Saudi Journal of Pathology and Microbiology (SJPM) **ISSN 2518-3362 (Print)**
Scholars Middle East Publishers **ISSN 2518-3370 (Online)**
Dubai, United Arab Emirates
Website: http://scholarsmepub.com/

A Study of Seroprevalence of Syphilis in HIV Positive Cases of ICTC at Tertiary Care Centre

Dr. Isha Mehta[1], Dr. Anil Chaudhary[2*], Dr. G.U Kavathia[3]
[1]Senior Resident, M P Shah Medical College, Jamnagar, Gujarat, India
[2]Assistant Professor, Banas Medical College and Research Institute, Palanpur, Gujarat, India
[3]Associate Professor, P.D.U Medical College, Civil Hospital Campus, Sadar, Rajkot, Gujarat, India

Original Research Article

***Corresponding author**
Dr. Anil Chaudhary

Article History
Received: 05.12.2018
Accepted: 12.12.2018
Published: 30.12.2018

DOI:
10.21276/sjpm.2018.3.12.1

Abstract: Human Immunodeficiency Virus (HIV) causes Acquired Immunodeficiency Syndrome (AIDS). It is a serious disorder of the immune system in which the body's normal defenses against infection break down, leaving it vulnerable to a host of life-threatening infections. Human immunodeficiency and Treponema pallidum causative organism of syphilis share mode of transmission and risk factors. The study was conducted to assess the extent of seropositivity of syphilis among HIV positive patients at tertiary care hospital in Rajkot from JUNE 2016 to MAY 2017 and evaluate the need of routine screening for this infection among such patients. The samples were tested for HIV as per Strategy III of National AIDS control organization by using different system of testing to establish diagnosis of HIV. Samples were tested for antibodies to Treponema Pallidum by qualitative Rapid Plasma Reagine (RPR); reactive samples were retested with quantitative RPR (to rule out biological false positive samples) and by qualitative Treponema Pallidum heamagglutination test (TPHA) for confirmation of positive samples. Out of total 300 HIV positive patients, 69.67% were male and 30.00% were female. Only one was transgender. Out of 300 samples tested, 7(2.33%) samples were positive for syphilis with 5(2.39%) of male and 2(2.22%) of female patients. Higher prevalence was observed in age group of 21-30yrs 3(4.62%) and in male patients. We believe our data could help health professionals to deal better with HIV infected patients. We also believe our data reinforces the need of prevention programs on HIV transmission, which also lead to reduction in prevalence of Syphilis.
Keywords: HIV, Syphilis, Seroprevalance.

INTRODUCTION

Human Immunodeficiency Virus (HIV) causes Acquired Immunodeficiency Syndrome (AIDS). It is a serious disorder of the immune system in which the body's normal defenses against infection break down, leaving it vulnerable to a host of life-threatening infections [1].

Almost 35 years have now elapsed. Thirty-five years, in which HIV infection has changed from a fatal condition to a manageable chronic illness. Thirty-five years, in which the development of antiretroviral therapy (ART) has been one of the dramatic advances in the history of medicine. However, for the vast majority of people living with HIV/AIDS, ART is still light years away largely inaccessible in resource-poor countries where HIV continues to devastate families, communities and societies, especially the poor and the socially marginalized [2].

Epidemiologic studies demonstrate that sexually transmitted diseases (STDs) including syphilis, and particularly genital ulcers associated with primary syphilis, are associated with an increased risk of HIV acquisition [3-5]. Although case reports have suggested that coexisting HIV infection may alter the natural history of syphilis, only a few such effects have been demonstrated in large observational studies, notably presentation with multiple or deeper chancres and overlap of primary- and secondary-stage features of syphilis in coinfected patients [6]. Initial serologic responses to early syphilis were shown to be generally equivalent in HIV-negative and -positive individuals [7]. Like many acute infections in the HIV-infected patient, early syphilis may decrease $CD4^+$ T-cell counts (CD4 cell counts) and increase HIV RNA in plasma and semen, although evidence for these effects has been mixed. Routine, periodic screening for STDs in HIV-infected patients is strongly recommended, including serologic testing for syphilis [8].

