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Tuberculosis and HIV: a global menace exacerbated via sex trafficking

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Summary

Objective—Global tuberculosis (TB) elimination requires recognition and management of TB/HIV co-infected individuals, including those in marginalized and/or understudied populations. We sought to examine the prevalence of TB among repatriated sex trafficked Nepalese girls and women in whom a high HIV prevalence was previously reported.

Methods—We reviewed case records for cases of TB among 287 sex trafficked girls and women repatriated to a single, rehabilitation non-governmental organization in Kathmandu, Nepal between 1997 and 2005. TB case detection was based on sputum smear results for acid-fast bacilli, radiographs, or histories, as reported in medical tests and/or case records.

Results—There were 17 cases of TB that developed after rescue within the sample of girls and women who were aged 7–32 years when they were trafficked. The majority of cases (70%) were likely pulmonary TB. Nearly 9 in 10 individuals who developed TB were HIV co-infected.

Conclusions—Although preliminary in nature, our findings highlight the need for more comprehensive exploration of TB prevalence within sex trafficked populations, particularly in light of the large numbers of individuals who are sex trafficked in South Asia, the high prevalence of HIV documented in this group, and the risk of transmission of TB from and to others.

Keywords

Tuberculosis; HIV; Human rights; Sex trafficking; Women's health; TB transmission

Introduction

One of the biggest challenges of achieving *sustained* tuberculosis (TB) control and reducing morbidity and mortality related to TB, and a priority area put forth by the World Health

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Organization (WHO), is the recognition and management of TB in HIV-infected individuals.[1,2] In many countries, the confluence of HIV/AIDS and TB has resulted in higher TB incidence rates and TB deaths.[3,4] Unfortunately, interventions to reduce the burden and impact of TB in HIV co-infected individuals have fallen far short of targets set in *The global plan to stop TB* for 2006.[4]

Acquisition of HIV infection by individuals with pre-existing latent TB is devastating in settings where TB is highly prevalent, because co-infected individuals experience higher rates of complications from both TB and HIV (e.g., TB reactivation, TB disease severity, further immunosuppression) compared to HIV non-infected individuals.[5] Moreover, TB in HIV co-infected individuals can be very difficult to diagnose,[5,6] thus precluding the timely implementation of TB control measures and allowing further propagation of TB within communities.

The sheer number of people with TB and/or HIV in South Asia is staggering. India alone has approximately 2.5 million people living with HIV/AIDS,[7] and amidst a TB prevalence of 299 per 100 000,[8] a variety of surveys show that India's HIV-infected population experiences very high TB incidence rates and prevalence.[9–13] Complicating this difficult scenario, we have found preliminary evidence to suggest that HIV and TB are intertwined with an egregious and growing gender-based human rights violation, the sex trafficking of girls and women. Estimates suggest that 150 000 girls and women are trafficked for the purpose of sexual exploitation each year in South Asia.[14]

Our recent work documented extremely high HIV prevalence (38%) among 287 Nepalese girls and women primarily trafficked to India for sexual exploitation (age at trafficking 7–32 years) who were repatriated to a single rehabilitation non-governmental organization (NGO) in Kathmandu, Nepal.[15] We also recently reported on the importance of detecting a variety of co-infections in HIV-infected sex trafficking victims.[16] Moreover, a small body of other work has shed light on the challenges of documenting and managing TB infections in mobile populations.[17,18] We were unable, however, to find any published reports on TB and HIV co-infection specifically in sex trafficked individuals, in whom factors associated with being trafficked may confer unique challenges in the management of both diseases. We thus sought to explore TB incidence and its association with HIV in our previously assembled sample of sex trafficked Nepalese girls and women.

Methods

We retrospectively reviewed all 287 individual records collected between 1997 and 2005 for cases of TB. Details on the sample characteristics, sampling methodology, and HIV results are published elsewhere.[15] For the present analysis, TB case detection was based on sputum smear results for acid-fast bacilli, radiographs, or histories, as reported in medical tests and/or case records. Study protocols were approved by the Harvard School of Public Health Human Subjects Committee.

Results

We found 17 TB cases out of 287 screened individuals (5.9%), with the majority (12/17 or 70%) likely being pulmonary TB and developing after release from forced sexual servitude. An astounding 88% (15/17) of TB cases were HIV co-infected.

