Prevention of HIV/AIDS with opioid substitution therapy: An exploratory study among injecting drug users in a tertiary health-care center of Kolkata

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Received: July 07, 2017; Accepted: August 17, 2017

ABSTRACT

Background: Globally maintenance of HIV epidemic has been attributed to unsafe injection practice among the injecting drug users (IDUs). Despite significant achievements in containment of HIV in India among different high-risk groups, IDUs demonstrate high prevalence of HIV. Opioid substitution therapy (OST) is a medical intervention program for opioid dependent IDUs. OST entails replacement of an illicit and euphoric injectable opioid with a medically prescribed and longer acting but less euphoric oral opioid, such as buprenorphine and methadone, creating a steady state without distress of withdrawal and craving. Objectives: Our study was aimed at exploring the sociodemographic profile, choice of injectable psychoactive substances used, and injecting as well as sex-related high-risk behavior and treatment adherence of IDUs attending the OST center. Materials and Methods: An observational, cross-sectional study was conducted on 90 IDUs using a structured schedule along with reviewing of hospital records. SPSS version 16 was employed for analysis of data. Results: The study revealed that nearly 98% of IDUs were males. The majority belonged to lower socioeconomic class and had lower educational level. Nearly, 34% of IDUs had history of sharing needle and 33% had sex-related high-risk behavior at least once in their lifetime. Proportion of HIV infection among IDUs was 15%. Buprenorphine was the most common substance of abuse. At the end of 6 months, the retention rate on OST program was 68%. Conclusion: The OST center was effectively catering to its IDU clients while achieving good compliance and success of its whole endeavor.

KEY WORDS: Injecting Drug User, Opioid Substitution Therapy, HIV Infection

INTRODUCTION

Injecting drug users (IDUs) have emerged as an important high-risk groups (HRGs) with the potential of contracting and transmitting HIV infection in the society.^[1] While the scenario may vary from country-to-country, HIV infection

Access this article online

Website: http://www.ijmsph.com

Quick Response code

DOI: 10.5455/ijmsph.2017.0718517082017

rate as high as 70% has been reported among IDUs in Asian and European countries.^[2]

In India, the prevalence of HIV varies widely among HRGs including IDUs and ranges from 3% to 70% in different regions as found in one systematic review of various studies.^[3] It has been estimated that there are 177,000 IDUs in India.^[4,5] As per the latest HIV sentinel surveillance report, the prevalence of HIV infection in India among IDUs stands at 7.2%, the highest among all HRGs.^[5]

Considerable variation exists among IDUs in their choice of drugs for injection or abuse. [6] Although technically IDUs may elect to inject any psychoactive substance, several

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studies have demonstrated that in India, the majority prefer opioids as their primary substance of choice.^[5] The opioids may be taken in combination with other injectable agents such as benzodiazepines or antihistamines.^[5,6]

The lives of IDUs revolve in the orbit of illicit use of opioids while other domains of life take a back seat. According to Bruno Spire et al., opioid substitution therapy (OST) stabilizes the social situation of opioid dependent individuals. Oral substitution treatment plays an essential role in HIV prevention.^[7]

OST is essentially a medical intervention program for opioid dependence in a clinic setting. A medically prescribed long acting oral opioid is administered daily which eliminates the distress of withdrawal and subsequent craving for the illicit injectable opioid. Methadone or buprenorphine is to be dispensed on a daily basis as a "daily observed treatment" regimen. OST is a long-term treatment program lasting for months to years. In India, buprenorphine is the agent used for substitution.

The WHO, UNAIDS, and UNODC, together, have proposed nine interventions for HIV prevention, care, and treatment of IDU clients. The core interventions among these include - needle syringe program, OST, and anti-retroviral treatment.^[5]

To expand the OST program, Government Hospitals have also been included since 2010 in addition to the already existing NGOs. Currently, there are about 150 OST centers in the country supported by Department of AIDS control (DAC), GOI, operating through either NGOs or collaborative public health model. OST center of Calcutta National Medical College and Hospital started functioning on 2nd April 2015.