MATERIALS AND METHODS

This study is undertaken to determine sero-positivity rate of syphilis among Human Immunodeficiency Virus (HIV) reactive cases attending Integrated Counselling and Testing Centre (ICTC), P.

D. U. Goverment Medical College & Hospital, Rajkot. Serums from 300 HIV positive cases were collected from June 2016 to May 2017. These samples were already tested for HIV as per Strategy III of National AIDS control organization by using different system of testing to establish diagnosis of HIV.

- Test-1 – (Comb Aids Test)
- Test-2– (Meriscreen Immunochromatographic Card Test)
- Test-3 – (AIDSCAN Trispot test)

Care has been taken to maintain confidentiality regarding HIV status of an individual and all samples were collected after pretest counselling by counsellor at ICTC centre. Reports were dispatched after post test counselling of an individual by maintaining confidentiality between counsellor and individual tested. No one was allowed to access patient's personal data except Age, Sex & Identification Mark that have to be written on laboratory form. Counsellor at ICTC centre gave all patients unique identification number.

Detection of antibodies to *T. Pallidum*

Rapid Plasma Reagine (RPR)

Reckon® Diagnostics RPR Kit was used. RPR Syphilis screening test is a macroscopic non-treponemal flocculation test for detection and quantify reagin, antibody present in serum or plasma of syphilitic persons. A suspension of modified cardiolipin coated on microparticulate carbon is used as an antigen against the "Reagin" (antibodies). The antigen reacts with "Reagin" in the sample to form black clumps or floccules indicating a positive test.

***Treponema Pallidum* immunochromatography strip test**

SYPHICHECK is a qualitative treponemal test that utilizes the principle of immunochromatography, a unique two site immunoassay on a membrane. As the test sample flows through the membrane assembly of the test dipstick, the recombinant Treponema antigen-colloidal gold conjugate forms a complex with Treponema specific antibodies in the sample. This complex moves further on the membrane to the test region where it is immobilized by the recombinant *Treponema pallidum* antigens coated on the membrane leading to formation of a pink to deep purple coloured band at the test region which confirms a positive test result. Absence of this coloured band in the test region indicates a negative test result. The unreacted conjugate and the unbound complex if any, along with rabbit IgG gold conjugate move furthur on the membrane and are subsequently immobilized by the goat anti-rabbit antibodies coated on the control region of the membrane assembly, forming a pink to deep purple coloured band. The control band serves to validate the test results.

RESULTS

Out of total 300 HIV positive patients, 69.67% were male and 30.00% were female. Only one was transgender. Out of 300 samples tested, 7(2.33%) samples were positive for syphilis with 5(2.39%) of male and 2(2.22%) of female patients. Higher prevalance was observed in age group of 21-30yrs 3(4.62%) and in male patients.

Table-1: Syphilis Prevalence among HIV positive cases in various age groups

Age (Years)	Positive		Negative		Total	
	No.	%	No.	%	No.	%
0 - 10	00	00.00	09	100.00	09	03.00%
11 - 20	00	00.00	15	100.00	15	05.00%
21 - 30	03	04.62	62	95.38	65	21.67%
31 - 40	03	03.19	91	96.80	94	31.33%
41 - 50	00	00.00	66	100.00	66	22.00%
51 - 60	01	02.50	39	97.50	40	13.33%
≥ 61	00	00.00	11	100.00	11	03.67%
Total	07	02.33%	293	97.66%	300	100.00%

Table no 1 show that out of total 300 HIV positive patients, Only 7 patients were reactive out of which 3 were in age group of 21-30 yrs and 31-40 yrs and only one was reactive in age group of 51-60yrs.

Table no 2 shows that out of total 300 HIV positive patients, Only 7 patients had T.pallidum antibody in which 5 were male and 2 were female.

