



PREVALENCE OF HIV COINFECTION IN TUBERCULOSIS PATIENTS AMONG DRUG ABUSERS IN NORTHERN INDIA

General Medicine

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ABSTRACT

Background: The intricate linkage of HIV with TB and substance drug abuse, and its convergence with incarceration pose a massive challenge to the clinical and programmatic management of HIV-related TB, particularly in settings in which injecting drug use is driving the HIV epidemic. Objective: Present study was planned to know the prevalence of HIV TB patients amongst drug abusers and their clinical and radiological findings.

Methods: It was a hospital based cross-sectional study conducted over a period of one year from March 2018 to February 2019 in Pulmonary medicine and psychiatry department of a tertiary care teaching hospital in Punjab where 310 drug abuser with microbiologically confirmed TB were screened for HIV.

Results: Out of 310 drug abusers with TB cases, HIV serology was positive in 65 (21.0%) cases. HIV was significantly more common in study subject with IV drug abuse compared to those who did not take IV drugs.

Conclusion: Prevalence of HIV coinfection is very high in TB patients among drug abusers so all TB patients with history of drug abuse should be asked regarding their risk factors for HIV infection and counselled to undergo HIV testing.

KEYWORDS

HIV, Tuberculosis, drug abuser, risk factors

INTRODUCTION

The increased risk of Mycobacterium tuberculosis infection and active tuberculosis (TB) disease in people who use drugs was well established even before the emergence of HIV.^[1] Human immunodeficiency virus (HIV) infection increases the risk of TB 20 fold compared with HIV seronegative individuals in high HIV-prevalence countries.^[2]

Drug addiction in TB can lead to not only the spread of TB but also of other diseases owing to their immunocompromised status.^[3] Drug abusers remain a high-risk group for TB infection and disease, and injection drug users (IDU) has been an important factor in Human Immunodeficiency Virus (HIV) associated epidemic of TB worldwide. Management of TB should be focused on modifiable risk factors (treatment barriers, including poor adherence and limited access to care) in future interventions, as treatment failure is the primary risk factor for the development of drug resistance.^[4] Drug users in particular injection drug users (IDUs) have driven TB epidemics in number of countries.^[5]

Studies conducted before and after the emergence of HIV infection show that, when compared with the general population, people who use illicit drugs have a higher risk not just of getting tuberculosis infection, but also of developing active disease.^[1,6] Similarly, outbreaks of drug-susceptible and multidrug resistant (MDR) tuberculosis are common in this group.^[1] Although the higher risk of tuberculosis observed in people who inject illicit drugs is usually the result of associated HIV infection, while in people who use illicit drugs without injecting, this higher risk is primarily attributable to the sharing of drug equipment, such as marijuana water pipes, and to living in cramped conditions or in dwellings with poor ventilation.^[1] Co-infection with the hepatitis B and hepatitis C viruses is also common among patients who inject illicit drugs, particularly among those who are also co-infected with the tuberculosis bacillus and HIV.^[6]

The intricate linkage of HIV with TB and substance drug abuse, and its convergence with incarceration^[7] pose a massive challenge to the clinical and programmatic management of HIV-related TB, particularly in settings in which injecting drug use is driving the HIV epidemic.^[8] Therefore, present study was planned to know the prevalence of HIV TB patients amongst drug abusers and their clinical and radiological findings.

Subjects and Methods

Study design, settings and participants:

It was a hospital based cross-sectional study conducted over a period of

one year from March 2018 to February 2019 in Pulmonary medicine and psychiatry department of a tertiary care teaching hospital in Punjab, India. Patients, abusing drugs via various routes (intravenous or inhalational or oral) who were microbiologically confirmed cases of tuberculosis constituted the study population. Patients age <18 years, pregnant women, smokers, diabetics were excluded from the study. Total 310 drug abuser with microbiologically confirmed TB were enrolled for study. Non probability sampling was used in which consecutive patient was selected for the study till the completion of sample size.

Data collection

After explaining the purpose of the study to the study subjects in the local language with the help of the information sheet, informed written consent was obtained. DSM-V criteria was used to identify substance abuse disorder. Microbiologically confirmed TB cases were tested for HIV-1 and HIV-2 by 1) COMBAIDS-RS Advantage-ST (HIV 1+2 immunodot test); 2) SD Bioline HIV-1/2 and 3) Trispot AIDS Scan. All these tests were performed according to the instructions provided in the kits supplied by NACO. Chest X-ray of all the subjects was done to see extent of disease.

Statistical analysis

Data were analyzed and statistically evaluated using SPSS software, version 17 (Chicago IL, USA). Quantitative data was expressed in mean, standard deviation while qualitative data were expressed in percentage. Statistical differences between the proportions were tested by chi square test. 'p' value less than 0.05 was considered statistically significant.

Ethical issues

All participants were explained about the purpose of the study. Confidentiality was assured to them along with informed written consent. The study was approved by the Institutional Ethical Committee.

