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RESEARCH ARTICLE

Socio-demographic Profile and Seroprevalence of HIV, Hepatitis B & C in Treatment Seeking Intravenous Opioid Drug Users in Southern Rajasthan: A Hospital-based Survey

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Abstract

Background: This study aimed to assess the socio-demographic profile, pattern of drug use and seropositivity of HIV, Hepatitis B and C in treatment seeking intravenous (IV) opioid users.

Methodology: Thirty in-patients diagnosed with opioid dependence syndrome, using the substance via IV route were recruited for the study.

Results: All patients recruited were males with a mean age of 28.1 (± 8.1) years with the majority (60%) of them between 21–30 years of age. The mean age on time of onset of IV drug use was 26 (± 8.1) years. Most common concomitantly used substance was nicotine (93.3%). Ten percent of the patients reported sharing needles. A majority (60%) of the patients tested positive for Hepatitis C and 26.7% tested positive for HIV. No patient tested positive for Hepatitis B.

Conclusion: IV opioid users do not indulge in safe injectable practice, hence are at a high risk of transmittable infections like HIV and hepatitis. There is a presence of co-infection for both HIV and Hepatitis C that can result poorer outcomes. Intensive longitudinal multicentric studies need to be carried out to determine the seropositive status and prevalence trends to allow for preventable measures.

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Introduction

Substance abuse is one of the most widespread and jarring health problems in the world today. The most commonly abused drugs, alcohol and tobacco have a prevalence of 11 percent and 9.5 percent respectively in India [1,2] followed by cannabis, opiates, sedatives and tranquilizers.[3] Opioids are one of the most commonly abused drugs in India. Opioids in India used to be consumed primarily in oral form but with time intravenous (IV) use has been noted to be on rise.

[4] One of the methods by which IV drug users often consume the opioid is by mixing Heroin with Pheniramine maleate which is then boiled and the mixture is filtered after cooling down and then taken via IV route [Figure 1].[5] In the early 90s, the IV drug use was mainly found to be limited to the North-eastern states of Manipur and Nagaland, which was in close proximity to the "Golden Crescent", but with time, the use has extended outside this region to Tamil Nadu, Maharashtra, Punjab and Haryana.[6,7,8,9] Several viral blood borne illnesses including HIV, Hepatitis B (HBV) and Hepatitis C (HCV) are linked to intravenous methods.[10] Anecdotal evidence points out that the IV drug use is on the rise in southern Rajasthan, probably because of tourism. Due to the scarcity of data available regarding above mentioned issue, the present study was done to assess the socio-demographic profile and to estimate the seroprevalence of IV transmitted diseases in southern Rajasthan.

Methodology

The study was completed in the psychiatry department of a major medical college and tertiary care centre located in Southern Rajasthan. The study was started after the approval of institutional ethics committee. The present hospital-based survey included adult patients admitted in IPD seeking treatment for intravenous opioid use disorder between January 2020 to December 2021. Those who provided written informed consent for enrolling in the study and testing for HIV, Hepatitis B and C were included. The patients with history of other psychiatric disorders (except for substance dependence syndrome), refused consent, had a non-IV opioid use disorder and prior history of blood transfusion were excluded. The patients underwent psychiatric assessment using the Mini International Neuropsychiatric Interview Plus (MINI Plus). [11] A proforma was created to

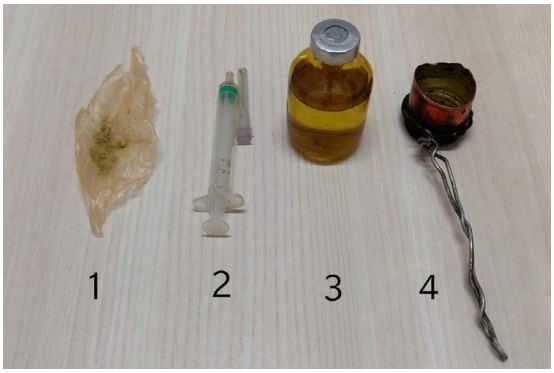

Figure 1: 1.Brown Heroin (opioid) 2. Intravenous Syringe and needle 3. Pheniramine maleate vial 4. Mixing Container

