DOI: https://doi.org/10.53350/pjmhs221610244

ORIGINAL ARTICLE

Prevalent Estimates of HIV/AIDS in Chronically Ill patients admitted in JPMC Karachi Pakistan

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ABSTRACT

Objective: To find out the prevalence of HIV/AIDS in chronically ill patients admitted in tertiary care hospital JPMC(Jinnah Postgraduate Medical Centre) Karachi.

Study design & place: This cross-sectional study was conducted at JPMC during the June, 2021 to April, 2022.

Materials & Methods: A total of 500 patient age ≥18 years having highly suspicious history & symptoms of HIV/AIDS, admitted in Medical & pulmonology department were included in this study. A well-structured questionnaire was used to obtain background characteristics, clinical symptoms; history of high risk behaviors and I/V drug use of all participants was collected. Confidentiality was assured of all participants given unique identification number. Data was analyzed by using Statistical Package for Social Sciences version 21 (SPSS 21).

Results: A total of 500 patients comprised of 373 (74.6%) male and 127 (25.4%) female, male to female ratio was 2.93:1. The mean age was 33.5 ± 12.78 years (18 to 83 years). We observed that most of patients belong with history of blood transfusion, 160 (32%) followed by I/V drug user 130 (26%) and sexual contact 96 (19.2%) cases. Out of 500 study participants, 29(5.8%) subjects were HIV/AIDS positive. The results of this study will provide information and awareness about the transmission of HIV in community. The study revealed that the blood transfusion is a significant risk factor in transmission of HIV.

The findings of current study will help doctors for postoperative pain treatment following major abdominal surgery. Acute pain management in hospitals faces some significant obstacles, according to a recent review on postoperative pain management procedures in tertiary care facilities center.

Conclusion: Most of the chronically ill patients admitted were men who had been diagnosed with HIV/AIDS. Blood transfusion history, intravenous drug use, and multiple sex partners were important risk factors. There is a need to create awareness among the general public about the risk factors for HIV/AIDS to decelerate the spread of this deadly disease.

Keywords: AIDS Acquired immunodeficiency syndrome Chronic diseases, HIV Human Immunodeficiency Virus, Injecting drug user, Multiple sex partners, JPMC Jinnah Postgraduate Medical Centre

INTRODUCTION

HIV/AIDS has emerged and recognized as serious public health concern especially in developing countries.(1) Approximately 38 million people are living with HIV. An estimate 0.7% of adults aged between 15-49 years living with HIV infection globally, however the burden of HIV epidemic continuously varies significantly between regions & countries. (2) Mortality was noted in 680000 people with HIV–related complications and 1.5 million people acquired HIV in 2020. (3) The situation is very much worrying in countries with low human development index (HDI) where the burden of disease continuously increasing due to lack of resources for prevention, testing and treatment. (3)

In Pakistan, since the diagnosis of 1st case of HIV reported in 1986, the number of cases has increased tremendously.(4) According to national data on June 2019, 24331 people (14.7%) were registered with National AIDS Control Program (NACP) as compared to 4500 only in 2013.(5) HIV prevalence among general population of Pakistan is approximated to be less than 0.1% and 165000 people living with HIV.(6) The HIV epidemic in Pakistan is concentrated in key population/ high risk groups: including injecting drug users (IDUs) (38.4%), male sex worker (5.6%), female sex worker (2.2%), transgender sex worker (7.1%), men who have sex with men group (MSM) (5.4%).[7] Despite the easy availability of life saving antiretroviral therapy (ART), Pakistan is still registering highest number of HIV patients among all countries of this region. A recent upsurge of HIV in Kot Imrana District Sargodha Punjab and Rato Dero Larkana, Sindh cast doubt in performance of National as well Provincial AIDS Control Program. (6,7)

Overall 6768 people are living with HIV in Karachi (CDC Sindh) where District central has the highest number (2752) of patients across the Sindh province.[8] Over, 800 million therapeutic injections are given per annum in Pakistan which is highest in the world and unsafe injection practices by the presence of thousands of quacks in the country are major contributors for spreading HIV.[8] Considering the variable impact of HIV/AIDS with increasing trends in Pakistan among regional countries deserve additional research & focus to lessen this burden. JPMC is one of the biggest tertiary care public hospital (>2000 bedded) of Karachi, catering most of the patients belongs to urban & rural Sindh districts as well as Balochistan.

The objective of this cross-sectional study was to estimate the prevalence of HIV/AIDS in symptomatically suspected admitted patients.

MATERIALS AND METHODS

Study design & setting: A hospital based cross-sectional study was conducted at JPMC Karachi. Persons aged 18 years and above, having highly suspected symptoms of HIV/AIDS, admitted in Medical & pulmonology department were included in this study. A well-structured questionnaire was used to obtain background characteristics, clinical symptoms and H/O high risk behaviors and I/V drug use of all participant was collected. Confidentiality was assured of all participants given unique identification number.

