Prevalence of HIV-2 among persons attending Integrated Counselling and Testing Centre at Gandhi Hospital

V Sudha Rani[1], Nirmal Kumar Saxena[2]

[1]Professor, Department of Microbiology, Kakatiya Medical College, Warangal, [2]Professor & Head, Department of Microbiology, Gandhi Medical College, Secunderabad, India.

Address for correspondence: Dr V Sudha Rani, Professor,Department of Microbiology, Kakatiya Medical College, Warangal,Telangana,India.

email address: sudhavannavada1965@gmail.com

ABSTRACT

Objective: To study the prevalence of HIV-2 at Gandhi hospital Secunderabad.

Materials & Methods: 2765 serum samples collected between April 2008 and March 2009 from persons attending Integrated Counselling and Testing Centre (ICTC) were screened for HIV by Combaids.HIV reactive sera were further tested by Retroquic and Enzyme immunoassay.

Results: Out of 2765 serum samples tested, 541 samples were positive for HIV-1, 14 (2.6%) were positive for HIV-2, 11 samples (2.03%) were positive for HIV-2 alone and 3(0.55%) were positive for HIV-1&2. All of them were confirmed by Retroquic and Enzyme immunassay.

Conclusion: HIV-2 infection is not uncommon in Secunderabad, which being a cosmopolitan city, there is movement of population. Though the epidemic of HIV-1 is progressing faster than that of HIV-2, monitoring of HIV-2 epidemic is also essential to determine the extent of problem in India. Close monitoring is necessary in all regions of the country so that blood donor screening for both HIV-1 & 2 can be instituted in areas where HIV-2 becomes prevalent.

Keywords: Prevalence, HIV-2, ICTC

INTRODUCTION

Human immunodeficiency virus 2(HIV-2) was first isolated in 1986 in Portugal from patients with AIDS, who came from West Africa.[1]It is similar to HIV-1 biologically, morphologically and in genetic organisation. HIV-2 has an overall 30-60% nucleotide homology with HIV-1.It lacks the Vpu accessory gene. It is more closely related to simian immunodeficiency virus than to HIV1.It is only weakly reactive with HIV-1 antiserum. It is less virulent than HIV-1 and has lower transmissibility through sexual and perinatal routes.[2]

Evidence that HIV-2 infection by comparison with HIV-1 showed decrease CD4 cell killing[3] and lower viral burdens[4] supported this hypothesis. Overall therefore by comparison with HIV-1, HIV-2 is characterised by lower rates of sexual and perinatal transmission, less cell killing, lower viral burden, more gradual CD4 cell loss, slower rates of progression to AIDS and death and relative geographical confinement.[5] The clinical signs and symptoms of immunodeficiency associated with HIV-2, as its early descriptions are similar to the ones seen among the HIV-1-infected individuals. Like HIV-1, HIV-2 virus infection can also progress to AIDS.[6] There are several reports of AIDS cases in HIV-2-infected individuals reported as early as late 1980s.[6] Opportunistic infections reported in these individuals were chronic diarrhoea, weight loss, and toxoplasmosis of the brain, candidaloesophagitis, pulmonary tuberculosis, other mycobacterial infections and Kaposi's sarcoma.[6] The mean and median survival time after the diagnosis of AIDS were longer for HIV-2-infected individuals than for HIV-1-infected individuals even after adjustments for the CD4 count and age although the mean total number of opportunistic infections seen among both the cases was same.

However, there was no observed difference in the mortality rate among the HIV-1, HIV-2 and dually infected individuals with < 200 CD4 cells although a significant lower mortality was observed among HIV-2-infected individuals with CD4 count of > 500 cells/µl. Infection with HIV-2 is endemic in many countries in West Africa but generally much rarer elsewhere in the world. Nevirapine prophylaxis, currently being used in Prevention of Parent to Child Transmission Program in our country, is ineffective in HIV-2 infection. Zidovudine therapy has been demonstrated to reduce the risk for perinatal HIV-1 transmission and also might prove effective for reducing perinatal HIV-2 transmission. Zidovudine therapy should be considered for HIV-2 infected expectant mothers and their newborns, especially for women who become infected during pregnancy.[7] In India HIV-2 infection has been first reported in the city of Bombay in 1991.[8]Serological evidence of HIV-2 infection in India has been detected and reported from Delhi,[9] Maharashtra state[10], southern states[11] and Visakhapatnam.[12]

The present study is conducted to detect the prevalence of HIV-2 among people attending ICTC at Gandhi hospital, Secunderabad.

