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## EDITORIAL

# Tuberculosis, alcohol and tobacco: Dangerous liaisons



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The World Tuberculosis Day was celebrated in the past day of March 24. Despite sustained reduction in its incidence,<sup>1,2</sup> tuberculosis (TB) still affects millions of patients, especially in certain group risks. Although its etiologic agent, most frequent risk factors, means to diagnosis, treatment and prevention are known, it persists as a relevant public health threat. The main determinants for the worldwide epidemic are human immunodeficiency virus (HIV) infection and drug resistance, particularly multidrug-resistant TB.<sup>2</sup> Still, the importance of social determinants in TB, such as poverty and related risk factors, has been shown both retrospectively and prospectively.<sup>3</sup> Some of those have been known for years and still play a major role in many cases. The two most important examples are alcohol and tobacco.<sup>4</sup>

In 1961, Brown et al. pointed to the importance of both determinants.<sup>5</sup> In their case-control study, they identified significant differences in alcohol and tobacco consumption in TB cases. Since then, evidence has accumulated and, although the single weight of each of those two factors differs from article to article, it is consistent in affirming existing correlations with more contagious, severe forms of the disease.

In Portugal, 10% of TB patients have alcohol abuse.<sup>1</sup> Excessive consumption, particularly above 40 g/day,<sup>5-7</sup> is associated with a higher risk of smear-positive cavitory disease, as well as a longer time to smear conversion and increased risk of drug toxicity.<sup>6,8</sup> Alcoholism is also linked to other relevant determinants such as low socioeconomic status, homelessness and malnutrition, all of them independent risk factors for TB and poor outcome.<sup>9-11</sup> Concerning tobacco, having been given initially a secondary role, there is increased evidence of its potentiating effect in TB, despite absence of clear national and international data. Although Slama et al. questioned the strength of some associations and the quality of evidence found in some studies,<sup>12</sup> a higher risk of latent infection, particularly in children exposed to secondhand smoking,<sup>13</sup> progression to active disease and therapeutic failure have been described in smokers.<sup>9,14,15</sup> This difference persists even when former smokers are compared to those who never smoked. The same effects are seen in HIV-infected patients, and the immune depression

in smokers who develop active TB is less severe compared to cases in patients who never smoked.<sup>16</sup>

Contrary to articles published on the effects of smoking and alcohol, the number of studies focusing on the benefits of intervening on these determinants – counseling, reducing intake, ceasing – is relatively small. Only a well conducted study in Sudan<sup>17</sup> evaluates the impact of counseling for tobacco cessation, with positive results. On the other hand, Jeyashree et al. conclude, in a recent meta-analysis, that studies ascertaining the benefits of such interventions on the outcome of TB are too few.<sup>18</sup> The same shortcomings are found regarding alcohol consumption, except for a 2011 study which pointed to the difficulties in intervening on this risk factor.<sup>19</sup> Still, evidence of the hazards of these determinants is clear. In addressing them, the benefits are extended to vulnerable groups who are also more linked to smoking and abusing alcohol: if TB elimination is to be reached, this step is critical.<sup>20</sup> In this, the role of healthcare professionals (HCP) leading with TB is dual, consisting of educating and intervening in three pillars: patients, society and peers.

In its joint strategy against tobacco and TB,<sup>21</sup> the World Health Organization (WHO) highlights five points in educating, and five more in intervening on smokers. In it, WHO recommends raising awareness for the potential overall benefits of cessation, with incentive strategies and identification of roadblocks to successful interventions. Such would include counseling as well as appealing to the patient's interest in ceasing. The physician should always inquire patients with TB about their smoking habits. El Sony et al. found a higher rate of treatment completion and fewer abandonments and losses to follow-up in TB patients treated in healthcare centers where a strategy of inquiry and intervention on smoking habits was implemented, reporting cumulative percentages of cessation above 80%.<sup>17</sup> An important limitation to the introduction of such practices might be the lack of human resources and the cost of drugs used to treat stronger dependences, unaffordable to a large part of patients. Interventions on alcohol may be even more difficult: half of patients with TB and alcohol consumption have serious addiction,<sup>19</sup> which might render counseling ineffective without proper drug and psychotherapy done by highly skilled professionals.

It is thus critical to raise awareness of this issue in HCP who deal with TB and those who deal with tobacco, alcohol and other substances abuse, be it through presentations, workshops, seminars or plain peer discussion. It is important to alert family doctors, hepatologists, psychiatrists, counselors and other professionals that tobacco and alcohol go hand in hand and bring TB along: suspicion should always arise in patients with these and other social determinants.<sup>3</sup> Conversely, joint intervention from HCP dealing with psychotherapy and drug therapy for substance abuse is crucial to improve adherence to treatment and outcome. This integrated action will depend on the improvement of referral networks to services of intervention on addictive behaviors and on a better communication between its HCP and TB centers. The limited time of each appointment, flaws in the referral network and a misperception of the importance of this issue are some of the identifiable barriers, but only with proper effort and awareness of the problem from all parts can success be achieved.

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