁸	Tuberculosis, social determinants and co-morbidities (including HIV).	22
Chalmers et al. ⁹	Non-tuberculous mycobacterial pulmonary infections.	8
D'Ambrosio et al. ¹⁰	Team approach to manage difficult-to-treat TB cases: experiences in Europe and beyond.	9

* data from Scopus citation database.

Conflicts of interest

The authors have no conflicts of interest to declare.

Funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgements

The article is part of the scientific activities of the Global Tuberculosis Network (GTN) and of the WHO Collaborating Centre for Tuberculosis and Lung Diseases, Tradate, ITA-80, 2017-2020- GBM/RC/LDA.

References

1. World Health Organization, Licence: CC BY-NC-SA 3.0 IGO. Available at: <https://apps.who.int/iris/bitstream/handle/10665/336069/9789240013131-eng.pdf>, 2020.
2. Duarte R, Migliori GB, Zumla A, Cordeiro CR. Strengthening tuberculosis control to advance towards elimination: the 2018 Rev. Port. Pneumol. (RPP) TB series. *Pulmonology*. 2018;24:67–8.
3. Lopes F, Duarte R, Migliori GB, Araújo R. Tuberculosis in the news: how do Portuguese media cover TB. *Pulmonology*. 2018;24:69–72.
4. García-Basteiro AL, DiNardo A, Saavedra B, Silva DR, Palmero D, Gegia M, et al. Point of care diagnostics for tuberculosis. *Pulmonology*. 2018;24:73–85.
5. Tiberi S, Muñoz-Torrico M, Duarte R, Dalcolmo M, D'Ambrosio L, Migliori GB. New drugs and perspectives for new anti-tuberculosis regimens. *Pulmonology*. 2018;24:86–98.
6. Rendon A, Centis R, Zellweger JP, Solovic I, Torres-Duque CA, Robalo Cordeiro C, et al. Migration, TB control and elimination: whom to screen and treat. *Pulmonology*. 2018;24:99–105.
7. Carvalho I, Goletti D, Manga S, Silva DR, Manisero D, Migliori GB. Managing latent tuberculosis infection and tuberculosis in children. *Pulmonology*. 2018;24:106–14.
8. Duarte R, Lönnroth K, Carvalho C, Lima F, Carvalho ACC, Muñoz-Torrico M, et al. Tuberculosis, social determinants and co-morbidities (including HIV). *Pulmonology*. 2018;24:115–9.
9. Chalmers JD, Aksamit T, Carvalho ACC, Rendon A, Franco I. Non-tuberculous mycobacterial pulmonary infections. *Pulmonology*. 2018;24:120–31.
10. D'Ambrosio L, Bothamley G, Caminero Luna JA, Duarte R, Guglielmetti L, Muñoz Torrico M, et al. Team approach to manage difficult-to-treat TB cases: experiences in Europe and beyond. *Pulmonology*. 2018;24:132–41.
11. Mandavilli Apoorva. 'The biggest monster' is spreading. And it's not the coronavirus. *The New York Times*. 2020;(August). Available at: <https://www.nytimes.com/2020/08/03/health/coronavirus-tuberculosis-aids-malaria.html> [Last accessed 19 October 2020].
12. Migliori GB, Thong PM, Akkerman O, Alffenaar JW, Álvarez-Navascués F, Assao-Neino MM, et al. Worldwide effects of coronavirus disease pandemic on tuberculosis services, January-April 2020. *Emerg Infect Dis*. 2020;26(September (11)), <http://dx.doi.org/10.3201/eid2611.203163>.
13. Motta I, Centis R, D'Ambrosio L, García-García JM, Goletti D, Gualano G, et al. Tuberculosis, COVID-19 and migrants: preliminary analysis of deaths occurring in 69 patients from two cohorts. *Pulmonology*. 2020;26(July–August (4)):233–40, <http://dx.doi.org/10.1016/j.pulmoe.2020.05.002>.
14. Tadolini M, Codicosa LR, García-García JM, Blanc FX, Borisov S, Alffenaar JW, et al. Active tuberculosis, sequelae and COVID-19 co-infection: first cohort of 49 cases. *Eur Respir J*. 2020;56(July (1)):2001398, <http://dx.doi.org/10.1183/13993003.01398-2020>.
15. Ong CWM, Migliori GB, Ravaglione M, MacGregor-Skinner G, Sotgiu G, Alffenaar JW, et al. Epidemic and pandemic viral infections: impact on tuberculosis and the lung: a consensus by the World Association for Infectious Diseases and Immunological Disorders (WAidid), Global Tuberculosis Network (GTN), and members of the European Society of Clinical Microbiology and Infectious Diseases Study Group for Mycobacterial Infections (ESGMYC). *Eur Respir J*. 2020;56(October (4)):2001727, <http://dx.doi.org/10.1183/13993003.01727-2020>.

16. Buonsenso D, Iodice F, Sorba Biala J, Goletti D. COVID-19 effects on tuberculosis care in Sierra Leone. *Pulmonology*. 2020;(June), <http://dx.doi.org/10.1016/j.pulmoe.2020.05.013>. S2531-0437(20)30130-6.
17. Borisov S, Danila E, Maryandyshev A, Dalcolmo M, Miliauskas S, Kuksa L, et al. Surveillance of adverse events in the treatment of drug-resistant tuberculosis: first global report. *Eur Respir J*. 2019;54(6), <http://dx.doi.org/10.1183/13993003.01522-2019>, pii: 1901522.
18. The TB/COVID-19 Global Study Group. Tuberculosis and COVID-19 co-infection: rationale and aim for a global study. *Int J Tuberc Lung Dis*. 2021, in press; <http://dx.doi.org/10.5588/ijtld20.0>.
19. Migliori GB, Tiberi S, Zumla A, Petersen E, Chakaya JM, Wejse C, et al. MDR/XDR-TB management of patients and contacts: challenges facing the new decade. The 2020 clinical update by the Global Tuberculosis Network. *Int J Infect Dis*. 2020;92S:S15–25, <http://dx.doi.org/10.1016/j.ijid.2020.01.042>.

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21 October 2020

Available online 17 November 2020