Original Research Paper

Volume-9 | Issue-9 | September - 2019 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Microbiology

SEROPREVALENCE OF HIV-2 IN A TERTIARY CARE HOSPITAL OF CENTRAL INDIA

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ABSTRACT ***Background:*** Human immunodeficiency virus (HIV) belongs to the Genus Lentiviruses and is made up of two main types HIV-1 and HIV-2. India is one of the few countries outside the African continent, in which a dual epidemic of HIV-1 and HIV-2 is occurring.

Methods: The present study was conducted at the ICTC of the microbiology department of Indira Gandhi Govt. Medical College, a tertiary care hospital of Nagpur , to find the prevalence of HIV-2 among ICTC attendees from June 2015 to June 2019. Three test algorithm was used to diagnose HIV-1 and -2 infection.

Results: A total of 1484 confirmed HIV-infected individuals, were included in the analysis over a 4 year period (2015-2019) .Prevalence of HIV-2 in present study is 1.01%, with 0.67% were only HIV-2 , While 0.33% were co infected with HIV-1.Males of elderly age group were common. Most common OIs was tuberculosis(26%) Out of 15 patients only two patients were in WHO clinical staging 4.

Conclusion: As such, seroprevalence of HIV-2 is very low but continued surveillance is needed for HIV-2 to understand the epidemiology and natural history of this complex human pathogen.

KEYWORDS : HIV-2 , Seroprevalence, HIV-1, Co infection

INTRODUCTION

Human immunodeficiency virus (HIV) belongs to the Genus Lentiviruses and is made up of two main types HIV-1 and HIV-2 which are the causative agents of acquired immune deficiency syndrome (AIDS)(1)**.** The human immunodeficiency virus (HIV) continues to be a burden globally and presents serious public health problems in the developing countries, especially in India(2).

India currently harbours 20.89 lakh HIV-infected Patients(3)It is one of the few countries outside the African continent, in which a dual epidemic of HIV-1 and HIV-2 is occurring, though HIV-1 dominates. First, case of HIV-2 from India was reported from Mumbai in 1991 since then, several cases were reported from different states(4).

Both HIV-1 and HIV-2 have the same modes of transmission and are associated with similar opportunistic infections and AIDS(5).HIV-2 appears to be transmitted principally by sexual contact, with prostitutes being the well-studied group (6).HIV-2 infection is less infectious in the early course of the disease. Vertical transmission is also rare(7) .

It is important to differentiate between HIV-1 and HIV-2 virus as clinical course and treatment modalities differ. Non-nucleoside reverse transcriptase inhibitor, which are first line of drugs against HIV-1 virus and are usually given in government ART centres are not effective against HIV-2.

MATERIAL AND METHODS

The present study was conducted at the ICTC of the microbiology department of Indira Gandhi Govt. Medical College, a tertiary care hospital of Nagpur , to find the prevalence of HIV-2 among ICTC attendees. The study included all attendees of the ICTC from June 2015 to June 2019. After obtaining informed consent and pre-test counselling, a blood sample was withdrawn and subjected to three rapid HIV tests as per NACO guidelines(Comb AIDS HIV ½ IMMUNODOT TEST KIT Arkray Health care Pvt Ltd,Signal HIV Flow through HIV 1+2 Spot/ Immunodot Test Kit. , Meriscreen HIV 1-2 WB, Meril diagnostics Pvt Ltd.) following the manufacturer's instructions.

OBJECTIVES

- To know the seroprevalence of HIV-2 and co-infection of HIV -1& HIV-2 among HIV infected individuals and to study the opportunistic infection and outcome of these patients.

RESULTS AND OBSERVATIONS

In the present study, out of a total of 1484 confirmed HIV-infected individuals, 0 .67% (n = 10) were HIV-2 and 0.33% (n = 5) were having dual infection .Patients of 40-50 years age group were most commonly affected. Males were more affected than females in a ratio of 2.75:1. The most common opportunistic infection (OI) was found to be pulmonary tuberculosis (TB) (n = 5) followed by oral candidiasis (n = 4). All patients gave H/O MSM and homosexuality. Out of the total 15 patients 4 were dropout , 2 Not registered in ART. Nine patients gave H/O of improvement, were on ART..

Table 1. Year wise distribution of HIV- POSITIVE CASES

YEAR	HIV -1	HIV-2	CO INFECTED
JAN 2015-DEC 2015	353	2	2
JAN2016-DEC-2016	394	0	2
JAN 2017-DEC 2017	345	0	0
JAN 2018-DEC 2018	276	4	0
JAN -2019 MAY 2019	116	4	1

Table 2. Epidemiological profile of HIV-2 Positive Cases.