Table 1: Socio-demographic profile of intravenous drug users

Profile	*Variables*	*Number of patients (N=30) | percentage*
Age (in years)	<21	2 (6.7%)
	21-30	18 (60%)
	31-40	8 (26.7%)
	41-50	-
	51-60	2 (6.7%)
Gender	Male	30 (100%)
	Female	-
Religion	Hindu	10 (33.3%)
	Muslim	20 (66.7%)
	Others	-
Domicile	Urban	25 (83.3%)
	Rural	5 (16.7%)
Marital status	Married	20 (66.7%)
	Unmarried	10 (33.3%)
	Widow	-
Occupation	Govt.	w-
	Private	28 (93.3%)
	Business	-
	Unemployed	2 (6.7%)
Education	Illiterate	5 (16.7%)
	Primary	25 (83.3%)
	Secondary	-
	Graduation	-
Family income/ month (in Rupees)	< 10,000	5 (16.7%)
	10,000 -20000	22 (73.3%)
	> 20,000	3 (10%)
Family type	Nuclear	20 (66.7)
	Joint	10 (33.3%)
Family size (number of members)	<5	3 (10%)
	5-9	27 (90%)
	>9	-

Table 2: Pattern of intravenous drug use

Variables		*Number of Patients (N=30) | percentage*
Age of onset (in years)	<16	5 (16.7%)
	16-20	10 (33.3%)
	21-25	12 (40%)
	>26	3 (10%)
Mean ± SD of age on onset	Type of drug	Age (in years)
	Oral heroin	19.8 ± 5.6
	Injectable heroin	26 ± 8.1
Median age on onset	Oral heroin	20
	Injectable heroin	26
Usual dose of heroin (with pheniramine)	Variables	Number of Patients (N=30) | percentage
	<500mg/day	8 (26.7%)
	500mg - 1gm/day	5 (16.7%)
	>1gm/day	17 (56.6%)
Frequency of IV opioid use	Once/2 days	2 (6.7%)
	1-2 times/day	7 (23.3%)
	2-3 times/day	12 (40%)
	3-4 times/day	6 (20%)
	>4 times/day	3 (10%)
Total duration of use (in years)	<4	8 (26.7%)
	4-6	17 (56.6%)
	7-9	5 (16.7%)
	>9	-
Comorbid substance use	Only opioid	2 (6.7%)
	Opioid + Nicotine	15 (50%)
	Opioid + Nicotine + Cannabis	10 (33.3%)
	Opioid + Nicotine + Alcohol	3 (10%)
	Opioid + Nicotine + Others	-
Needle sharing (%)	Present	3 (10%)
	Absent	27 (90%)

specifically record data pertaining to socio-demographic variables and pattern of opioid use. Pre and post-test counselling were done for the patients who gave consent for HIV, HCV and HBsAg testing. Two millilitres of venous blood sample was obtained under aseptic precautions from the patients for testing purposes by a trained laboratory technician. The sample was tested for HIV and anti HCV antibodies by TRI-DOT immunoassay method, and Hepatitis B by HEPACARD immunoassay testing. (J. Mitra & Co. Ltd, New Delhi, India)

Statistical Analysis

The data was analysed using Microsoft Office Excel worksheet for Windows (version 2008). Descriptive analysis of the collected data was performed.

