

Full Length Research Paper

Opportunistic infections among human immune deficiency virus (HIV) positive injecting drug users of Dhaka City, Bangladesh

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A descriptive cross sectional study was carried out among the 116 human immune deficiency virus (HIV) positive drug addicted people in Dhaka city during September, 2012 to March, 2013. The major objectives of this study were to assess the various spectra of opportunistic infections among drug users who are HIV positive for at least three years. Young adults are more frequent drug users and males are more prone to drug addiction as compared to females. Educational backgrounds of the HIV positive drug users were not satisfactory as most of them were illiterate or primary educated. Most of the male respondents were jobless, whereas most of the female respondents were sex workers. Majority of the drug addicts were low income earners. Infected respondents went to Mukta Akash program; an NGO based treatment and rehabilitation program when their infections got worse.

Key words: Opportunistic infections, drug user, human immune deficiency virus (HIV), fungal infections, Mukta Akash.

INTRODUCTION

Bangladesh is facing a rapidly growing human immune deficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) epidemic, in particular, among injecting drug users (IDUs). The first case of HIV/AIDS in Bangladesh was detected in 1989. Since then, 1495 cases of HIV/AIDS have been reported (as of December 2008) (IEDCR and ICDDR, 2011). However, United

Nations Programme on HIV/AIDS (UNAIDS) estimates that the number of people living with HIV in the country may be as high as 12,000, which is within the range of the low estimate by UNICEF's State of the World's Children Report 2009. The overall prevalence of HIV in Bangladesh is less than 1%; however, high levels of HIV infection have been found among IDUs (7% in one part of

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the capital city, Dhaka). It is estimated that without any intervention, the prevalence in the general adult population could be as high as 2% in 2012 and 8% by 2025. Due to the limited access to voluntary counselling and testing services, very few Bangladeshi's are aware of their HIV status. Although, still considered to be a low prevalence country, Bangladesh remains extremely vulnerable to an HIV epidemic, given its dire poverty, overpopulation, gender inequality and high levels of transactional sex. The emergence of a generalized HIV epidemic would be a disaster that poverty-stricken Bangladesh could ill-afford (IEDCR and ICDDR, 2011).

AIDS is an acquired immune deficiency syndrome caused by the HIV, which is spread through blood, semen, vaginal secretions and breast milk. The most common method of transmission is unprotected sexual intercourse with an HIV-positive partner. Other routes include transfusions of HIV-infected blood or blood products, tissue or organ transplants, use of contaminated needles and syringes (or other skin-piercing equipment), and mother-to-child transmission during pregnancy, birth or breastfeeding (Peter et al., 2002).

HIV is extremely fragile and cannot survive long outside the body's fluids or tissue, and it cannot penetrate unbroken skin. Therefore, HIV is not transmitted by casual physical contact with as kissing, holding hands, sneezing or coughing, sharing toilets, using the same eating utensils, or consuming food and beverages handled by someone with HIV. It is not spread by mosquitoes or other insects and can be killed with bleach, strong detergents, and hot water (International Labor Organization, 2001).

Like other developing countries, drug addiction has been increasing in Bangladesh in both urban and rural community (National Drug Demand Reduction Strategy, 1995; Rabbni, 1992). Crime, violence, poverty, sexual disease, inadequate health care facilities, etc., are all problems in Bangladesh. In addition to infliction of these difficulties, the entire society is now being afflicted by the drug addiction problem (Rabbni, 1992). Most of the drug addicts are young adults and the number is increasing with time (Danya, 1996; Morshed, 1996). Moreover, drug addicts are socially as well as religiously neglected. This has led to a state of degeneration.

HIV/AIDS has also been spreading all over the world; an alarming number of people have died of HIV/AIDS. There are some factors that make Bangladesh at risk of spreading HIV/AIDS, which are lack of knowledge on HIV/AIDS, social norms and taboos create obstacle to make the issue of HIV/AIDS open to all, especially to young generation, high prevalence of HIV infection in the neighboring countries, increased population movements both internal and external, increased number of sex workers (street/floating, brothel, hotel based) and high prevalence of STD, lower numbers of condom use; the sex workers have the lowest consistent condom use in Asia which is 2 to 4% only (4th National AIDS/STD Program Bangladesh, 2002). HIV infection is a devastating global

problem (Mann and Tarantola, 1998). More than 40 million people worldwide are now infected with HIV infection (Mohs et al., 1990) of which 90% are in the developing countries including South and Southeast Asia. HIV infection is rapidly spreading and India has 3.9 million people infected with the disease, country-wide probably, the largest number in the world. In Myanmar, more than half a million of its 45 million people have AIDS (Mann and Tarantola, 1998; Mohs et al., 1990; Geddes et al., 1998).