OST has been studied extensively in developed countries. However, relatively few studies on this are available in developing or less resourced countries. ^[8] This prompted us to conduct a study on IDUs attending the OST center of Calcutta National Medical College and Hospital.

Objectives

- 1. To explore the variety of injectable psychoactive substances consumed by the IDUs.
- 2. To examine the high-risk behaviors of the IDUs.
- 3. To evaluate the treatment adherence among IDUs attending the OST center.

MATERIALS AND METHODS

Study Design and Site

OST center of Calcutta National Medical College and Hospital, 2nd Campus is a collaborative public health OST center, jointly working with nearby IDU TI for outreach

and follow-up. There are separate staffs for OST center for medical and psychological intervention comprising of one doctor, one nurse, one counselor, and one data manager. It is accredited to and recognized by State Aids Control Society and National Aids Control Organization as a targeted intervention center for IDUs. The HOD of Department of Psychiatry is designated as the nodal officer. It runs 365 days a year on outdoor basis.

A descriptive cross-sectional study was conducted from May 2016 to February 2017 at OST center, Calcutta National Medical College and Hospital, 2nd campus.

Study Participants

DAC, Government of India, defines an IDU as a person "who has used any psychoactive substance through injecting route for non-medical purpose at least once in the past 3 months". Our study selected 94 IDUs purposively who attended OST center, out of which 90 gave informed written consent.

Study Procedure

The purpose of the study was explained to the study participants and informed consent was obtained. Face-to-face interviews were conducted in a separate room at the OST center ensuring confidentiality. Predesigned and pretested structured schedule included sociodemographic characteristics, variety of psychoactive substances used for injection, treatment adherence, and high-risk behavior. Five to six clients were interviewed each day along with their clinical examination which typically took 45 min to 1 h.

Review of hospital records was done for collecting data of the clients about their HIV status, and treatment adherence or retention

Data Analysis

Statistical package for social sciences (SPSS) version 16 was employed for analysis of data. Descriptive statistics were used to summarize the data. Measures of central tendency and dispersion were used to summarize numerical data and proportions for categorical variables.

Ethical Approval

Permission was obtained from the Ethics Committees of both Calcutta National Medical College and All India Institute of Hygiene and Public Health.

RESULTS

Out of 94 IDUs who fulfilled the inclusion criteria and were approached and invited to participate, 90 agreed, giving a response rate of 95.7%. The mean age of study participants

was 37.6 years (standard deviation = 9.8 years) and with a range of 19-57 years. As shown in Table 1, almost 98% of study participants were males. More than half (58.8%) of the study participants belonged to the Muslim religion. Nearly, 75% of the participants had low educational level, either illiterate or below middle level. Majority of the participants (61%) belonged to lower socioeconomic class (Class IV and V, Modified BG Prasad 2016). Thirty-two percent of the IDUs were never married. Nearly, 31% of IDU clients were unemployed at the time of first visit (Table 1).

Psychoactive substances used by the IDUs through injecting route varied considerably from person-to-person (Table 2). Most of them had the habit of taking multiple drugs. The majority of them (91.1%) preferred the pharmaceutical opioid buprenorphine procured illegally. Fifty-two percent of IDU clients consumed heroin. The other substances taken in combination with opioids for enhancing experience of pleasure were Phenergan (42.2%) and diazepam (70%).

Out of 90 clients, 31 (34.4%) shared needle and syringe at least once in lifetime (Table 3). Forty-four percent of IDUs shared paraphernalia. Nearly, 18% of the clients had sex with commercial sex worker, whereas 12% of them had multiple sex partners. Fourteen out of 90 IDUs were HIV positive giving proportion of HIV infection among IDUs as 15%.

As shown in Table 4, seventy out of 90 IDUs continued to attend the OST center at the end of 3 months giving the retention rate of 77.8%, whereas retention rate at the end of 6 months fell to 67.8%. Ten percent of the clients had been able to become drug-free at the end of 6 months.