PATIENT ID	AGE	SEX	EDUCATION	SEXUAL BEHAVIOUR	OIs	ART registered	CO INFECTION
P-1(Dead)	65	M	4th std	Heter/homo/MSM	TB	YES	NO
P-2	45	M	6TH STD	Heter/homo/MSM	NO	YES	YES
P-3	50	M	4th std	Heter/homo/MSM	C	YES	NO
P-3	56	F	5TH STD	SW	C	YES	NO
P-4	41	M	8TH STD	Heter/homo/MSM	NO	DROPOUT	YES
P-5	47	F	6TH STD	SW	NO	YES	YES
P-6	42	M	5TH STD	Heter/homo/MSM	TB	YES	NO
P-7	38	M	12TH STD	Heter/homo/MSM	NO	YES	NO
P-8	41	F	5TH STD	SW	NO	DROPOUT	NO
P-9	47	M	3RD STD	Heter/homo/MSM	TB	YES	NO
P-10	52	F	4TH STD	SW	TB	YES	NO

P-11	30	M	5TH STD	Heter/homo/MSM	C	DROPOUT	NO
P-12	55	M	7TH STD	Heter/homo/MSM	TB	YES	YES
P13	42	M	5TH STD	Heter/homo/MSM	C	YES	NO
P-14	44	M	5TH STD	Heter/homo/MSM	NO	DROPOUT	NO
P-15	48	M	8TH STD	Heter/homo/MSM	NO	YES	YES

DISCUSSION

Prevalence of HIV-2 in present study is 1.01%, with 0.67% were only HIV-2 , While 0.33% were co infected with HIV-1. Similar result was shown by soloman et al(8) with prevalence of 0.8% of HIV – 2 in urban places of tamil naidu.

In Contrast, Chiara et al(9) reported a very high prevalence of 6%.A very low prevalence of .01% was shown by sabharwal et al(10). Murugan amburjan(7) observed prevalence 0.28%.

In our study male preponderance was seen similar to, jagdish et al(11), tiewosh et al(1) and chiara et al(9).

Most common age group was 40-50 yrs similar to tiewosh et al(1), sabharwal et al(10) and jagdish et al(11).Slow progression and late manifestation of AIDS in HIV-2 patients is the main cause that prevalence is more in elderly age group.

Present study showed dual infection in 0.33% of case. A very high prevalence of dual infection was reported by chiara et al(9) i.e. 1% and kashyap et all(12) 0.005%.

The widespread use of effective chemoprophylaxis for opportunistic infections and, more recently the use of antiretroviral therapy have resulted in change in the pattern of OIs .There is limited data available on OIs in HIV-2 population. In the present study Most common OIs was tuberculosis(26%). similar to jagdish et al(11) and sabharwal et all(10).

Out of 15 patients only two patients were in WHO clinical staging 4, maximum patients were in WHO clinical staging 1, Explaining slower progression of Disease. In contrast chiara et al(9) observed maximum cases in clinical stagin 4.This probably reflects delays in diagnosis which can be due to a slower progression of the disease or to a lack of systematic screening for HIV-2.

In Present study, maximum male patients gave history of MSM, which is one of the most common risk factor associated with HIV-2 transmission. All the patients in present study were sex workers. One patient gave H/O blood transfusion. Thus, we can say sexual transmission is the main mode of transmission for HIV-2. Similar result was shown by amburgan et al(7), chiara et al(9), kashyap et al(12).

CONCLUSION

We conclude that the incidence of HIV-2 and dual infection does occur in our setup and has increased in last few years, with males of older age group being more commonly affected where TB is the most common OI. To understand the epidemiology and natural history of HIV-2 continuous surveillance is required . It is the need of the hour to differentiate between these two viruses and to assess the exact prevalence and incidence of HIV-2 infection in India so as to frame specific guidelines and treatment modalities for management of HIV-2 infections. Otherwise, we will have to face serious resistant strains of HIV-2 which will possibly pose a problem in our country in the future.

ACKNOWLEDGMENT

Authors thank to all the staff of their partner NGOs, MDACS (Maharashtra district aids control society) and NACO (national aids control organisation) for the collaboration and effort they are making to fight HIV-AIDS epidemic in India.

***Conflict of interest*:** We have no conflict of interest to declare.

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