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TUBERCULOSIS: AN OPEN WOUND IN ARGENTINIAN PUBLIC HEALTH

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Mycobacterium tuberculosis is an ancient pathogen that infects warm-blooded animals. Its phylogeny dates back 2-3 million years, resulting in an excellent adaptation to its host, whom it can infect, sicken, and kill, but at a rate that allows it to remain prevalent throughout human history[1]. The antigen evasion mechanisms it developed mean that immunity against infection or the BCG vaccine isn't fully protective[2]. Global incidence is slowly decreasing (2023: 10.8 million cases and 1.25 million deaths); the COVID-19 pandemic was a highly negative factor for disease control[3].

In Argentina, tuberculosis (TB) cases have been steadily increasing for over 10 years (2013: 9070; 2024: 16 647)[4]. Between 2020 and 2024, the median number of cumulative TB cases in EW1-24 (Epidemiological Week-1) was 6043. In 2025 (EW1-25), it was 7905: a 31% increase![5]. Not only has the number of cases risen, but their severity takes us back to the pre-antibiotic era. Diagnostic delays, limitations in contact tracing and case finding, increasing vulnerable populations, and difficulties with treatment adherence are all factors related to the rise of a disease with easy diagnosis and effective treatment. The core issue is finding TB infection and disease cases and treating them appropriately.

In the diagnostic chapter, advancements have been spectacular. From bacilloscopy (Robert Koch, 1882), which requires 5000 to 10 000 bacilli/mL to be positive (implying the detection of advanced cases) and culture (3 to 4 weeks' wait), to rapid molecular methods (RMMs) from 2010 onwards. These now detect bacillary DNA and also mutations for resistance to rifampicin and isoniazid within hours, with just about 30 or even less bacilli/mL. Furthermore, next-generation sequencing completely explores resistance mutations[6]. We have an excellent outlook for the early diagnosis of so-called subclinical TB. The problem in Argentina is the accessibility to RMMs, which are still scarce, to achieve the WHO objective of performing them in all respiratory symptomatic individuals suspected of TB.

The standard treatment for susceptible TB, dating back to the late 1970s (over 50 years), is effective, although its duration (minimum 6 months) complicates adherence.

Regarding drug-resistant TB, the most common is isoniazid monoresistance, less frequent is rifampicin monoresistance, and the most studied is multidrug-resistant TB (MDR-TB), with minimum resistance to isoniazid and rifampicin. More severe forms of resistance include pre-extensively drug-resistant TB or pre-XDR (minimum resistance to isoniazid, rifampicin, and fluoroquinolone) and extensively drug-resistant TB or XDR-TB (minimum resistance to isoniazid, rifampicin, fluoroquinolone, and bedaquiline and/or linezolid)[7]. Drug-resistant TB represents a further threat to TB control; in Argentina, it is not as widespread as in other neighbouring countries like Peru[3].

In this field, therapeutic progress has been remarkable. From regimens lasting 18 to 24

months, with inpatient care (a return to the sanatorium era of TB in 2000), to regimens with new drugs (bedaquiline, pretomanid) and repurposed drugs (linezolid, moxifloxacin) with a 6-month duration, entirely oral and outpatient (if the patient's severity allows), practically the same duration as standard treatment.

So, why is TB showing an upward trend in our country? In the second and third paragraphs, we have outlined the main factors. Associated with this growing trend of TB and the advanced forms we routinely observe are the pulmonary sequelae in patients who manage to be cured. These have created a new area of study: post-TB lung disease (PTBLD), which can lead to the death of bacteriologically cured patients who develop respiratory failure or severe infectious complications from their sequelae; a large part of this problem is related to the late diagnosis of the disease[8].

In summary, TB is a disease with deep social roots, a crystal through which we can view the socioeconomic situation of a country or region. All diagnostic and therapeutic efforts clash with complex realities that must be addressed by the State, responsible for a country's health policies. As long as these factors are not resolved or at least improved, TB will remain there, infecting, sickening... and killing.

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