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Over the limit: tuberculosis and excessive alcohol use

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THE RELATIONSHIP BETWEEN alcohol consumption and tuberculosis (TB) is well documented.¹ In 2017, 17% of all newly reported TB cases and 15% of all deaths during anti-tuberculosis treatment in the world were attributed to excessive alcohol use, second only to smoking (23%) as the top modifiable risk factor for TB.² In this issue of the *IJTL*, Ragan et al. conducted a comprehensive meta-analysis and found an association between excessive alcohol use and unsuccessful TB treatment outcomes.³ Among 111 studies analyzed, excessive alcohol use resulted in more loss to follow-up, more treatment failure, and more death than non-excessive alcohol use in both drug-susceptible and multidrug-resistant TB patients.

Excessive alcohol use is disruptive to TB care and treatment in several important ways. Social drinking venues (e.g., bars, pubs, and shebeens) are often not identified during TB contact tracing activities, but rather emerge after extensive transmission has occurred,⁴ and named-based approaches used by many TB programs have limited utility with persons who drink to excess.⁵ Once infected, persons who consume excessive alcohol are nearly three times as likely to progress to active disease than those who do not consume alcohol.² Several studies reported alcohol consumption led to delays in diagnosis, treatment initiation, and sputum culture conversion; infectiousness; loss to follow up; treatment failure; TB recurrence; TB transmission in the community; and death.^{1,2,4-6}

Excessive alcohol consumption decreases general health and may impair immune response to *Mycobacterium tuberculosis*, leading to an inadequate response to treatment. Alcohol may also improve intracellular survival of mycobacteria within macrophages,⁷ and may suppress cytokine production, which has an essential role in cellular communication, activation, proliferation, and migration, and in regulating inflammation and other healing mechanisms.⁸ Furthermore, several behavioral and socioeconomic factors, such as poverty, malnutrition, social isolation, behavioral health disorders, homelessness, unemployment, smoking, and other substance use,⁹ often accompany excessive alcohol consumption, further exacerbating the challenges of finding, preventing, treating and curing TB.²

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Despite the growing evidence about the hazardous relationship between excessive alcohol use and TB, few programs include simultaneous treatment for TB and alcohol use disorders. An integrative TB program in Thailand used a brief alcohol intervention to reduce harmful drinking by 85% during TB treatment.¹⁰ However, more modest outcomes were reported in Russia where integrative treatment increased the likelihood of successful TB treatment outcomes but did not reduce alcohol consumption during TB treatment.¹¹

The small percentage (19%) of studies with validated methods for determining alcohol exposure suggests that most TB patients are not being screened with effective tools for determining unhealthy alcohol use. For example, the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) has good sensitivity and specificity for detecting unhealthy alcohol use in many populations.¹² Brief, effective alcohol screening tools should be considered during all TB clinical encounters. In particular, TB patients with early compliance lapses should be screened for possible alcohol-related disruptions and linked to appropriate care of both TB and alcohol use disorders. Failure to do so could compromise our global ambitions to end TB by 2035.¹³

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