



RISK FACTORS ASSOCIATED WITH HIV INFECTION AMONG PERSONS ATTENDING ICTC AND PPTCT CENTRE OF A TERTIARY CARE HOSPITAL OF CENTRAL INDIA

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ABSTRACT

Background : Every year, there are approximately 5 million new HIV (Human Immunodeficiency Virus) infections, and approximately 3 million deaths from AIDS (Acquired Immunodeficiency Syndrome). This is a global public health concern, especially in developing countries. Time to time analysis of risk factors is important to monitor the current status of HIV among general as well as key population, to evaluate the effectiveness of HIV associated health programs & interfere the population at risk. This can help in early management as well as prevention of new HIV cases. **Method** - In this study, 445 HIV positive patients were studied over a period of one year from August 2021 to July 2022 to determine the risk factors among them via pre and post test counselling. **Result** - Among 445 HIV positive persons, risk factors were confirmed in 228 (51.24%) which included spouse HIV positive (72.37%) , patients with sexually transmitted diseases (10.08%) , prisoners (3.07%) , Male having Sex with Male i.e MSM (2.19%) , parent to child transmission (4.39%), transgender (0.88%) , sex with commercial sex workers (1.75%), truckers (3.51%), homosexual/bisexual (1.75%) and history of multiple blood transfusion (2.19%). **Conclusion** - The number of HIV positive males were more than the number of females. The most common risk factor was found as spouse HIV positive.

KEYWORDS : HIV (Human Immunodeficiency Virus), Risk factors, AIDS (Acquired Immunodeficiency Syndrome)

INTRODUCTION

HIV (Human Immunodeficiency Virus) (Figure 1) belongs to the genus *Lentivirus* , family *Retroviridae*.^[1-2] The global HIV pandemic endangers the mankind.^[3] In 2020, it was estimated that 36.7 million people were infected by HIV worldwide.^[4] It has become the fourth largest cause of mortality in the world.^[5]

There are defined groups who, due to specific higher-risk behaviours, are at increased risk of HIV infection irrespective of the type of epidemic or local context. These groups are included in Key Population (KP). They often have legal and social issues related to their behaviour that increase their chances for HIV infection.^[6]

Multiple surveys have been carried out over decades which suggest the prevalence of HIV infection to be 'high / concentrated' among the 'key populations' (KPs), which includes individuals like those who have unprotected sexual contacts with multiple sexual partners or those who engage in injecting drug use.^[4] Along with these , recipients of multiple blood transfusion, Female sex workers (FSW), men who have sex with men (MSM), transgender (TG), long-distance truck drivers and migrants are included in this group.^[4] The occurrence of HIV infection also varies across the State/UTs as well as the urban-rural divide. In addition, middle aged females are at higher risk of infection and are also the source of onward transmission to infants during pregnancy, labour and through breast feeding.^[7] Rucinski *et al.* suggest that despite advancement in defining and refining antiretroviral therapy (ART) for people with HIV, the burden of HIV infections and HIV treatment outcomes among key populations is still suboptimal.^[8]

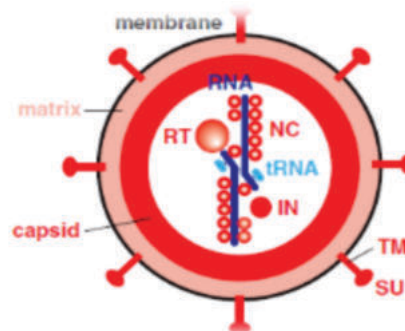


Figure 1: HIV virion. Virion components. IN: integrase. NC: nucleocapsid protein. RT: reverse transcriptase. TM: transmembrane & SU: surface glycoproteins

Sources: *Virology Principles and Applications* – John B. Carter, Venetia A. Saunders

AIM

To detect various risk factors among HIV positive patients.

METHOD

In this study, we analyzed 445 HIV positive patients over a period of one year from August 2021 to July 2022 , to determine the risk factors among them via pre and post test counselling.

RESULTS

Among 445 HIV positive persons, risk factors were confirmed in 228 (51.24%). (Figure 2)

Among 228 HIV positive individuals, risk factors were identified as spouse HIV positive among 165 individuals (72.37%) , 23 patients with sexually transmitted diseases i.e STD (10.08%) , 7 prisoners (3.07%) , 5 Male having Sex with Male i.e MSM in (2.19%) , 10 patients with parent to child transmission (4.39%), 4 transgenders (0.88%), 4 patient had sex with commercial sex workers (1.75%) , 4 homosexual/bisexual (1.75%), 8 truckers (3.51%) and 5 patient with history of multiple blood transfusion (2.19%). (Table 1 & Figure 3)

