

HIV-2 infection: Current Spectrum in a Tertiary Care Hospital in Western Maharashtra



Microbiology

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Dr. Vijay Narayan Kulkarni

Associate Professor, Department of Microbiology, Rajarshi Chhatrapati Shahu Maharaj Govt. Medical College, Kolhapur, CPR General Hospital campus, Dassara Chowk, Kolhapur – 416002, Maharashtra, INDIA

Dr. Shilpa Dayanand Putta

Asst. Professor, Department of Microbiology, Rajarshi Chhatrapati Shahu Maharaj Govt. Medical College, Kolhapur, CPR General Hospital campus, Dassara Chowk, Kolhapur – 416002, Maharashtra, INDIA

Dr. Vanita Ashok Kulkarni

Professor & Head, Department of Microbiology, Rajarshi Chhatrapati Shahu Maharaj Govt. Medical College, Kolhapur, CPR General Hospital campus, Dassara Chowk, Kolhapur – 416002, Maharashtra, INDIA

ABSTRACT

HIV-2 is milder, less pathogenic and slower progression as compared to HIV-1. It is also intrinsically resistant to few anti-retroviral drugs. HIV-2 predominantly found in West Africa. Its data in India is restricted due to very fewer studies on its prevalence. Keeping in mind these facts current study was conducted. Retrospective analysis of data over the three year period was carried out to calculate prevalence of HIV-2. National Aids Control Organisation (NACO) strategies were followed for testing and result interpretation. Among the total samples tested 0.04% population were only HIV-2 positive and 0.12% were found to be positive dual infection (HIV-1+HIV-2). We conclude here that data on HIV-2 prevalence is restricted and variable. Need to assess trend in HIV-2 occurrence across in India by multicentre studies.

Introduction:

Traditionally HIV-1 is known to be responsible for majority of cases Acquired Immunodeficiency Syndrome (AIDS) worldwide. Though HIV-1 is global minority of cases represented by HIV-2 infection. HIV-1 and HIV-2 are very closely related but they differ in pathogenicity, history and antiviral susceptibility HIV-2. HIV-2 is known to be intrinsically resistant to Non-Nucleoside Reverse Transcriptase Inhibitors and Fusion Inhibitors.(1,2,3) Therefore, need to select different antiretroviral regimen HIV-2 cases.

It was first isolated in 1985, from AIDS patients in West Africa. (2,4) Initially HIV-2 infection showed predilection for certain geographical belt which included mainly West Africa. Other than Africa it has been found to be prevalent in Cape Verde, Gambia, Mali, Senegal, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone. (2,5) Though few studies conducted in India to know the prevalence of HIV-2, still data on distribution of HIV-2 and dual infection across Indian subcontinent is limited.(6,7,8) There is need to know the current scenario of HIV-2 and HIV-1/HIV-2 dual infection among Indian population so as to formulate effective antiretroviral regimen.

Keeping this aim in mind, the present study was intended to find out the prevalence of HIV-2 and HIV-1/HIV-2 dual infection at tertiary care hospital, Kolhapur.

Material and Methods:

This study was carried out at ICTC (Integrated Counselling and Testing Centre) of a tertiary care hospital, R.C.S.M. Govt. Medical College and C.P.R. Hospital, Kolhapur, Maharashtra. We analyzed data retrospectively over 3 year period from February 2013 to January 2016. Before testing counseling of patients were carried out centre and informed consent were taken for diagnostic test. Epidemiological data also collected during counseling which can be important in correlation of risk factors analysis. Testing algorithm was as according to NACO (National Aids Control Organization) guidelines.(9) samples were collected as per standard protocol following universal safety precautions. All collected samples were tested for HIV-1 and HIV-2 by using rapid immunochromatographic tests. Strategy III of NACO guidelines was followed for diagnosis and interpretation of test. (9) Under this strategy, three different kits used for testing. First test

used was COMBAIDS –RS Advantage[®]-ST kit principle based on Enzyme immunoassay which also have highest sensitivity. While second and third test used AIDSCAN[®] HIV-1/2 TRISPOT which have principle immunoconcentration and SD BIOLINE HIV-1/2 immunochromatographic test respectively. Both have high specificity In case of discordant result samples were sent to National Reference Laboratory for further confirmation.

