SHORT COMMUNICATION

Prevalence of HIV and Syphilis in STD Patients in a Tertiary Care Hospital of Nagpur India

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Abstract

Background: *Strong epidemiological evidence now exists to support the hypothesis that sexually transmitted infections (STIs), particularly genital ulcer disease (GUD), facilitate the sexual transmission of HIV. Serological surveys in India have revealed high seroprevalence rates ranging from 9.07% among high risk STI patients in Himachal Pradesh to 21.9% in long distance truck drivers in central India. Hence this study was carried out to detect the prevalence of HIV and syphilis in Nagpur, central India.* ***Materials & Methods:*** *Total 1773 patients were tested for HIV testing according to NACO guidelines and modified VDRL test.* ***Results:*** *Out of 1773 patients 976 were males and 797 were females. The prevalence of HIV and Syphilis was more in the age group 26-35 years that is 1.41% (7 cases) and 1.61%(8 cases) respectively. Total prevalence of HIV and Syphilis was 0.79% and 0.68% respectively. Out of 1773 cases, 10(0.56%) cases showed co-infection. The prevalence of HIV and Syphilis was high (0.79% and 0.68% respectively) in STD patients as compared to blood donors (0.34% and 0% respectively).* ***Conclusion:*** *The prevalence of HIV and Syphilis is very low in this region. This may be due to targeted intervention and implementation of syndromic management of sexually transmitted diseases.*

Keywords: *HIV, STD, Syphilis*

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Introduction

Sexually transmitted infections (STIs) are a significant public health problem worldwide.[1] Strong epidemiological evidence now exists to support the hypothesis that sexually transmitted infections (STIs), particularly genital ulcer disease (GUD), facilitate the sexual transmission of HIV.[2] The incidence of some sexually transmitted infections (STI) such as syphilis is increasing worldwide.[1] Sexually transmitted infections (STIs) have been identified as cofactors of HIV transmission.[3]

Syphilis is highly infectious but easily curable in its early stages. If untreated, it can lead to serious long-term complications, including neurological problems, cardiovascular disease, organ damage, and even death.[1] It is currently estimated that India has 2–3 million individuals infected with HIV, and the primary mode of HIV transmission has been via heterosexual contact. HIV transmission has been shown to be strongly associated with repeated sexually transmitted infections (STIs) and sexual behavior. HIV and STIs are linked in that both are transmitted by unprotected sexual behavior, the presence of an STI can facilitate the acquisition and transmission of HIV infection, and some STI pathogens may be more virulent in the presence of HIV-related immunodeficiency.[3]

Serological surveys in India have revealed high seroprevalence rates of syphilis ranging from 9.07% among high risk STI patients in Himachal Pradesh to 21.9% in long distance truck drivers in central India.[2] Given the synergistic transmission of STIs and HIV, the present study was carried out to detect the

prevalence of HIV and syphilis in Nagpur, central India. Greater understanding of local STI burdens can assist in the development of more effective STI and HIV prevention strategies. Hence this study was carried out to detect the prevalence of HIV and syphilis in Nagpur, central India and also to compare the prevalence of HIV and Syphilis in blood donors simultaneously.

Materials & Methods

The study was carried out in the ICTC, Department of Microbiology, Indira Gandhi Government Medical College, Nagpur, from the patients who were referred from STD clinic. The study was conducted for the period of one year from April 2014 to March 2015. After counseling of the patients, 5 ml of blood was collected and submitted for HIV testing according to NACO guidelines[4] and modified VDRL (RPR) as per manufacturer's instructions (Span Diagnostic Ltd).

Total 1773 samples were collected and subjected for HIV and RPR testing. The prevalence for these infections and their co-infection rates were evaluated. We also studied the seroprevalence of HIV and Syphilis in healthy population that is blood donors for the same period.

Results

In the present study, out of 1773 patients 976 were males and 797 were females (Table- 1). The male-female ratio was 1:1.2. Among 976 males, 8(0.82%) were reactive for HIV antibodies and 3(0.30%) were reactive for RPR. Among 797 females, 06(0.75%) were reactive for HIV antibodies and 09(1.13%) were reactive for RPR.

Table- 1: Gender wise distribution of patients

Gender	Samples tested	HIV^{+ve}	RPR Reactive
Male	976	08(0.82%)	03(0.30%)
Female	797	06(0.75%)	09(1.13%)
Total	1773	14(0.79%)	12(0.68%)

The prevalence of HIV and Syphilis was more in the age group 26-35 years as compare to other age groups that is 1.41%(7 cases) and 1.61%(8 cases) respectively. Total prevalence of HIV and Syphilis was 0.79% and 0.68% respectively (Table- 2).

Table- 2: Age wise distribution

Age (years)	Cases	HIV positive	RPR reactive
18-25	577	03 (0.52%)	02 (0.35%)
26-35	496	07 (1.41%)	08 (1.61%)
36-45	444	03 (0.68%)	01 (0.23%)
>45	256	01 (0.39%)	01 (0.39%)
Total	1773	14 (0.79%)	12 (0.68%)

The RPR titre in syphilitic patients was ranging from 1:8 to 1:64; whereas in HIV positive patient was ranging from 1:8 to 1:32. Out of 1773 cases 10(0.56%) cases showed co-infection (Table- 3). We also studied the seroprevalence of HIV and Syphilis in healthy population that is blood donors. Table- 4, shows the comparison of HIV and Syphilis positivity in blood bank and STD clinic. The prevalence of HIV and Syphilis was high (0.79% and 0.68% respectively) in STD patients as compared to blood donors (0.34% and 0% respectively). HIV positivity in blood donors was high in the age group 26-35 years that is 12(66.6%) followed by 18-25 years 6(33.3%)