Sample Size: The sample size was calculated using OpenEPI version 3 using the prevalence 1% with confidence limits 5% from a reference study.[6]

Ethical Considerations: The research protocol was reviewed and approved by institutional review board (IRB) of Jinnah postgraduate medical centre Karachi (No.F.2=81/2022-GENL/154-A/JPMC). Written informed consent was also taken from study participant before enrollment in the study. It is also clearly mentioned that participation was voluntary and every participant has liberty of withdrawing any time from the study. All patients who tested positive for HIV were referred to HIV control centre civil hospital, Karachi for further disease management.

Socio-demographic & Risk factor related data: Close ended questionnaire proforma provided to collect demographic and risk factors associated data. Questionnaire was asked in an interview manner in participants' mother language for good understanding. The possible risk factors involved in transmission of infection

contained in the questionnaire included IDUs, extra marital/multiple sexual partners, sex without condom, sharing of needles & blood transfusion.

Blood Sample Collection and testing: After pre-test counseling approximately 5 ml blood samples were collected from each participant for HIV testing admitted in wards. Samples were transported to the AIDS Surveillance Centre Laboratory, at Blood Bank JPMC Karachi maintaining cold chain. The results of the testing were hold confidential and were provided only to participating individuals after post-test counseling. Anti-HIV-1/2 chemiluminescence immunoassay was done on Architect i2000SR system (Abbott Laboratories, Abbott Park, IL, USA). Anti HIV-positive cases were also tested on two different rapid HIV devices (Alere Determine™ HIV -1/2, Alere North America Inc. USA & CTK HIV 1/2 Ab SAN DIEGO CA 92121 US). Statistical analysis was carried out using SPSS version 21. The frequency of HIV results and association of different factors with HIV was determined by the chi square. A *P* value ≤0.05 was considered to be significant.

RESULTS

A total of 500 patients admitted in Jinnah postgraduate medical centre (JPMC) with high clinical suspicion of HIV/AIDS agreed to participate in this study, comprised of 373 (74.6%) male and 127 (25.4%) female and male to female ratio was 2.93:1. The mean age was 33.5 ± 12.78 years (18 to 83 years). The majority of suspected cases were with history of fever 497(99.4%), weight loss (473; 94.6%), chronic cough (471; 94.2%) and recurrent infection (409; 81.8%) (Figure.1). The most of patients belong with the high risk population having history of I/V drug user, 189 (37.8%) followed by blood transfusion 160 (32%) and multiple sexual contact 126 (25.2%) cases (Figure 2).

Table 1. Demographic and clinical characteristics of study subjects (n=500)

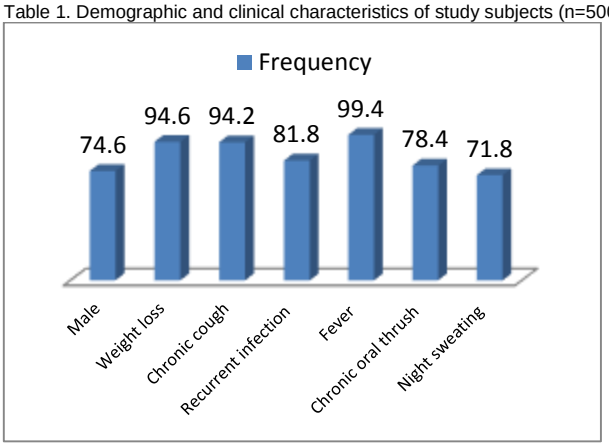

Figure 1. Demographic and clinical variables of selected patient (n=500)

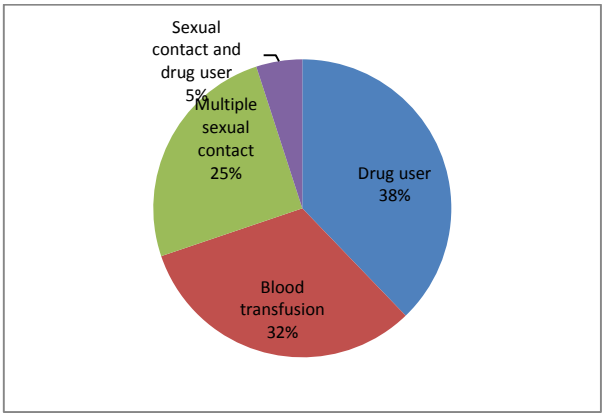

Figure 2. Frequency of Risk groups in the study population (n=500)

Out of 500 HIV/AIDS suspected cases 29 (5.8%) were positive by chemiluminescence immunoassay (CMIA) and all the 29 cases were also positive by immunochromatographic (ICT) assay (Table. 1). The sensitivity and specificity of these three methods were analyzed by online calculator and all have 100% sensitivity and specificity.

