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Prevalence of HIV, Hepatitis B and C, and Co-infections Among Male Injection Drug Users in Delhi, India

India has a large injection drug user (IDU) population estimated at about 177,000 nationally with an HIV prevalence of 7.2 percent^{1,2}. Historically, the presence of IDU populations and associated HIV infection was concentrated in the northeastern states of the country. Recent evidence documents IDU populations in other parts of the country. Delhi has an estimated 17,000 IDUs and the second highest HIV prevalence in India at 18.3 percent³. The probability of becoming infected with HIV after using an infected syringe ranges from 0.34 percent to 1.4 percent. By comparison, the risk for hepatitis C (HCV) ranges from 1.5 percent to 5 percent⁴. Several studies have documented high prevalence of HIV-HCV co-infection among IDUs in the high HIV prevalence states of India⁵⁻⁶ but there is little evidence from the low HIV prevalence states in the country.

The Population Council, in collaboration with the Sahara Center for Residential Care and Rehabilitation (SAHARA) and the *Arise—Enhancing HIV Prevention Programs for At-Risk Populations*, is implementing a project to avert HIV infections among IDUs and their sexual partners in Delhi. As part of the evaluation of this project, we conducted an assessment of the

prevalence of HIV, hepatitis B (HBV) and HCV infection in a cohort of male IDUs in Delhi.

Methods

Participants were recruited from May to October 2011 through targeted outreach, peer-referral and as walk-in clients. Recruitment criteria included having injected drugs at least once in the last three months, aged 18 years or older, residing in or around Delhi, willing to participate in the study, and provide written consent. The IDUs were registered at the five drop-in centers (DICs) operated by SAHARA in central, east, northeast and northwest districts of Delhi. All participants were offered baseline HIV, HBV, and HCV testing prior to the initiation of the HIV prevention intervention. Trained research interviewers administered close-ended questionnaire in Hindi to collect data on socio-demographic characteristics, injecting practices, sexual behaviours, knowledge of HIV, and utilization of harm reduction services.

Laboratory testing

HIV sero-status at baseline was determined using rapid tests as per National AIDS Control Organization (NACO) guidelines. HIV-negative status was based on a single highly sensitive rapid test and a positive result on two additional confirmatory rapid tests. At the follow-up visit, all HIV-negative IDUs were retested using a fourth generation Antigen-Antibody test followed by a confirmatory Western Blot Assay.

For the detection of HBV infection, a serum specimen was tested for HBV surface antigen. HCV antibodies were detected using CMIA/Electrochemiluminescence test. Active infection of HCV was confirmed using an RNA PCR test.

Study Population

A total of 3,792 IDUs were recruited into the study. Of those, 2,292 male IDUs who had completed both the baseline and follow-up assessments, and for whom confirmatory results were available, were included in the analysis to calculate the prevalence rates of HIV, HBV, and HCV infection. Median age was 29 years, 48 percent were illiterate, 53 percent were never married, and 62 percent belonged to the Hindu religion. They came mostly from three adjacent states of Delhi (44 percent). Although, the majority were home-based (44 percent) many were also living on the streets (39 percent).

Key Findings

Low HIV, HBV, and HCV knowledge among male IDUs

Almost two-thirds (63 percent) of male IDUs did not have comprehensive knowledge on HIV transmission despite the fact that 54 percent had been injecting for two to five years. HIV knowledge was assessed using a six-item index comprising correct knowledge of the participant that HIV transmission can be prevented by (i) correct and consistent use of condoms for sex; (ii) having a monogamous uninfected sexual partner; (iii) that sharing needles/syringes increases the risk of HIV transmission; that HIV infection cannot spread (iv) from mosquito bites or (v) from

sharing food; and (vi) healthy-looking people can be infected with HIV. Further, only 8.6 percent (n=198) had heard of HBV and 2.9 percent (n=66) had heard of HCV.

High-risk injection behaviors were commonly reported

Over half (52 percent) of male IDUs reported at least one risky injection practice in the last month prior to the survey. Sharing injection-related equipment (32 percent) and drawing from a common container (48 percent) were most frequent. Injecting with a used needle was less frequently reported (26 percent). Around 45 percent reported use of needle/syringe exchange services in the previous month.