Drug addicts are at the highest risk of HIV infection, because of their prevalent immune nutritional deficiencies (Varela et al., 1997a, b) and behavioral risk factors (Islam et al., 2000; Choi et al., 2000). It has been documented that the largest number of AIDS cause in the developed countries occurs in intravenous drug users (IDUs) (Varela et al., 1997b; Strathdee et al., 1998). A cross sectional study was conducted among the floating drug addicted people and commercial sex workers in Dhaka city, and Bangladesh shows that 62% of drug users were mal-nourished (Huq et al., 2013). However, their knowledge about HIV/AIDS were of satisfactory level; about 85% of drug addicted people had knowledge on HIV/AIDS and 78% of the drug addicts had knowledge on route of transmission of HIV/AIDS (Huq et al., 2013). Again, non IDUs are also at increased risk for HIV infection due to unprotected sexual activity with HIV infected partners (Lehman et al., 1994). Different programs are for preventive and rehabilitative approach of intervention in case of HIV in IDU. The most vulnerable part of dealing with these patients is the opportunistic infections. With time, HIV patients develop varieties of opportunistic infections and at the end enter into the AIDS phase. These infections are not the same for all the age and social group of patients. As IDUs with HIV in our country are the most talked about group; their Oil States International Inc. (OIS) management is a prime concern for the policy maker. Many of the intervention programs have treatment and rehabilitation, as components of the package, yet proper planning is lacking.

MATERIALS AND METHODS

Study design

A cross sectional purposive study was carried out among 116 HIV positive injecting drug addicted people (male 95 and female 21) from the different parts of the Dhaka city during September, 2012 to March, 2013.

Sample size calculation

A statistical method will be applied to determine the sample size by the following formula:

$$\text{Sample size } (n) = z_2(1-\alpha/2)pq/d = (1.96)^2 \times 0.23 \times 0.77 / (0.008) = 106.$$

where n = Desired sample size, Z = Standard normal deviate (it is usually set at 1.96 when $CI=95\%$), α = Level of significance,

Table 1. Comparison of the background information of the selected sex workers and drug users.

Parameter	Male		Female	
	Number	%	Number	%
Age in years				
15-29	19	20	3	14.29
≥ 30	76	80	18	85.71
Total	95	100	21	100
Educational status				
Illiterate	25	50.0	34	34.5
Primary	22	44.0	42	42.9
Up to SSC	3	6.0	22	22.6
HSC to graduation	9	9.47	-	-
Masters	2	2.10	-	-
Total	95	100.0	21	100.0
Occupation				
Jobless	22	23.16	3	14.29
Rickshaw puller	19	20	-	-
Day labor	13	13.68	-	-
Student	21	22.11	-	-
Businessman	12	12.64	-	-
Job holder	8	8.42	-	-
Housewife	-	-	7	33.33
Sex worker	-	-	-	52.38
Total	95	100.0	21	100.0

P=Anticipated population proportion (23%), q=(1-p), d=Allowable error (8%), with 10% non response and the total sample size of 116.

Development of questionnaire

A semi-structure questionnaire was developed containing both closed and open question in accordance with the study objectives to obtain relevant information such as socio-demographic conditions, anthropometrical, drugs and sexual lifestyle, HIV/AIDS related information, etc. All questions were designed, pretested, modified and resettled to obtain and record information easily. Any modification necessary were then made and a final recoded, pretested questionnaire was drawn up.

Anthropometric assessment

The anthropometric data were collected based on standard methods. Age of the subjects under study was determined by interrogation and confirmed through probing national identity card. Measurements of weight and height were obtained from all subjects. The subjects were weighed wearing minimal cloths and bare footed. Three weight measurements were obtained using a bathroom weighing scale and the average was calculated and recorded to the nearest 0.5 kg. The height was measured with a wooden measuring board without shoes and the average was calculated and recorded to the nearest 0.1 cm. Body mass index

(BMI) is the best method of measuring the nutritional status of the respondent.

$$BMI = \frac{\text{Weight in kg}}{\text{Height in m}^2}$$

Data analysis

The data set were first checked, cleaned and entered into the computer from the numerical codes on the form. The data was edited if there is any discrepancy and then was cleaned. The frequency distributions of the entire variables were checked by using SPSS 20.0 windows program. For tabular, charts and graphical representation Microsoft word and Microsoft excel were used.

RESULTS AND DISCUSSION

HIV/AIDS and drug addiction severely affects the human life. It affects physical, mental, social and professional well being of an individual as well as social. So, it is being addressed as national, social and health problem in Bangladesh. Table 1 shows the distribution of the respondents by age and sex. 20% male and 14.29% female drug addicts were 15 to 29 years age group.

Table 2. Distribution of the respondent based on their monthly income.

Income group (Tk.*)	Number	%
Less than 5000	42	36.21
5000-10,000	37	31.90
10,000-20,000	21	18.10
>20,000	16	13.79

*1\$=78 Tk at December 2012.

Table 3. Distribution of the respondents based on injecting drug use.