Results

During the study time period a total of 273 patients presented for treatment of opioid use disorder. Due to the nature and intent of the study focusing primarily on IV drug users, patients with non-IV use or those that did not give consent were excluded resulting in a total of 30 patients that participated in the study. Out of the 243 that were excluded, 231 had non-IV use of opioids, 2 IV drug users had severe medical and infective conditions resulting in inability to give consent for participation and 10 IV users that gave refusal for consent to participate in the study. The results for consenting IV users show in Table 1, all patients were males, mostly between the ages of 21 to 30 years (60%) with a mean age of 28.1 ± 8.1 years, predominantly Muslims (66.6%), 83.3% of them belonging to urban areas. 83.3% of participants were educated up to primary level, and 93.3% had a private day job. 66.7% were married, 66.7% belonging to a nuclear family. The monthly income of 73.3% of the participants was ranging between Rs.10,000-20,000. According to Table 2, 40% of patients initially started using IV drugs between 21-25 years of age, and 33.3% started between 16-21 years of age. The mean age of onset for oral opioids was estimated to be 19.8 ± 5.6 with a median age of 20, with most of them shifting to IV drug use by the age of 26 ± 8.1, median age 26. A majority (56.6%) of patients reported consuming more than 1gm daily in 2-3 divided doses (40%). 56.6% of the patients were consuming the substance for past five years with an overall mean duration of 4.5 ± 2.09 years. The most common comorbid substance used was nicotine (93.3%), followed by cannabis (33.3%). 10% of the patients reported sharing needles amongst

Table 3: Presence of seropositivity of transmitted diseases in intravenous drug users

Serological variables	*Number of Patients (N=30)%*
HIV +ve (%)	8 (26.7%)
HCV +ve (%)	18 (60%)
Both HIV + HCV	3 (10%)
HBV +ve	-
None	7 (23.3%)

themselves. 60% of the patients tested positive for HCV, and 26.7% tested positive for HIV. 10% of the patients had tested positive for both HIV and HCV as shown in Table 3.

Discussion

According to the reports of Global Burden of Diseases, Injuries, and Risk Factors Study done in 2017, 40·5 million people were dependent on opioids and in India alone, 0.7% of the general population was regularly using opioid with 22% being dependent users.[12]

Alarmingly amongst them most of the opioid IV drug users (IDUs) are in their adolescent and early adulthood which can be considered as the most productive time period in their lives. Sharma et al in Punjab assessed the drug abuse in Punjab, where most of the patients were found to be between the ages of 18 and 35 years, a finding which is supported by our results.[13] Prior studies have noted that opioid users start orally at young age followed by transitioning to IV drug use over the course of next few years.[14] Many studies have reported the mean age for onset of injectable usage in majority users to be less than 18 years of age.[15] In the present study 16.7% started IDU before the age of 15 suggesting exposure to IV opioids before even reaching adulthood. Lankenau et al. remarked that users at this age mostly acquired the opioid from their friends and acquaintances suggesting a group setting for IV drug use which increased the risk of acquiring blood borne infection.[14] It is important to focus services on young people since previous research has suggested a connection between HIV seroconversion and both recent commencement of injectable drug usage and young age .[16,17] Inexperience of IDUs to inject themselves, easy availability of drugs with specific groups, peer influence to try drugs intravenously, borrowing needles/syringes from other older users, avoiding paying for sustances, not being employed - all of these factors increase the risk of HIV spreading further and explain the young group's particular vulnerability.[18-21]

The findings of the current study indicate that there is certainly a "window of opportunity" to intervene in between and stop infections from occurring, as the mean age of onset for oral opiate use and injection heroin use being 19.8 years and 26 years, respectively.

All patients in our study were males, likely because of societal norms and cultural background of the region, which is similar to findings from other parts of India.[15] About two third of the users were married and belonged to a nuclear family. This finding is disturbing and likely shows a lack of supportive care which possibly is absent in nuclear families. None of the patients had greater than primary level of education and 16.7% were illiterate. Prior studies have noted how lesser years of schooling is negatively associated in IDUs with HIV infection.[22]

Data on IV drug use suggests that heroin use is mainly reported from north-eastern states and metropolitan cities.[23] In other states, semi-synthetic opioid injecting has been reported.[24] In the present study, patients used heroin mixed with pheniramine which is a practice commonly seen in IDUs in this region perhaps because of antihistamine's potential additive sedative effect when used in combination with opioid.[25] Ojha et al in their study had noted how IDUs using these type of combinations showed a greater HIV infection rate and also had higher co-infection rates when compared to users of heroin only.[26] Furthermore they found, high-risk behaviour like needle sharing, was much more common among such 'drug cocktail' users.