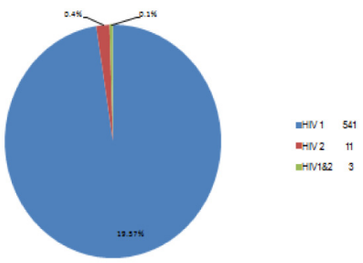
MATERIALS AND METHODS

A total of 2765 serum samples were collected between April 2008 and March 2009 from persons attending ICTC(Integrated counselling and testing centre) at Gandhi hospital and screened for HIV antibodies by Comb aids after pre-test counselling. Study group included persons with high risk behaviour and referral cases from STD clinic.Comb aids is a rapid dot immunoassay supplied by NACO(National aids control organisation) which can detect both HIV-1&2, but cannot differentiate them. All reactive sera were retested by two different tests as per NACO guidelines, Retroquic and HIV EIA Comb. Retroquic is a line immunoassay which can differentiate HIV-1& 2. The tests were performed and interpreted as per the manufacturer's instructions.

RESULTS

Of the total 2765 sera tested 555 samples were reactive by Comb aids. All reactive sera were further tested by Retroquic and enzyme immunoassay. Out of the reactive sera, 541 were reactive for HIV-1(19.57%), 11 were reactive for HIV-2 and 3 samples were reactive for both HIV-1& 2.Among reactivesera prevalence of HIV-2 was 2.6%, and dual infection was 0.5%.[Figure-1] Out of 14 HIV-2 reactive sera, 9 samples were from males and 5 samples were from females, who were commercial sex workers. Of the 9 males, 5 persons had high risk behaviour, 2 persons had frequent visits to Bombay and 1 person had multiple sex partners and in one case cause of HIV-2 could not be elicited. Prevalence was high among persons with high risk behaviour [Table1].Both HIV-1 &2 were common in males. Highest prevalence of HIV-2 was seen among persons with high risk behaviour and those who visited portal cities.

Figure 1: Distribution of HIV-1 & 2 among reactive sera



MALES	FEMALES
High risk behaviour - 5 Persons who visited portal cities- 2 Multiple sex partner -1 Cause could not be elicited -1	Commercial sex workers - 5

Table 1: Distribution of different categories as per the risk group

DISCUSSION

In India there are reports about HIV-2 infection from Northern parts like Banaras, (3.2%)[13] Uttar Pradesh (7.37%)[14] and Calcutta (2.1%)[15]. In the present study, prevalence of HIV-2 (1.98%) is lower than that seen in Northern parts but higher to that reported from Christian medical college, Vellore (0.16%).

Out of the 14 HIV-2 reactive sera, 9 samples were from males and 5 from females. Of the 5 females who were reactive for HIV-2, 3 samples were from commercial sex workers and 2 samples were from females whose husbands were also reactive for HIV-2.Of the 9 males, 6 persons had high risk behaviour, 2 persons had high risk behavior with history of frequent visits to Bombay and in one case mode of transmission of HIV could not be ascertained. Prevalence was high among persons with high risk behaviour as the spread of HIV-2 appears to be occurring through heterosexual contact similar to that reported from Maharashtra state[16]. Blood donors were not included in our study.

Though the epidemic of HIV-1 is progressing faster than that of HIV-2, monitoring of HIV-2 epidemic is also essential to determine the extent of problem in India. Little is known about the best approach to the clinical treatment and care of patients infected with HIV-2. Given the slower development of immunodeficiency and the limited clinical experience with HIV-2, it is unclear whether antiretroviral therapy significantly slows progression. Not all of the drugs used to treat HIV-1 infection are as effective against HIV-2. In vitro (laboratory) studies suggest that nucleoside analogs are active against HIV-2, though not as active as against HIV-1. Protease inhibitors should be active against HIV-2. However, non-nucleoside reverse transcriptase inhibitors (NNRTIs) are not active against HIV-2. Whether any potential benefits would outweigh the possible adverse effects of treatment is unknown.Monitoring the treatment response of patients infected with HIV-2 is more difficult than monitoring people infected with HIV-1. No Food and Drug Administration (FDA)-licensed HIV-2 viral load assay is available yet.