DISCUSSION

In our study, nearly 98% of the study participants were males (Table 1). Nearly, 59% of IDUs belonged to the Muslim religion. Nearly, 32% were never married and 14.5% were separated or divorced (Table 1). Approximately 36% percent IDUs were illiterate (Table 1). Only 8.8% of the study participants studied up to secondary level and above. Our study showed buprenorphine was the most commonly used substance of all the injectable substances (Table 2). Nearly, 91% of IDUs had used buprenorphine. Next opioid of choice was pure heroin, as nearly 32.2% of the study participant consumed it. Among the non-opioids, diazepam topped the list followed by Phenergan. In the current study, nearly 34% of the study participants gave history suggestive of sharing needle at least once in lifetime, whereas 44.4% had shared paraphernalia. The IDUs who gave a history of sex-related high-risk behavior, nearly 18% had paid sex while 12% had multiple partners. In our study, 78% of IDUs retained to the OST at the end of 3 months, whereas 68% retained at the end of 6 months (Table 4).

Table 1: Distribution of study participants according to their sociodemographic characteristics n=90

Characteristics	Categories	n (%)
Age	15-25	9 (10)
	26-35	34 (37.8)
	36-45	23 (25.5)
	46 and above	24 (26.7)
Gender	Male	88 (97.8)
	Female	2 (2.2)
Religion	Hindu	32 (35.6)
	Muslim	53 (58.8)
	Christian	5 (5.6)
Education	Illiterate	32 (35.6)
	Below primary	17 (18.9)
	Primary	18 (20)
	Middle	15 (16.6)
	Secondary	6 (6.7)
	Higher secondary and above	2 (2.2)
Occupation	Unemployed	28 (31.1)
	Unskilled labor	30 (33.3)
	Skilled labor	13 (14.5)
	Self employed	15 (16.7)
	Service	4 (4.4)
Marital status	Never married	29 (32.2)
	Currently married	40 (44.5)
	Separated/divorced	13 (14.5)
	Widower/widow	8 (8.8)
SE status (BG Prasad Scale, 2016)	Class II	11 (12.2)
	Class III	24 (26.7)
	Class IV	38 (42.2)
	Class V	17 (18.9)
Living arrangement	Home	74 (82.2)
	Others	16 (17.8)
Stays with family	Yes	62 (68.9)
	No	28 (31.1)

SE: Socioeconomic

In our study, the male IDUs (98%) clearly outnumbered the females. A study conducted on IDUs in Bangladesh by Shariful Islam et al. showed that 9.2% of them were females. [9] A longitudinal study conducted in Chennai, India by Solomon et al. revealed that only 3 out of 1158 IDUs were females. [10] In our current study, nearly 32% were never married and 14.5% were separated or divorced (Table 1). Study conducted by Armstrong et al. revealed that 47.3% and 44.8% were single among the IDUs in Manipur and Nagaland, respectively. [11] Separated or divorced IDUs were found to be 3.6% and 3.2% in the above mentioned two northeastern states, respectively. [11] In our study, 36% percent IDUs were illiterate whereas only 8.8% of the study participants studied up to secondary level and above (Table 1). Razzaghi et al. in his study in Tehran

Table 2: Distribution of study participants according to their substance use in last 1 year (*n*=90) (multiple response)

Substances used	Types	n (%)
Opioids	Impure heroin (smack)	18 (20)
	Pure Heroine	29 (32.2)
	Buprenorphine	82 (91.1)
	Dextropropoxyphene	2 (2.2)
	Fortwin	8 (8.8)
Antihistaminics	Phenergan	38 (42.2)
	Chlorpheniramine/pheniramine maleate	36 (40)
Benzodiazepines	Diazepam	63 (70)
	Midazolam	0 (0)

Table 3: Distribution of study participants according to their high-risk behaviors n=90

High-risk behavior	Categories	Number of IDUs (%)
Injection sharing (at least once in lifetime)	Sharing needle	31 (34.4)
	Sharing paraphernalia	40 (44.4)
Sex-related high-risk behavior (at least once in lifetime)	Multiple partner	11 (12.2)
	Commercial SW/paid sex	16 (17.7)
	Sex in exchange for drug or money	3 (3.3)

IDUs: Injecting drug users

Table 4: Distribution of study participants according to their treatment adherence *n*=90