Observations & Results

The mean age was 40.27 years in drug abusers. Almost all the drug abusers were male (99.0%). Out of 310 study subjects only 1 was female and 2 were transgender. Among drug abusers, most commonly abused drug was alcohol (65.2%) followed by heroin (n=61; 19.7%), Chitta (n=59; 19.0%), Afem (n=10; 3.2%) and poppy husk (n=6; 1.9%). Out of 310 drug abusers with TB cases, HIV serology was positive in 65 (21.0%) cases. (Figure 1) Among HIV positive patients, 63 (96.9%) were drug sensitive and 2 (3.1%) were drug resistant on CBNAAT. Most common radiological findings in drug abusers with

HIV was pleural effusion (29.2%) followed by military TB (20%) and parenchymal infiltration (25.4%). Other common findings were Fibrocavitary with parenchymal infiltration (10.7%) and cavity with parenchymal infiltration (10.7%). (Table 1) Out of 310 study subjects, 37 (11.9%) subjects gave history of needle syringe sharing. HIV was significantly higher in patients with needle syringe sharing compared to those without sharing of needle and syringe. ($p < 0.01$). HIV was more common in study subject with IV drug abuse compared to those who did not take IV drugs. This association was found to be statistically significant ($p < 0.01$). (Table 2)

DISCUSSION:

Drug abusers (in particular injection drug abusers) have caused TB epidemics in a number of countries.^[9] Drug abusers remain a high-risk group for TB infection and disease, and IDU has been an important factor in HIV-associated epidemics of TB worldwide.^[4] The mean age was 40.27 ± 14.84 years in drug abusers. Almost all the drug abusers were male 307 (99.0%). Out of 310 study subjects only 1 (0.3%) was female and 2 (0.6%) were transgender. Saeed AM et al^[10] reported mean age in their study as 33.7 ± 9.1 years which were less than our study. In their study all the study subjects were male and only 38% were married. Tai M et al^[9] who studied acute heroin intoxication in 18 tubercular patients encountered in emergency room and ICU, reported mean age as 27.2 years. Lamptey et al^[11] in his study on addicts found that 83 (90%) were male abusers and four (10%) were female abusers. Presence of females in his study might indicate different social habits, traditions and cultures between their society and our society.

In present study, among drug abusers, most commonly abused drug was alcohol ($n=202$, 65.2%) followed by heroin ($n=61$; 19.7%), Chitta ($n=59$; 19.0%), Afeem ($n=10$; 3.2%) and poppy husk ($n=6$; 1.9%). Different areas might be having different type of drug abuse. Shenoy et al^[12] published the data and reported that all of the patients were opium smokers, of whom 14.3% had an additional history of injection drug use (heroin). In contrast to our study, Kornreich et al^[13] who found that cannabis, opiates, hallucinogens, amphetamines, inhalants, and benzodiazepines are often used in combinations. Saeed AM et al^[10] stated cannabis (89%) as most commonly abused drug followed by tramadol (77%), and more than three-quarters of the 100 cases were taking combinations (77%). Alcohol abuse

In our study, out of 310 drug abusers with TB cases, HIV serology was positive in 65 (21.0%) cases. Reykhert I et al^[14] reported prevalence of HIV among patients with TB as 15.5% and 23.7% in the civilian and penitentiary sectors respectively while Reyes JC et al^[15] reported higher prevalence of HIV (34.7%) among drug abusers. Shenoy R et al^[12] did not report any of the drug abusers with HIV positive while Saeed AM et al^[10] reported prevalence of HIV as 11% in drug abusers with TB from their study. According to a study done by Yusuph H et al^[16] the HIV overall prevalence was 23.6%.

In present study, Among HIV positive patients, 63 (96.9%) were drug sensitive and 2 (3.1%) were drug resistant on CBNAAT. We could not find any study among drug abusers with tuberculosis in which CBNAAT finding was separately mentioned for HIV positive patients still study with larger sample size can be considered to see pattern of drug sensitivity and resistance in HIV and HCV drug abusers with TB.

CONCLUSION & RECOMMENDATIONS

Present study concluded that prevalence of HIV coinfection is very high in TB patients among drug abusers so all TB patients with history of drug abuse should be asked regarding their risk factors for HIV infection and counselled to undergo HIV testing.

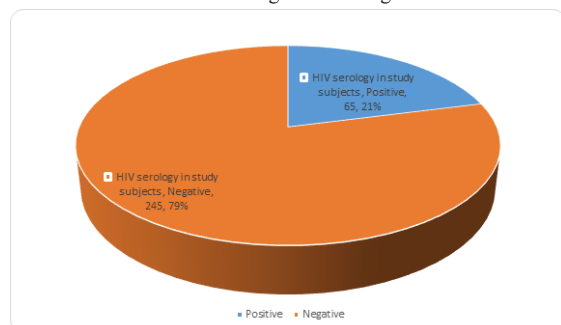


Figure 1: HIV serology in study subjects

Table 1: Radiological findings in HIV positive subjects (n=65)

Radiological findings	No.(%)
Parenchymal infiltration	10 (25.4%)
Cavitation	2 (3.1%)
Cavity with parenchymal infiltration	7 (10.7%)
Fibrocavitary	0 (0.0%)
Fibrocavitary with parenchymal infiltration	7 (10.7%)
Hilar prominence	0 (0.0%)
Pleural effusion	19 (29.2%)
Hydro pneumothorax	4 (6.1%)
Collapse	0 (0.0%)
Miliary TB	13 (20.0%)
Bronchiectasis	1 (1.5%)
Normal	2 (3.1%)

Table 2: Association of IV drug abusers with HIV positivity

HIV serology	No IV drug abuser (n=268)		IV drug abuser (n=42)		p-value
	No.	%	No.	%	
Negative	234	87.3	11	26.2	<0.01
Positive	34	12.7	31	73.8	

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