Age group	Male		Female	
	Number	%	Number	%
≤ 5 years	2	2.11	10	47.62
≥ 5 years	93	97.89	11	52.39
Total	95	100.0	21	100.0
Respondents on taking ART				
Yes	34	35.79	5	23.81
No	61	64.21	16	76.19
Total	95	100	21	100
Disease				
Abass/Cellulites	42	44.21	-	-
Skin infection (Fungal, Scabies)	17	17.89	10	47.62
Tuberculosis (Pulmonary TB meningities, Lymphnode, Disseminated)	8	8.41	7	33.33
Pulmonary infection	5	5.26	4	19.05
Sepsis	15	15.79	-	-
Candidacies (Oral, Vulroraginal)	2	2.11	-	-
Malignancy	3	3.16	-	-
Shigellosis	3	3.16	-	-
Total	95	100.0	21	100.0

About 80% male and 85.71% female drug addicts were found in the age group ≥ 30 years. About 4.22% of male and 90.48% of female drug addicts were illiterate. 63.16% male and only 9.52% female passed through primary classes. 21.05% male were up to Secondary School Certificate (SSC), whereas male of Higher Secondary Certificate (HSC) to graduation and Masters were 9.47 and 2.10%, respectively. It has also been observed that the occupation of drug addicts where 76.84% male and 85.71% female were found to have job whereas 23.16% male and 14.29% female were jobless. 20% male were rickshaw puller, whereas only 13.68% male were day laborer, 22.11% male were students, 12.64% male were businessman, 8.42% male were job holder. On the other hand, 33.33% female were housewife and 52.38% were sex worker.

Table 2 shows that 36.21% of the drug addicts were found in less than Tk. 5000 income group. 31.90% drug addicts had income within Tk. 5000 to 10000, whereas 18.10 and 13.79% drug addicts were found in Tk. 10000 to 20000 and greater than Tk. 20000 income group,

respectively.

Table 3 shows that 2.11% male and 47.62% female respondent IDUs were ≤5 years age group, whereas 97.89% male and 52.39% female respondents were ≥5 years age group. This table also shows that 35.79% male and 23.81% female respondents were taking anti retroviral therapy (ART), whereas 64.21% male and 76.19% female respondents were not taking ART. HIV infection is rapidly spreading. Because of their prevalent immune nutritional deficiencies and behavioral risk factors, drug addicts are at the highest risk of HIV infection and 44.21% male respondents were infected by abass or cellulites. About 17.89% male and 47.62% female respondents were infected by skin infection (fungal and scabies). 8.41% male and 33.33% female respondents were infected with tuberculosis. 5.26% male and 19.05% female respondents were infected by pulmonary infection. 15.79, 2.11, 3.16 and 3.16% of male respondents were infected by sepsis, candidacies, malignancy and shigellosis, respectively.

Table 4 shows that 35.35 and 64.65% respondents got

Table 4. Years from which respondent got to know about HIV after starting drugs addiction.

Year	Number	%
1	41	35.35
1-3	75	64.65
Total	116	100.0

Table 5. Distribution of the respondents by their treatment.

Place of treatment	Frequency	Percentage
In the program	90	77.58
Other hospital	15	12.93
Pharmacy	11	9.48
Total	100	100.0
Taking proper courses		
Yes	73	62.93
No	43	37.67
Total	100	100.0
Knowledge on OI		
Yes	82	70.69
No	34	29.31
Total	100	100.0

to know about HIV after 1 and 1 to 3 years of starting drugs addiction, respectively. Table 5 shows that the largest number (77.58%) of the respondents went for treatment of infectious disease in the program, 12.93% went in other hospital and 9.48% went in pharmacy.

Among them, 62.93% of the respondents took proper courses for treatment, but 37.67% respondents did not take any proper treatment, whereas 70.69% of the respondents were known about the opportunistic infection, but 39.31% did not hear about the opportunistic infection.

Conclusion

The main objective of this study was to assess the opportunistic infections among HIV positive injecting drug addicts. In this study, among the injecting drug addicts of aged above 30 years and mostly were in primary level. Income plays an important role in drug addicts and found mid income (below 5000 taka) people, who faced the social inform to be mostly affected by drug addiction. High risky behavior that has been practiced is not decreasing and still exists among HIV patients. Though, the HIV/AIDS transmission among the high risk groups is still lower, but their risky behavior may reach towards an epidemic. So, the high risky behavior on HIV trans-

mission that has prevailed among the addicted and sex workers should be reduced at any cost to prevent the spread of HIV/AIDS. Intravenous drug users and sex workers play a major role in spreading HIV/AIDS in Bangladesh. From the earlier mentioned study, it becomes clear that the HIV transmission rate is very high among those with high risk group population in Bangladesh. The picture obtained in this study on HIV transmission is undoubtedly alarming. Only community is not enough for the addicted people, they must get proper treatment and rehabilitation. To achieve this goal, both governmental and NGOs have to work together. It is really painful that 70% of the addicted people do not know whether they become addicted again after getting treatment from drugs rehabilitation center. In this connection, Government of Bangladesh (GOB) and NGOs play an important role to give them proper treatment and motivation. Not only the institution, but also their families also have to play an important role improving proper care to them. In Bangladesh, more than half of the addicted people share needle/syringe and most of the sex workers take unprotected sex, still HIV transmission rate is low, but it is obvious that if such risky behavior continues, then the HIV transmission rate will increase among the addicted people, sex workers and also in general population resulting in horrible scenario. So, it is a matter of concern of the nation as well as at the social, political and economic level.

Conflict of Interests

The author(s) have not declared any conflict of interest.

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