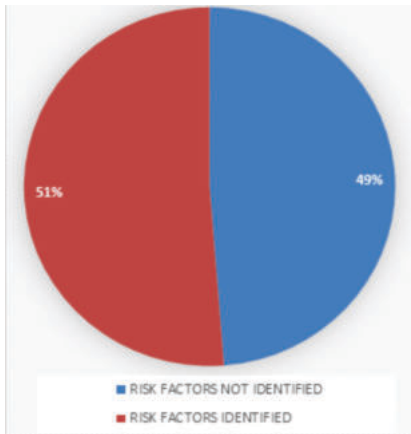


Figure 2: Identification of risk factors among HIV positive individuals

Table 1 : Distribution of risk factors

Risk Factor	No. Of HIV Positive Individuals	Percent age
Spouse HIV positive	165	72.3%
Patients with STD	23	10.08%
Prisoners	7	3.07%
Parent to child transmission	10	4.39%
Sex with commercial sex worker	4	1.75%
Trucker	8	3.51%
History of multiple blood transfusion	5	2.19%
Homosexual/ Bisexual	4	1.75%
MSM	5	2.19%
Transgender	4	0.88%

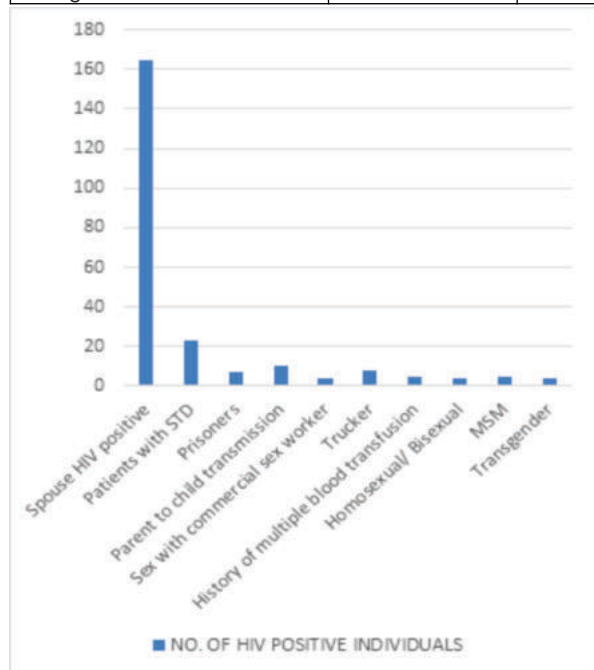


Figure 3 : Distribution of risk factors

DISCUSSION & CONCLUSION

Key Population such as female sex workers (FSW), men who have sex with men (MSM), and people who inject drugs (PWID) are overly affected by HIV . This population contributes to approximately 36% of the 1.9 million new adult HIV infections that occur every year.^{[9][10]} In a study by Amobi Onovo *et al.* (2021) , positive HIV test was confirmed in 12.1% (95%CI 9.7-13.1) and 11.8% (95%CI 9.3-12.7) of the 26,423 MSMs and 9,474 PWIDs, respectively.^[11] Lina Fan *et al.* (2021) confirmed STD in 1514 (41.1%) HIV positive patients.^[12] In this study, 23 patients had history of STD. The influence of STD like Syphilis on immune response and virologic failure in HIV-infected individuals following initiation of antiretroviral therapy (ART) is not well-defined^[12] and thus, invites further research. Captivating prisoners in confined spaces directly and indirectly promotes transmission of HIV by multiple factors. Although truckers are considered as Key Population for transmission of HIV, only 8 HIV positive individuals were truckers in this study which calls for the need of regular awareness programs, focusing on key populations, to be held for promoting their knowledge and understanding regarding HIV. In this study, 1 out of 5 patients were found to be a recipient of multiple blood transfusions for β -Thalassemia. The insignificance of this case as to multiple blood transfusions being the actual cause of HIV infection invites attention to conduct proper studies among blood donors & recipients for transfusion associated infections as well as addition of tests like screening for HIV (p24) antigen. Dr Kabita Choudhury *et al.* ^[13] confirmed that among 774 HIV positive individuals, the predominant occupations among population were drivers, skilled/unskilled labour (ranging 10% to 16%), and housewives (23%). 88.5% of them exhibited heterosexual behavior and transmission from parent to child was 5.37%. In our study, 426 (95.73%) out of 445 HIV patients had heterosexual mode of transmission. In fact, the most common risk factor was found as spouse HIV positive in this study. Li Wei Ang *et al.*^[14] also confirmed sexual route as the predominant mode of HIV transmission (98.3%) in 701 newly diagnosed HIV-infected persons. The most common mode of HIV transmission was heterosexual 114 (81.4%) in another study by Agarwal Anil *et al.* ^[15]. Thienkrua W *et al.* ^[16] concluded that young MSM are vulnerable , and at risk for HIV well before 18 years of age. In this study, 4 out of 5 HIV positive MSM belonged to the young age group of 20 to 30 years and none were below 18 years of age. The number of HIV positive males (295) were more than the number of females (146) which may be due to less number of females getting tested. This can be attributed to illiteracy, social stigma, social and cultural norms and lack of exposure to sexual health among females. This invites need for health education awareness & counselling among females as well as among school going children and young adults , periodically, so that, sexual health can be promoted in developing countries like India.

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