Table-2: Syphilis Prevalence among HIV positive cases according to sex

Sex	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Male	05	02.39	204	97.61	209	69.67%
Female	02	02.22	88	97.78	90	30.00%
Transgender	00	00.00	01	100.00	01	00.33%
Total	07	2.33%	293	97.67%	300	100%

DISCUSSION

Table-3: Comparison of Syphilis Prevalence among HIV positive cases

Sr. No.	Study	Total Sample	RPR & Treponemal IC Test Postive	Percentage
1	W. Phipps	814	15	01.84
2	Present study	300	7	2.33
3	Bordon J	972	31	03.19
4	Lim ML	462	24	05.19
5	Dr.Antala	200	12	06.00
6	Susan Cu-Uvin	841	71	08.44
7	Horvath L	49	6	12.24
8	Plettenberg A	402	141	35.07

Syphilis prevalence among HIV positive cases varies from 1.84% to 35.07% in different studies. Present study shows syphilis prevalence of 2.33% among HIV infected patients. There are limited published reports of STD prevalence rates among patients seen in HIV primary care clinics for comparison.

Table-4: Comparison of Syphilis Prevalence according to Sex among HIV positive cases

SEX	Present study Positive %	Dr. Antala [1] Positive %
Male	2.39%	5.0%
Female	2.22%	8.33%

In present study the rate of co-infection is slightly higher in males (2.39%) than females (2.22%) as in the study conducted by Dr. Antala [1] which showed higher prevalence in female (8.33%) than in male (5%).

Table-5: Comparison of Syphilis Prevalence according to Age among HIV positive cases

Age Group	Dr. Sejul Antala [1]	Present study
	Positive %	Positive %
≥20	00.00	00.00
21–30	8.24	4.62
31–40	4.23	3.19
41–50	7.67	00.00
≤51	00.00	2.50

Highest prevalence is among age group 21 – 30 (4.62%) followed by age group 31 – 40 (3.19%) and 51 – 60 (2.50%).

CONCLUSION

Out of total 300 HIV positive patients, 69.67% were male and 30.00% were female. Only one was transgender. Out of 300 samples tested, 7(2.33%) samples were positive for syphilis with 5(2.39%) of male and 2(2.22%) of female patients. Higher prevalance was observed in age group of 21-30yrs 3(4.62%) and in male patients. Our results are comparable with some of the studies conducted in India and abroad.

We believe our data could help health professionals to deal better with HIV infected patients. We also believe our data reinforces the need of prevention programs on HIV transmission, which also lead to reduction in prevalence of Syphilis.

REFERENCES

1. Sejul, A. (2006). Study on Seroprevalance of hepatitis B, hepatitis C, and Syphilis in HIV positive patients INICTC, Rajkot.
2. Harsha, K. (2011). Study on TB patients who are HIV positive and its corelation with CD4 count. (http://14.139.159.4:8080/jspui/bitstream/123456789/7771/1/Harsha%20Kumar%20H%20N.pdf)
3. Wasserheit, J. N. (1992). Epidemiological synergy. Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases. *Sexually transmitted diseases*, *19*(2), 61-77.
4. Royce, R. A., Sena, A., Cates Jr, W., & Cohen, M. S. (1997). Sexual transmission of HIV. *New England Journal of Medicine*, *336*(15), 1072-1078.
5. Stamm, W. E., Handsfield, H. H., Rompalo, A. M., Ashley, R. L., Roberts, P. L., & Corey, L. (1988). The association between genital ulcer disease and acquisition of HIV infection in homosexual men. *Jama*, *260*(10), 1429-1433.

6. Tucker, S. C., Yates, V. M., & Thambar, I. V. (1997). Unusual skin ulceration in an HIV-positive patient who had cutaneous syphilis and neurosyphilis. *British Journal of Dermatology*, *136*(6), 946-948.
7. Rompalo, A. M., Joesoef, M. R., O'donnell, J. A., Augenbraun, M., Brady, W., Radolf, J. D., ... & Syphilis and HIV Study Group. (2001). Clinical manifestations of early syphilis by HIV status and gender: results of the syphilis and HIV study. *Sexually transmitted diseases*, *28*(3), 158-165.
8. HealthSeattle, P., & County, K. (2001). Sexually transmitted disease and HIV screening guidelines for men who have sex with men. *Sexually transmitted diseases*, *28*(8), 457-459.