Discussion

These figures far exceed HIV co-infection prevalences of 0.4% to 28.8% reported among TB-infected individuals within urban, clinical samples in India[8,9] and even in Nepal, but are not dissimilar to HIV co-infection among TB-infected persons in some sub-Saharan African countries. In settings like sub-Saharan Africa, high HIV co-infection prevalence among TB patients may be explained by a high background prevalence of HIV infection in the general adult population. With regards to our sex trafficked sample, however, the frequency of HIV/TB co-infection and risks for adverse outcomes associated with being co-infected, such as higher rates of TB reactivation and more severe disease, is not necessarily attributable to the background prevalence of HIV among adults in India or Nepal, which is estimated to be around 0.5%,[19] but likely due to factors relevant to intense HIV exposure within the context of being sex trafficked (e.g., inability to demand condom use, forced unprotected sex).[15] As we previously showed, many of the girls and women were *trafficked* to large urban destinations such as Mumbai, India and Pune, India,[15] where they were at over six times higher risk of acquiring HIV relative to girls and women trafficked to other Indian cities.[15] Our current findings thus add an important dimension to existing data on the epidemiology of TB/HIV co-infection in South Asia, and are unique in that they pertain to individuals whose risk for morbidity and mortality from TB is complicated by forced migration for sexual servitude and the attendant risks of acquiring HIV.

While it is unclear whether these sex trafficked girls and women became latently infected with TB before or after being trafficked, there is little uncertainty that their risk for developing *active* TB dramatically increased as a result of acquiring HIV. Increased rates of breakdown to active TB disease are well described after HIV infection. Furthermore, like many prison and refugee populations, groups recognized to be at heightened risk of TB transmission,[20] sex trafficked girls and women confined in squalid brothel environments may in fact be facing unprecedented risks for acquiring TB through contact with brothel clientele or others with TB.

Our findings, both here and those previously published,[15] thus highlight the unmet need for better TB surveillance within sex trafficked populations and reinforce our previous recommendations for investigating modifiable risk factors to reduce HIV exposure in this population.[15] Moreover, given the numbers of girls and women who are sex trafficked in South Asia,[14] increased recognition of the true individual and public health impact of TB/HIV co-infection in this understudied group is essential, especially since accurate statistics on sex trafficked individuals are often difficult to obtain due to lack of consensus on what constitutes sex trafficking and the clandestine nature of this activity.

It is uncertain whether our findings precisely reflect the true incidence of TB or prevalence of TB/HIV co-infection among sex trafficked individuals in South Asia for several reasons. Our sample relies on repatriated trafficked girls and women, who may differ in as yet unknown ways from non-repatriated individuals. Additionally, our results reflect TB and TB/HIV co-infection for girls and women who were mostly trafficked to large, urban destinations in India; we did not stratify TB cases by trafficking destination, given limited numbers. Important differences in risk for TB and TB/HIV co-infection may exist for girls and women trafficked to other types of destinations or for different durations of servitude than this sample. Finally, TB testing and treatment for sex trafficked individuals in the region from which our sample arose is not standardized, and since we relied on records that were collected for another purpose, our findings may be biased if only the most clinically severe or apparent cases of TB in our sample were evaluated and reported by NGO staff. Despite these limitations, however, our estimates should encourage further investigation and targeted program development for repatriated sex trafficked individuals and their close contacts within and outside the rescue and repatriation shelters. More comprehensive strategies to evaluate repatriated sex trafficking victims for HIV and TB are likely to advance regional and global public health efforts.

In addition, anti-trafficking NGOs, rescue shelters, clinics, and hospitals that interface with trafficked and repatriated girls and women must be given the resources to conduct essential TB control efforts. These efforts might include employee training programs to heighten vigilance for TB, development of dedicated space for those with TB and TB/HIV, and implementation of other infection control strategies, such as air disinfection, to reduce the spread of TB in repatriation centers. Unfortunately, only a few NGOs currently work with victims of sex trafficking in South Asia, and they remain woefully underfunded to fully undertake TB and TB/HIV control activities. As recently highlighted, healthcare professionals are uniquely positioned to improve the wellbeing of these individuals.[21]

In order to achieve this goal and address the particular health needs of trafficked persons beyond those of the general population, especially within high TB and HIV prevalence settings, NGOs and healthcare professionals will need more information on the occurrence of these two diseases within such vulnerable groups. Furthermore, in addition to developing dedicated health services for repatriated sex trafficked individuals, it may also be useful to further expand collaborations between existing national TB and HIV programs as a means by which to increase access to and provision of health services for co-infected individuals within this marginalized population. As recommended by the WHO, TB/HIV collaborative activities are essential to preventing and treating TB in HIV-infected individuals and for increasing HIV testing among TB patients.[4] Several high burden countries, including India, have begun to achieve some of these goals,[4,22] and their experience could be considered in countries like Nepal, where TB and HIV are coming together in special populations. Given the high rates of HIV infection in sex trafficked individuals, efforts to reduce the morbidity and mortality associated with HIV/TB co-infection and eliminate TB propagation are clearly needed, with sensitivity to protecting sex trafficked individuals from future sexual exploitation, stigmatization, and further emotional trauma.

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