



Tuberculosis series 2019

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The World Health Organization (WHO) End TB Strategy aims to end the global tuberculosis epidemic by 2030. Targets include a 90% reduction in tuberculosis mortality and an 80% reduction in tuberculosis incidence. Despite remarkable progress, with advances in disease detection and improvement in treatment success rates, tuberculosis is still common in several countries. Although the rates of tuberculosis incidence and tuberculosis-related mortality are declining worldwide, the disease continues to be an important public health issue.⁽¹⁾ In Latin America, the incidence rate has fallen by 1.7% per year since 2000, considerably less than the 5.3% annual decline needed in order to achieve the targets proposed in the WHO End TB Strategy.^(2,3) In celebration of World TB Day, on March 24th, this issue of the JBP features several articles focusing on tuberculosis, to offer an overview of the various aspects of tuberculosis control.

To achieve its proposed targets, the WHO End TB Strategy has three pillars. One of the pillars (Pillar 2) is "bold policies and supportive systems", which includes regulatory frameworks for case notification.⁽¹⁾ In this issue of the JBP, an ecological time-series study⁽⁴⁾ conducted in the city of Juazeiro, in the Brazilian state of Bahia, reported the behavior of the epidemiological indicators of tuberculosis. The results show the persistence of the disease burden in the municipality, identifying the local problems to be addressed and underscoring the importance of constant monitoring of epidemiological indicators.

Early diagnosis of tuberculosis is one of the components of Pillar 1 of the WHO End TB Strategy ("integrated, patient-centered care and prevention"). In our tuberculosis series, the diagnosis of tuberculosis is addressed in four original articles.⁽⁵⁻⁸⁾ Since its introduction in 2010, the molecular test for *Mycobacterium tuberculosis* and its resistance to rifampin (Xpert MTB/RIF assay) is increasingly used as the initial diagnostic test for tuberculosis in many countries.^(9,10) Two of the articles in our series addressed the use of the Xpert MTB/RIF assay.^(5,6) In the first,⁽⁵⁾ a retrospective study conducted at a tertiary referral center, the authors showed that the Xpert MTB/RIF assay is a highly accurate method of detecting tuberculosis and rifampin resistance in sputum, BAL fluid, and tracheal aspirate samples. In the second article,⁽⁶⁾ the sensitivity and specificity of the Xpert MTB/RIF assay were evaluated in a population of indigenous Brazilians. That is an extremely important study, because it is the first to assess the performance of the test in such a population. Both articles emphasize

that is essential to determine the effect of the Xpert MTB/RIF assay on the diagnosis of tuberculosis under programmatic conditions in Brazil.⁽¹¹⁾

Improving the coverage and quality of diagnosis for individuals infected with drug-resistant tuberculosis is also relevant. In a cohort study conducted at a referral center for tuberculosis in the state of São Paulo, Brazil, between 2006 and 2010,⁽⁷⁾ the authors found that early detection of infection with a drug-resistant strain of *M. tuberculosis* was associated with higher cure rates in patients without comorbidities and in patients with a higher body weight at the beginning of treatment (in comparison with the cure rates observed for those without comorbidities and for those with a lower body weight at the beginning of treatment). In another study conducted in the state of São Paulo,⁽⁸⁾ the authors evaluated the diagnosis of multidrug-resistant tuberculosis (MDR-TB) using the GenoType MTBDR_{plus} assay, version 2.0, which detects concomitant resistance to rifampin and isoniazid. The GenoType MTBDR_{plus} assay has many advantages over phenotypic drug susceptibility testing, including excellent accuracy, reduced time to diagnosis, and fewer false results.

Another component of Pillar 1 of the WHO End TB Strategy is tuberculosis treatment. It is well-known that subtherapeutic concentrations of first-line antituberculosis drugs may contribute to treatment failure, relapse, acquired resistance, and death.⁽¹²⁾ In a letter to the editor included in our tuberculosis series,⁽¹³⁾ the investigators described the serum levels of pyrazinamide, as measured by HPLC, in 46 patients. They demonstrated that, at least in their sample, the therapeutic regimen in use in Brazil provides adequate exposure to pyrazinamide.

Yet another component of Pillar 1 of the WHO End TB Strategy is the preventive treatment of persons at high risk. Within that context, this issue of the JBP features an article focusing on the aspects related to latent tuberculosis infection in patients with rheumatologic diseases, especially those using tumor necrosis factor inhibitors, addressing the definition of latent tuberculosis infection, as well as the prevalence of the disease, the mechanisms involved in its pathogenesis, the medications in use, the screening criteria, its diagnosis, and its treatment.⁽¹⁴⁾

Even after adequate treatment and a microbiological cure, the sequelae of pulmonary tuberculosis can cause persistent symptoms, impairing lung function and quality of life. In a review article, Tiberi et al.⁽¹⁵⁾ described the management of severe tuberculosis cases and their

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sequelae, discussing the importance of pharmacological and nonpharmacological interventions in the affected patients.

Finally, Pillar 3 of the WHO End TB Strategy is “intensified research and innovation”.⁽¹⁾ In Latin America, there is a need to identify priorities in tuberculosis research and to increase the number of publications based on local data.^(2,3) In this issue of the journal, Migliori et al.⁽¹⁶⁾ report the results of a systematic review that identified studies on tuberculosis, drug-resistant tuberculosis and MDR-TB, published in priority countries of Latin America (Brazil, Peru, Mexico, Colombia, and Argentina). The authors found that the level of scientific production was highest in Brazil, Mexico, and Peru. They also found that there is still a lack of publications based on local data, showing that international collaborations would be quite helpful in scaling up scientific production in Latin America. The findings of that systematic review underscore the importance of building a pan-Latin American scientific network for research on tuberculosis. A regional network would enable the creation of more opportunities for collaborative research projects. In addition, scientific networks facilitate the recruitment

of patients and allow the inclusion of patients from different settings. Furthermore, collaborations have overall positive effects on the number and quality of scientific manuscripts produced. Therefore, future perspectives include further collaboration incorporating relevant topics into the research agenda. The impact of international collaborations on the scientific landscape of Latin America has demonstrated the importance of a global approach to addressing the challenges of tuberculosis control.

We believe that this tuberculosis series, dedicated to the celebration of World TB Day, highlights the relevant advances in our understanding of many topics related to tuberculosis. It is important to focus on the three pillars of the WHO End TB Strategy, which was proposed in order to achieve the goal of ending the global tuberculosis epidemic.

ACKNOWLEDGMENTS

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

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