Tuberculosis series 2020

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According to the World Health Organization (WHO), tuberculosis is the leading cause of death from a single infectious agent worldwide,[1] as well as being the leading cause of death among people living with HIV. In 2018, there were an estimated 10 million new tuberculosis cases worldwide, and 1.5 million people died from the disease. In the same year in Brazil, the incidence of tuberculosis was 45 cases/100,000 population, and the tuberculosis-related mortality rate was 2.3 deaths/100,000 population.[1] Therefore, in celebration of World TB Day, on March 24th, this issue of the JBP features several articles focusing on diverse aspects of tuberculosis control.

In 2018, 484,000 people worldwide developed tuberculosis that was resistant to rifampin, and 78% of those had multidrug-resistant tuberculosis (MDR-TB).[1] In December of 2019, the WHO issued a rapid communication promoting key changes in the treatment of MDR-TB,[2] and the first global report on the adverse events of antituberculosis drugs was published.[3,4] In this issue of the JBP, a review study[5] provides an overview of the management of MDR-TB in Brazil from 2004 to 2018, demonstrating the modifications in the national recommendations. Another study,[6] which investigated risk factors for MDR-TB, shows that previous treatment and cavitation on chest X-rays are associated with MDR-TB.

Between 2000 and 2018, 58 million lives were saved through effective diagnosis and treatment of tuberculosis. Chest X-ray is an essential tool for early detection of tuberculosis and has higher sensitivity for the diagnosis of pulmonary tuberculosis than does screening for tuberculosis symptoms.[7] Muller et al.[8] reported that the median time from the first chest X-ray to the diagnosis of tuberculosis in the emergency room of a tertiary care hospital was 2 days. Cavitation on a chest X-ray was an independent factor associated with an earlier diagnosis. Although hospitalization allows rapid management of cases and favors faster diagnosis, the unavailability of rapid diagnostic tests, such as the Xpert MTB/RIF rapid molecular test for tuberculosis, can result in unacceptable diagnostic delays.

Case detection and treatment are core elements of tuberculosis control, especially in prisons. The authors of a letter published in this issue of the JBP[9] described the bacteriological diagnosis of tuberculosis in the prison system in southern Brazil, where the prevalence of tuberculosis is 2,488 cases/100,000 population. They reported that the Xpert MTB/RIF test is available to only 13.6% of the primary care teams in prisons and that the number of health care workers (HCWs) is insufficient to meet the demand. Delays in the detection and treatment of tuberculosis cases must be minimized in order to improve tuberculosis control in prisons.

Nonadherence to treatment and loss to follow-up are associated with a longer duration of treatment in cases of drug-susceptible tuberculosis. In addition, the treatment success rate with longer regimens is low (approximately 50%) in cases of MDR-TB. Therefore, shorter regimens with existing or repurposed drugs could significantly improve tuberculosis management and treatment success rates.[1,10] A review study in this issue of the JBP[11] reports recent advances and findings of ongoing clinical trials aimed at shortening regimens for drug-susceptible tuberculosis and MDR-TB.

In addition to proper diagnosis and treatment, preventive treatment for tuberculosis, including infection control in healthcare settings, is a key component of the WHO End TB strategy.[12] In 2017, 9,299 tuberculosis cases were reported among HCWs, and Brazil accounted for 11% of those cases.[1] The authors of another letter published in this issue of the JBP described a prospective cohort study in which they evaluated latent tuberculosis infection (LTBI) among HCWs in primary care settings.[13] Using the QuantiFERON-TB Gold In-Tube Test (QFT; QIAGEN, Hilden, Germany), the authors found the prevalence of LTBI to be 23.3% among the HCWs evaluated. That was the first study[13] to evaluate the prevalence of LTBI in primary care HCWs in Brazil, highlighting the need for regular monitoring and screening of such HCWs.

Even after the appropriate treatment of tuberculosis, pulmonary sequelae can impair pulmonary function and quality of life.[14-16] A multicenter cross-sectional study, conducted in Brazil and included in this tuberculosis series,[17] compared pulmonary tuberculosis patients with and without previous lung disease, in terms of post-treatment spirometry changes. The authors showed that lung function impairment is common after treatment of pulmonary tuberculosis, regardless of whether the patient has a history of smoking or previous lung disease. They concluded that spirometry is advisable for patients who develop grade 2-4 dyspnea or major radiological alterations after treatment for pulmonary tuberculosis.

This tuberculosis series, dedicated to the celebration of World TB Day, spotlights several tuberculosis articles, with the objective of providing an overview of the diagnosis and treatment of tuberculosis. We hope that this series will lead to improved management of cases and new lines of tuberculosis research.

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