High prevalence of HIV, HCV, and co-infection

Among those who completed the follow-up assessment, HIV prevalence was 26.0 percent (n=595) and HCV prevalence was 53.7 percent (n=1,230). About a fifth (19.6 percent; n=449) of IDUs had both HIV and HCV (Figure 1). HCV prevalence reported here denotes active HCV infection.

Figure 1 HIV and active HCV prevalence among male IDUs, Delhi (n=2,292)

HCV was common among the HIV-positive IDUs; 75.5 percent of HIV-positive IDUs tested positive for HCV. Among HCV-infected IDUs, 36.5 percent were HIV positive.

Low prevalence of HBV and co-infection of HIV

Overall, 9.7 percent (n=223) of male IDUs were infected with HBV and 4 percent (n=91) of male IDUs had both HBV and HCV. More than a tenth (12.8 percent; n=77) of HIV positive IDUs had a HBV/HIV co-infection, and 6.6 percent (n=39) of HIV positive IDUs were also positive for HBV and HCV. Figure 2 illustrates the prevalence of HBV infection among IDUs with or without HIV and HCV infections.

IDUs who were HIV positive and/or co-infected with HCV were more likely to engage in risky injection behavior than IDUs who were HIV and HCV negative

HIV/HCV negative IDUs were less likely to have practiced risky injection in the last month compared to those infected with either or both infections. A little more than a third (36.4 percent) had previously shared needle/syringes, back/front loaded or split drugs, drawn up drugs from common containers, or received pre-filled injection, or shared equipment in the last month. However, these risky injection practices were more frequently reported by HCV positive male IDUs (62.4 percent) and HIV/HCV co-infected IDUs (65.3 percent).

Program Implications and Recommendations

Despite the availability of targeted intervention programs that recommend HIV testing and counseling every six months, the majority of male IDUs did not have comprehensive HIV knowledge. Awareness of HBV and HCV was even lower. Counseling should include information about HBV and HCV prevention. Counselors should assess comprehensive HIV knowledge among persons undergoing HIV testing at the end of every counseling session.

Hepatitis C prevalence and co-infection with HIV was extremely high in this cohort of male IDUs and high risk injection practices were more frequent among infected IDUs. This has serious implications for onward transmission to injecting and sex partners of these IDUs. Further, HCV infection has a strong link with liver chronicity and hepatocellular carcinoma. Thus HCV prevention must be a priority in targeted interventions for IDUs. Given the prohibitively high cost of HCV treatment and the lack of vaccine for HCV, primary prevention such as safer injection practices and prevention of drug injection initiation must be emphasized. Although targeted intervention programs provide sterile needles and syringes and many IDUs use this services, this does not necessarily translate into safe behaviors in a sustained fashion. HIV prevention programs need to review strategies to engineer a long-term behavior change.

Figure 2 Prevalence of HBV and co-infection with HIV and HCV (n=2,292)

References

- ¹National AIDS Control Organisation (NACO), Ministry of Health and Family Welfare, Government of India. 2012. "National AIDS control Programme, Phase III, State fact sheets." New Delhi: NACO.
- ²National AIDS Control Organisation (NACO), Department of AIDS Control, Ministry of Health and Family Welfare, Government of India. "Annual report 2012–13." New Delhi: NACO.
- ³National AIDS Control Organisation (NACO), Department of AIDS Control, Ministry of Health and Family Welfare, Government of India. 2012. "HIV sentinel surveillance 2010–11: A technical brief." New Delhi: NACO.
- ⁴NAT. 2011. "NAT scoping paper: Injecting drug users and HIV," www.nat.org.uk/.../Injecting_drug_users_and_HIV_-_updated_January, accessed June 2013.
- ⁵Solomon, SS et al. 2008. "High prevalence of HIV, HIV/hepatitis C virus co-infection among IDUs in Chennai, India: A cause for concern," *J Acquir Immune Defic Syndr* 49(3): 327–332.
- ⁶Devi, KS et al. 2009. "Coinfection by human immunodeficiency virus, hepatitis B and hepatitis C virus in injecting drug users," *J Indian Med Assoc.* 107(3): 144, 146–7.

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