Treatment outcome	n (%)	
	Follow-up after 3 months	Follow-up at 6 months
Cessation/completed the program (drug free)	4 (4.4)	9 (10)
Retained on OST	70 (77.8)	61 (67.8)
Drop out/irregular attendance/relapse	16 (17.8)	20 (22.2)

OST: Opioid substitution therapy

showed that out of the 154 IDUs who had participated in the study, 18.7% were either illiterate or were barely able to read and write while only 10.7% had graduated from high school or had higher education. [12] In our study, buprenorphine was the most commonly used substance of all the injectable substances (Table 2). Nearly, 91% of IDUs had used buprenorphine. Next opioid of choice was pure heroin, as nearly 32.2% of the study subject consumed it. It was obvious that many were in the habit of taking multiple drugs. Among the non-opioids, diazepam topped the list followed by Phenergan. A study conducted by Armstrong et al. showed that most clients in

Manipur reported using heroin (90.7%) whilst in Nagaland approximately equal proportions reported using heroin and spasmoproxyvon (63.1% and 68.3%, respectively).^[11] In states such as Karnataka, Andhra Pradesh, and Chhattisgarh. Pentazocine is the commonly injected opioid.^[5]

IDUs were prone to develop certain injection-related risky behavior (Table 3). They frequently shared their needle, syringe, or other injection accessories. The reason behind such behavior was paucity of availability of these objects or inability to afford them. It might also be the usual practice of the group which is otherwise known as peer norm. In our current study, nearly 34% of the study participants gave history suggestive of sharing needle at least once in past 2 years, whereas 44.4% had shared paraphernalia. IDUs are also at risk of developing sex related risky behavior which may range from having sex with sex workers or having multiple sex partners (Table 3). They may also engage themselves in selling sex in exchange for money or drugs. In this way, they become prone to acquiring and transmitting sexually transmitted infections including HIV, both among themselves as well as to the general population. In this study, the IDUs who gave history of sex-related high-risk behavior, nearly 18% had paid sex while 12% had multiple partners. Yao et al. in their study among male IDUs in Yunnan. China found that 37% reported multiple sexual partners and history of needle sharing was reported in 62.1% of IDUs with only one partner and 83.5% (96/115) of IDUs with multiple partners.[13] In our current study, the "proportion" of HIV infection among the study participants was found to be 15%. This figure was higher than national prevalence of HIV among IDUs which was 7.2% as per the latest sentinel surveillance report. [5] However, there was considerable variation of HIV prevalence among IDUs in state wise distribution. While in Punjab the rate was as high as 21%, it was about 18% in Delhi and around followed by Manipur and Mizoram where the prevalence rate was about 12%.[5]

The key objective of OST is to improve the quality of the life of IDUs by stabilizing them and to transition them from the injecting mode of drug administration to non-injecting mode, thus preventing HIV and other blood borne viruses. [14] Retention or adherence to treatment program is an important aspect of this program and also an important parameter of success of the whole effort. Higher level of adherence to OST and time spent on treatment are associated with improved clinical outcome. Well organized and supervised intervention is needed for implementation of OST program. In our study, 78% of IDUs retained to the OST at the end of 3 months, whereas 68% retained at the end of 6 months.

Limitation and Strength of the Study

Limitations

Sociodemographic, psychological, and employment factors found in IDUs of this study make it difficult to generalize the findings to the IDU population of the country at large. Information collected for this study, relied largely on the participants' self-reporting who might under-report about their injecting habits of illicit opioids while on OST program and over-report about the socio-occupational improvements. As such the overall improvement and observed treatment adherence might be spurious and overestimated. Because of social desirability, some answers might have been biased and not accurate particularly on the sensitive questions like sexual behavior. Another limitation was small sample size.

Strength

To the best of our knowledge, this is the first study to report on the IDUs attending the OST center, Calcutta National Medical College and Hospital. This study has revealed the high proportion of HIV infection amongst the study participants. It has also been revealed that the IDUs were mostly using buprenorphine as the opioid of abuse. The findings of the study may be utilized in designing appropriate strategies for the control and prevention of HIV/AIDS among IDUs.