Swain et al studied treatment seeking IDUs in Punjab and Delhi two areas near the "Golden Crescent" and noted 62.4% of IDUs in Delhi had been injecting drugs since 5 years; whereas in Punjab, it was 32.4% which is comparable to our findings as well.[27]

Sharing of needles and other paraphernalia was noted in 57% of the IDUs in previous research conducted by Anwar et al, who also noted users taking

substance up to 3 times in day which was contrary to our findings as only 10% accepted sharing needles. [28] Mahanta et al also noted in their study that a possible explanation for the spread of blood borne diseases was the sharing behaviour which was considered to be widespread among all IDU. Furthermore, they noted that almost half of IDUs mentioned using shared containers as well as injecting equipment in the study. Although most IDUs cleaned the injecting equipment, they used crude methods such as washing equipment with water, which did not help sanitization of the items or prevent further transmission of bloodborne diseases.[23]

A study involving three Indian states conducted by Mahanta et al had seen HIV prevalence in two districts of Manipur was between 23%-32% and in Mumbai was 16%. Also, HCV prevalence was more than 50% in these two regions.[23] Our research has also yielded similar results for both infections despite the small size. The higher values of HCV compared to HIV can possibly be associated by the fact that HCV is assessed to be approximately ten times more infectious than HIV, per unit of blood required, and thus, needs less exposure compared to HIV for reaching high prevalence.[29] The low percentage of needle sharing but high incidence of blood borne infections in our study suggests the possibility of reporting or recall bias by the patients or engagement in high-risk sexual behaviours.

In a study involving 1648 IDUs from Manipur and Nagaland, the prevalence of HIV-HCV co-infection was 15% which is similar to the finding in our study. [30] The presence of coinfection is associated with poorer outcomes in IDUs. Previous research has shown co-infection decreases the body's natural ability to clear HCV, raises its viral load, which further causes the illness to present more severely and causes liver failure more quickly and puts a greater strain on healthcare resources. Furthermore, prior research indicates that co-infection with HBV and HCV and HIV contributes to the acceleration of HIV/AIDS development and the associated morbidity and death. [31,32,33]

Using syringes which are prefilled, needle sharing and usage of common syringes within the previous month, drawing up drugs from a shared container, and improperly cleaning needles or syringes were all significantly associated with coinfection, according to Sharma and Singh's study.[30]

Thus, prevention and control of HIV and other blood borne infections among IDU, through emphasizing information about risks from unsafe injection and sexual practices, avoiding sharing of equipment, promoting of safe sex, reducing injecting drug use are essential transmission control strategies for IDU. [34]

This study is encumbered by being cross-sectional, small sample size and being limited to men from a single centre. These limit the generalization of the findings. The serological test used for HIV and HCV is a screening test and reactive test results require confirmation by Western Blot method or Polymerase Chain Reaction test. [35,36,37] Despite the limitations, the novelty of the this brief survey helps in adding to the hospital-based data regarding the spread of blood borne infections and trend of IDU in southern Rajasthan.

Conclusion

It has been observed that after a certain amount of time, persons consuming opioid orally gradually shift to the injectable route. IV opioid users do not indulge in safe injectable practice, often resorting to sharing needles and reusing them, hence are at a high risk of transmittable infections like HIV and hepatitis. The presence of coinfection for both HIV and Hepatitis C can result poorer outcomes. Further studies are needed to determine the presence of seropositivity and prevalence trends in opioid drug users to allow for preventive measures. Public awareness is the need of the hour to spread information about the harmful effects of heroin and other IV drugs and the risk of transmittable infections.

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