Table 1. Comparative results analysis of anti-HIV by CMIA assay and ICT methods

Name of assay	Number	Percentage	Total (%)
CMIA test			
Positive	29	5.8%	500(100)
Negative	471	94.2%	
ICT method (both)			
Non-Reactive	471	94.2%	500(100)
Reactive	29	5.8%	

The different variables were determined in the HIV positive patients and their association with HIV was analyzed by the chi square test. There was a significant higher number of males over females and similarly in urban suspected cases the percentage of positive cases was higher but statistically it was not significant (*p* values, 0.06 and 0.5 respectively). There was strong association with marital status, education and employment (Table. 2 & 3).

Table 2. Demographic variables of HIV Positive Patients (n=29)

Variable	Number (%)	*P* value
Male	26(89.65)	0.06
Female	3(10.35)	
Urban	19 (65.52)	0.5
Rural	10(34.48)	
Marital status		
Unmarried	11(37.93)	< 0.001
Married	5(17.24)	
Divorced/widowed	13(44.82)	
Education		
None	18(62.07)	< 0.001
Primary	7(24.14)	
Secondary	3(10.35)	
Graduate	1(3.44)	
Occupation		
Employee	17(58.62)	< 0.001
Unemployed	12(41.38)	

The p-value is significant at p ≤ 0.05.

Table 3: Risk factors associated with HIV Positive Patients (n=500)

History	No. Patients	CMIA test	ICT method	*p* value
Sexual contact	126(25.2%)	5(1%)	5(1%)	0.005
Drug user	189(37.8%)	17(3.4%)	17(3.4%)	
Blood transfusion	160(32%)	6(1.2%)	6(1.2%)	
Sexual contact and drug user	25(5%)	1(0.2%)	1(0.2%)	
Total	500(100%)	29(5.8%)	29(5.8%)	

DISCUSSION

Timely and precise serostatus of HIV suspected person is the cornerstone in the prevention and treatment strategic planning of HIV. Appropriate and rapid diagnostic information are a key factor for initiation of antiretroviral therapy and to minimize the transmission rate of HIV to the local population. The life expectancy of people living with HIV/AIDS has significantly increased due to the development of antiretroviral therapy (ART) in the mid-1990s.[9] Most of the patients in our study were men and male dominancy was revealed in present study with a ratio of 2.93:1. Similar finding are reported by Balderson et al. (2013).[10] The reason for this can be attributed to our social norms, where the female population mainly works indoor or in the agricultural sector and does not travel much. High prevalence of HIV/AIDS in men are clearly linked to men's lifestyles & behavior, especially in our part of the world. The males are more involved in sexual relationships and injecting drugs. The minimum and maximum age

of the patient in this study was 18 to 83 years. The mean age was 33.5 ± 12.78 years. HIV was most common in the second and third decades. The second series also shows the high incidence of HIV/AIDS in the younger age groups.[11] In another study similar age group have been reported (35.03±9.123 years) with HIV/AIDS.[12]

Peoples who use I/V drugs are at higher risk of contracting viral infections including HIV/AIDS or Hepatitis, because their common mode of transmission is blood or body fluids rom infected to healthy individual.[13] The chance of virus transmission in IDUs is common due to the sharing of needles /syringes and 1 in 10 is HIV positive in this group of population.[14] HIV infection in Eastern Europe, South America, and East and Southeast Asia, where HIV infection is estimated at more than 40% in some injecting drug user (IDU) sub-populations.[15] In present study, the highest rate (3.4%) was observed in the IDU group. These results are in consistent with the observation reported by the former study from the Faisalabad, Pakistan.[16] The high prevalence of HIV in drug-using populations is a major cause of disease and death worldwide.[17] In the blood transfusion patients the prevalence was second (1.2%) to the IDU subpopulation. The similar findings reported by Moiz et al.[18] MSM is one of the most important source of transmission of HIV in women through sexual contact.[19] According to UNAIDS, "one in three women worldwide has experienced physical or sexual abuse" and the latter has a direct effect on their risk of HIV infection.[20] In present study the multiple sex partners' subpopulation was on third number in frequency of HIV positive (1%). This is due the lack of awareness and illiteracy about the transmission of HIV as reported previously.[20,21] In Pakistan HIV is mainly concentrated in subpopulation of injecting drug users and sex workers.[6]

In present study other factors associated with HIV positive individuals were illiteracy or no education, single or unmarried and employment were strongly associated with HIV positive patients. Adolescents with intermediate or higher education were 3.6 times more likely to have knowledge of HIV/AIDS than illiterate adolescents. Pakistan is an insecure country, with rising levels of poverty, low literacy levels, especially among women; low levels of condom use, and low levels of awareness among health workers. A large mobile population, including refugees in border areas, internal and external migrants, and long-distance truck drivers who are known to be involved in sexual activity, have been exposed to HIV and sexually transmitted infections.[20.21]

CONCLUSION

Most of the chronically ill patients admitted were men who had been diagnosed with HIV/AIDS. Intravenous drug user, Blood transfusion and multiple sexual partners' were important risk factors. Implementing standard screening protocols and using highly sensitive tests will reduce the risk of transmission. In addition, there is a need to create awareness among the general public about the risk factors for HIV/AIDS disease in order to prevent the rapid spread of this deadly disease.

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