CONCLUSION

Viral load assays used for HIV-1 are not reliable for monitoring HIV-2. Response to treatment for HIV-2 infection may be monitored by following CD4+ T-cell counts and other indicators of immune system deterioration such as weight loss, oral candidiasis, unexplained fever, and the appearance of a new AIDS-defining illness. More research and clinical experience is needed to determine the most effective treatment for HIV-2.

So it is high time to assess the exact prevalence and incidence of HIV-2 infection in India and to frame special guidelines and different regimens for management of HIV-2 infection and for the prevention of mother to child transmission. Otherwise, we will have to face serious resistant

strains of HIV-2 which will possibly pose a problem in our country in the future as the present regimen given in government anti retroviral therapy (ART) centers is not highly active anti retroviral therapy (HAART).Close monitoring is necessary in all regions of the country so that blood donor screening for both HIV-1 & 2 can be instituted in areas where HIV-2 becomes prevalent.

REFERENCES

1. ClavelF.Guetard D, Burn – Vazinet F et al. Isolation of new human retrovirus from west African patients with AIDS. Science 1986; 233: 343-46.
2. Kanki PJ, Decock KM. Epidemiology and natural history of HIV-2, AIDS 1994; 8: 585-93.
3. Looney, DJ, Huyashi S,Nicklas M,etal. Differences in the interaction of HIV -1 and HIV – 2 with CD 4. J Acquire Immune Defic, syndr 1990; 3:649-57.
4. Simen F, MetheronS,Tamelet C, et al. Cellular and plasma development after HIV –2 infection as compared to HIV-1. Science 1994; 265: 1587 -90.
5. Micheal V O' shanghnessy, Martin J Schechter, Learning about HIV-2. The Lancet 1994; 344: 1380-3381.
6. De Cock KM, Odehouri K, Colebunders RL, Adjorlolo G, Lafontaine MF, Porter A, et al. A comparison of HIV-1 and HIV-2 infections in hospitalized patients in Abidjan, Cote d'Ivoire. AIDS 1990;4:443-8.
7. Agrawal S, Sawant S, Shastri J. Prevalence of HIV-2 infection in Mumbai. Indian J DermatolVenereolLeprol 2010;76:709-10.
8. Rubsamen- Waigmann H, Maniar J, Gerte S et al.High proportion of HIV-2 and HIV-1/2 double reactive sera in two Indian states, Maharastraand Goa: First appearance of an HIV-2 epidemic outside of Africa.Int J Med MicrobiolVirolParasitol Infect Diseas1994;280:398-402.
9. Nair D,Sharma VK and Mathur MD. Discrimination of HIV -1 and HIV-2 infection in anti HIV antibody positive individuals in Delhi. Indian J med Microbiol 1997; 15(2) :82.
10. Kulkarni S, Thakar M, Rodrigues J and Benerjee K. HIV -2 antibodies in serum samples from Maharastra state. Indian J med Res 1992; 95: 213-215.
11. Banu S, Vennila R and Jagdeshwari. Detection of HIV-2 infection in Chennai. Indian J med Res 1997; 15(1): 21-22.
12. Babu PG, Saraswati NK, Devapriya F and John TJ, the detection of HIV-2 infection in southern India 1993; 97 :47-52.
13. A.K. Gulati, G.Nath. HIV-2 in eastern part of Northern India. Indian J Med Microbiol 1998; 16(1):45.
14. R.Kulshreshtha, Ashe Mathur, D.Chattopadhya& U.C. Cheturvedi HIV-2 prevalence in Uttar Pradesh. Indian J Med. Res. 103, March 1996; 131-133.
15. `D.H. Neogi, N.Bhattacharya, T.Chakrabarti, K.K.Mukherjee and S.C.Hazra: Prevalence of HIV-2 and the mode of transmission in West Bengal. Indian J Med Microbiol, 1998; 16 (1):26-28.
16. SmitaKulkarni, MadhuriThakar, Janette, Rodrigues &KalyanBenerjee. HIV-2 antibodies in serum samples from Maharashtra state Indian J Med Research [A] 95 Sep 1992; 213-215.

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