Table- 3: Co-infection of HIV and Syphilis

		Tested for HIV		Total
		Positive	Negative	
Syphilis	Reactive	10	02	12
	Non-reactive	04	1757	1761
Total		14	1759	1773

Table- 4: Positivity in blood bank & STD clinic

Site	Samples tested	HIV positive	RPR reactive
Blood Bank	5251	18 (0.34%)	00 (0 %)
STD Clinic	1773	14 (0.79%)	12 (0.68%)

Discussion

In our study the prevalence of HIV (0.79%) and Syphilis (0.68%) was low as compare to other studies. López VC, et al[1] showed prevalence of HIV and Syphilis as11.2% and 14.1% respectively. Hoeka AV et al[5] showed prevalence of HIV 1.4% and syphilis 14% among sex workers in China. Hussain T et al[6]

showed prevalence of HIV 2.4% and syphilis 5.4% in Northern India, whereas Griemberg G, et al[7] showed prevalence of HIV 14.5% and syphilis 30.2% in Argentina.

The positivity of HIV was more in males 8(0.82%) than females 6(0.75%) whereas positivity of Syphilis was more in females 9(1.13%) than males 3(0.30%). Kumarasamy N et al[3] and Hussain T et al[6] also showed that females were significantly more affected with syphilis than males in northen India and in South India respectively. Whereas G Griemberg et al[7] showed prevalence of both HIV and syphilis was significantly more in males in Argentina.

In our study, maximum number of patients infected with HIV and Syphilis were in the age group of 26-35 years of age. This could be attributed to more risky sex behavior practices in this age group. Similar findings have been shown by Gedam and Ahmed[8]. López VC et al[1] showed a significant proportion of patients with HIV infection and syphilis were older than 45 years.

In our study, co-infection was seen in 0.56% (10 cases) which is lower as compare to other studies.[1] The prevalence of HIV in blood donors was 0.34% and of syphilis was 0% in our study. Chandra T et al (2009)[9] showed that the prevalence of HIV and Syphilis in blood donors was 0.23% and 0.01% in Lukhnow. Similar findings were shown by Khan MI et al (2015)[10] in Adilabad Telangana. Gedam and Ahmed showed 0.11% prevalence of syphilis in blood donors in the same region during 2012-13.[8]

Conclusion

We concluded that the prevalence of HIV and Syphilis is very low in this tertiary care hospital. This may be due to targeted intervention and implementation of syndromic management of sexually transmitted diseases. Patients are accepting the HIV/STI prevention programme very well. The prevalence of HIV and syphilis is declining over a period of time.

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References

1. López VC, Ortiz AP, Banerjee G, Gertz AM, García H. HIV and Syphilis Infection among Men attending a Sexually Transmitted Infection Clinic in Puerto Rico. PR Health Sci J. 2013;32(1):8-13. [PubMed]
2. Reynolds SJ, Risbud AR, Shepherd ME, Rompalo AM, Ghate MV, Godbole SV, Joshi SN, Divekar AD, Gangakhedkar RR, Bollinger RC, Mehendale SM. High rates of syphilis among STI patients are contributing to the spread of HIV-1 in India. Sex Transm Infect. 2006;82(2):121-126. [PubMed] http://dx.doi.org/10.1136/sti.2005.015040
3. Kumarasamy N, Balakrishnan P, Venkatesh KK, Srikrishnan AK, Cecelia AJ, Thamburaj E, Solomon S, Mayer KH. Prevalence and Incidence of Sexually Transmitted Infections among South Indians at Increased Risk of HIV Infection. AIDS Patient Care STDS. 2008;22(8):677-682. http://dx.doi.org/10.1089/apc.2007.0166
4. NACO Guidelines on HIV testing. March 2007:38-53.
5. Hoeka AV, Yuliang F, Dukers NH, Zhiheng C, Jiangting F, Lina Z, Xiuxing Z. High prevalence of syphilis and other sexually transmitted diseases among sex workers in China:potential for fast spread of HIV. AIDS 2001;15(6): 753-759. [PubMed] http://dx.doi.org/10.1097/00002030-200104130-00011
6. Hussain T, Kulshreshtha KK, Sinha S, Yadav VS, Katoch VM. HIV, HBV, HCV, and syphilis co-infections among patients attending the STD clinics of district hospitals in Northern India. International Journal of Infectious Diseases. 2006;10:358-363. http://dx.doi.org/10.1016/j.ijid.2005.09.005
7. Griemberg G, Bautista CT, Pizziment MC, Orfus,Alonso B, Fernandez T, Cando O, Peralta LM. High prevalence of syphilis-HIV co-infection at four hospitals of the City of Buenos Aires, Argentin. Revista Argentina de Microbiología. 2006;38:134-136.
8. Gedam DS, Ahmed S. Seroprevalence of Syphilis in HIV positive patients in Central India. NJIRM 2014;5(3):145-146.
9. Chandra T, Kumar A, Gupta A. Prevalence of transfusion transmitted infections in blood donors: an Indian experience. Trop Doct. 2009;39:152-154. [PubMed] http://dx.doi.org/10.1258/td.2008.080330
10. Khan MI, Tanvir KT, Vaghela MN. Prevalence of HIV, HBV, HCV and SYPHILIS in Blood Donors in Adilabad Region. J Cont Med A Dent. 2015;3(2):17-21. http://dx.doi.org/10.18049/jcmad/324