Opinion

Fiocruz and tuberculosis in Brazil

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Tuberculosis is a disease caused by a slow-growing bacteria, *Mycobacterium tuberculosis*, or more rarely by other species of *Mycobacterium tuberculosis* complex, as *M. bovis*, *M. africanum* and *M. microti*. The disease mainly affects the lungs, but can affect almost any part of the body. There are other mycobacterial infections caused by more than 160 species called non-tuberculous mycobacteria (NTM), which sometimes have symptoms similar to tuberculosis. Thus, the genus Mycobacterium is comprised by the complex *M. tuberculosis*, NTM and *M. leprae*, the causative agent of leprosy.

Tuberculosis is, even nowadays, a serious problem of public health around the world with 9.6million estimated new cases and responsible by 1.5million deaths in 2014.[1] The World Health Organization (WHO) has defined targets in the new End TB Strategy to eradicate TB. The strategy serves to guide countries to reduce 90% of TB deaths until 2030 and 80% of new cases, and are based on three pillars: integrated patient-centered care and prevention, Bold policies and support systems, intensification of research and innovation.

The tuberculosis difficulties to be overcome in Brazil are immense. In 2014, were related more than 60 000 new cases and occurs 4,374 deaths, only considering tuberculosis as the basic cause. But, not all are negative, there is an improvement of tuberculosis indicators in the last years as the decreased of TB mortality (21.4% from 2004 to 2014).[2] It brings hope for the future perspectives.

The Fundação Oswaldo Cruz (Fiocruz) was funded in 25 de maio de 1900. It is the most prominent institution of Science and Technology in Health in Latin America, with an intense trajectory of contributions to public health in Brazil. Fiocruz has also historical activities in the research, prevention, treatment and diagnosis of tuberculosis and mycobacteriosis caused by NTM. It can be pointed several discoveries throughout their history, such as the description of *M. fortuitum* in 1938,[3] one of the most common NTM of the world and the report of complete genome sequence of *M. bovis* BCG Moreau, in 2011.[4]

In response to the challenges of tuberculosis in Brazil, Fiocruz has created an Integrated Program for Research, Education and Development in Tuberculosis and Other Mycobacteriosis, called Fio-TB. This initiative aims to build a broad network for combating the disease. The FioTB is an effort to integrate Fiocruz researchers and external partners to enable optimization and prioritization of resources.

Maybe a fast solution for Tuberculosis would be the development of a vaccine capable of immunizing adults and children effectively, in fact there are studies in clinical trial phase. I hope one day we get this vaccine, but It is not sure if it will be available as early as we would like. Thus, considering all strategies to End TB, I would like to highlight two points: the bond between the patient and health professionals must be redesigned and the urgent improvements in social conditions must be finally implemented, especially in big cities of Brazil.

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Conflict of interest

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