CONCLUSION

The study provided insights into OST patients' sociodemographic profile, high-risk behavior, and retention rate in the OST program. Almost all of the participants entering the OST program were at their lowest point of self-esteem. A well organized, properly functioning, well supervised, and monitored facility can go a long way in achieving compliance of its clients in utilizing its service which is one of the most important parameters of success of the whole program apart from effectiveness of the strategy in question.

ACKNOWLEDGMENT

We acknowledge the help and cooperation of all the staffs of OST center, Calcutta National Medical College and Hospital.

REFERENCES

- Park K. Park's Textbook of Preventive and Social Medicine. 24th ed. Jabalpur, India: M/s Banarsidas Bhanot Publishers; 2015. p. 362-4.
- 2. Ambekar A, Sethi H, Yadav D. OST program in government health care settings: Treatment compliance and retention. Available from: http://www.researchgate.net/publication/279969525. [Last accessed on 2017 Jully 1]
- 3. Nair R, Nair SS, Malhotra S, Sachdeva A. Shifting trends of

- HIV epidemiology among most at risk groups (MARGs) in India. Int J Med Sci Public Health. 2012;1(2):18-31.
- 4. Agrawal A. Opioid Substitution Therapy Principles for Scale-Up, IDU/OST. New Delhi: National AIDS Control Organization, MOH&FW, Government of India; 2014.
- Rao R, Agrawal A, Ambekar A. Opioid substitution therapy under national AIDS control programme: Clinical Practice Guidelines for Treatment with Buprenorphine. New Delhi: Department of AIDS Control, Ministry of Health and Family Welfare, Government of India; 2014.
- Rao R. Opioid Substitution Therapy Under National AIDS Control Programme. New Delhi: Department of AIDS Control, Ministry of Health and Family Welfare, Government of India; 2014
- 7. Spire B, Lucas GM, Carrieri MP. Adherence to HIV treatment among IDUs and the role of opioid substitution treatment (OST). Int J Drug Policy. 2007;18(4):262-70.
- Lawrinson P, Ali R, Buavirat A, Chiamwongpaet S, Dvoryak S, Habrat B, et al. Key findings from the WHO collaborative study on substitution therapy for opioid dependence and HIV/ AIDS. Addiction. 2008;103(9):1484-92.
- 9. Shariful Islam SM, Biswas T, Bhuiyan FA, Islam MS, Rahman MM, Nessa H. Injecting drug users and their health seeking behavior: A cross-sectional study in dhaka, bangladesh. J Addict. 2015;2015:756579.
- Solomon SS, Desai M, Srikrishnan AK, Thamburaj E, Vasudevan CK, Kumar MS, et al. The profile of injection drug users in Chennai, India: Identification of risk behaviours and implications for interventions. Subst Use Misuse. 2010;45(3):354-67.
- 11. Armstrong G, Kermode M, Sharma C, Langkham B, Crofts N. Opioid substitution therapy in manipur and nagaland, northeast india: Operational research in action. Harm Reduct J. 2010;7:29.
- 12. Razzaghi EM, Movaghar AR, Green TC, Khoshnood K. Profiles of risk: A qualitative study of injecting drug users in Tehran, Iran. Harm Reduct J 2006;3:12.
- 13. Yao Y, Wang N, Chu J, Ding G, Jin X, Sun Y, et al. Sexual behavior and risks for HIV infection and transmission among male injecting drug users in Yunnan, China. Int J Infect Dis. 2009;13(2):154-61.
- 14. Ministry of Health and Family Welfare. Targeted Interventions under NACP III, Operational Guidelines: Core Risk Group. Vol. I. New Delhi: Issued by National AIDS Control Organisation, Government of India (IN); 2007. p. 122.

How to cite this article: Pal M, Dobe M, Mukherjee A, Goswami DN. Prevention of HIV/AIDS with opioid substitution therapy: An exploratory study among injecting drug users in a tertiary health-care center of Kolkata. Int J Med Sci Public Health 2017;6(10):1509-1513.

Source of Support: Nil, Conflict of Interest: None declared.