Results:

A total of 34702 samples were collected and tested for HIV antibodies at ICTC during three year duration. Among these 2220 (6.40%) clients were found to be positive for HIV antibodies.(Table 1) 2164 (6.24%) patients were infected by HIV-1 only while HIV-2 infected population were 15(0.04%) while dual infection (HIV-1+HIV-2) infected population contributed were 40(0.12%). While 0.01% patients samples tested were indeterminate. Those samples were store and sent to reference laboratory further confirmation by western blot technique. Overall HIV-2 positivity (including both HIV-2 only infection and HIV1+HIV-2 dual infection) was 0.16%. (graph1)

On evaluation of risk factors for HIV acquisition, we didn't find any association between any risk factor and HIV-2 incidence.

Discussion:

In majority of the studies conducted in which the estimation of HIV-2 prevalence is not usually the focal objective, and at present worldwide as well as in India fewer data published on HIV-2 prevalence than on HIV-1. Furthermore, these data are diverse in terms of study populations which makes comparisons among different countries difficult.

Though HIV-2 have slower rate of progression as well as less pathogenic as compared to HIV-1, they can be dreadful pathogen due to their intrinsic resistance towards anti-retroviral drugs Non-nucleoside reverse transcriptase inhibitors and fusion inhibitors. (1,2,3,4,5) Therefore this study was aimed to know the current spectrum of HIV-2 infection in and around tertiary care hospital, Kolhapur.

In the current study, we had found only HIV-2 prevalence 0.04% and HIV-1 and HIV-2 dual infection prevalence 0.12%. Combining both above data overall HIV-2 prevalence found to be 0.16%

in a tertiary care Hospital, Kolhapur. These findings are in accordance with Ingole et al study(6), they had observed HIV-2 prevalence around 0.14% . Also the present findings are well correlating with the study conducted by Chander et al.(10) they noted 0.18% sero-positivity for anti-HIV-2 antibodies.

Although above findings indicative of similar prevalence there are few studies conducted especially in India which shows slightly higher prevalence of HIV-2 infection. Soloman *et al* (11). Observed a prevalence of 0.8% of HIV-2 among urban population and 0.3% among rural population in Tamil Nadu. Murugan et al(12) noticed a prevalence of 0.29% of HIV-2 infection in south Tamil Nadu. Similarly, study conducted by Agrwal et al(13) showed higher HIV-2 prevalence of 0.35% in Mumbai.

This discrimination between different studies in India proves that there is currently a diverse wave of HIV-2 in India. Also, very fewer studies across India especially Eastern and North Indiaas

there are hardly any studies from North and East India, necessitate further large studies in different areas to know the exact seroprevalence of HIV-2 and assessment of geographical association of HIV-2 in India .

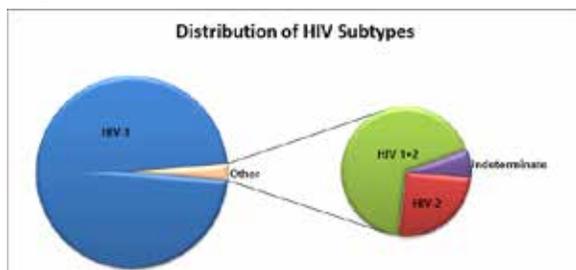
Conclusion:

By this study we conclude here that, HIV-2 infection is building space into areas with previous exclusive HIV1 infection. This infection and its spread need to be monitored and therapeutic guidelines framed for HIV 2 & dual infections to prevent a spread of HIV in India. If it is not curtailed in time by proper diagnosis, in future serious anti-retroviral drug resistance can be a challenge ahead and this can create panic across India and worldwide. So this is the high time to create awareness among general population and also different health care workers so as to prevent emergence and spread of HIV-2 epidemic all over India.

Table 1:

Year	Total samples	Total HIV positive	HIV-1	HIV-2	HIV-1/2 Dual infection	Indeterminate
2013	10026	853(8.51%)	839(8.37%)	3(0.03%)	11(0.11%)	3(0.03%)
2014	10143	706(6.96%)	692(6.82%)	7(0.07%)	7(0.07%)	1(0.01%)
2015	14533	660(4.54%)	633(4.36%)	5(0.03%)	22(0.15%)	0
	34702	2220(6.40%)	2164(6.24%)	15(0.04%)	40(0.12%)	4(0.01%)

Graph 1:



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