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Prevalence of HIV-2 in ICTC Attendees of a Tertiary Care Hospital, Vijayawada.

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ABSTRACT

Infection with Human Immunodeficiency Virus – 2 occurs mainly in West Africa, but an increasing number of cases have been recognized in Europe, India and the United States. India is one of the countries where a dual epidemic of HIV 1 & 2 is occurring. A retrospective hospital based 4-year study was undertaken to know the prevalence of HIV-2 and its Co-infection with HIV-1 in ICTC, Department of Microbiology, SMC, Vijayawada from Jan. 2011 to Dec. 2014. Testing and reporting was done according to NACO guidelines. A total number of 40,5**75** samples were tested during the study period and the prevalence of HIV-2 was noted to be 0.7% including both monotypic and dual infection with HIV-1. Monotypic infections with HIV-2 were 66.55% and dual infections were 33.45% in this study. Affected Males were 51.3% and Females were 48.7% and the incidence was almost equal in both the genders in this study. Most Common age group was 21-50 years (84.64%). Concordant couples were 58% and discordant couples were 42%. Identification of Partner infectivity and effective counselling of discordant couples is very important in preventing the spread of infection in the community.

Keywords: Human Immunodeficiency Virus, HIV-2, HIV-1 &2, Prevalence.

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INTRODUCTION

An estimated 2.39 million people were living with HIV/AIDS in India in 2008-09 and the prevalence was reported to be about 0.27 in 2013 which is down from 0.41 in 2002 as reported by National AIDS Control Organisation [NACO] [1,2]. A more recent investigation by the Million death study collaborators in the British Medical Journal [2010] estimates the population to be 1.4 to 1.6 million people [3]. Human immunodeficiency virus [HIV] has been categorised into HIV-1 and HIV-2 [4]. World-wide, most HIV infections are HIV–1, whereas HIV-2 largely has been confined to persons in or from West Africa, now has spread to parts of Europe and India. HIV-1 and HIV-2 has same routes of transmission and both can cause Acquired Immunodeficiency Syndrome [AIDS]. However, HIV-2 infection has to be differentiated from HIV-1 because they are less likely to cause AIDS and also the clinical management differs [5]. When compared to HIV-1, HIV-2 individuals have much longer asymptomatic stage, slower progression to AIDS, slower decline in CD4 count, lower mortality, lower rate of vertical transmission and smaller gains in CD4 count in response to antiretroviral treatment [6]. India is one of the few countries outside the African continent, in which a dual epidemic of HIV-1 and HIV-2 is occurring [7].

First case of HIV-2 from India was reported from the port city Mumbai, in 1991, others have been identified from geographically diverse states, yet reliable and up to date Information on the HIV-2 epidemiology in India is still lacking[8,9]. Sequential serological surveys from a Hospital population in Tamil Nadu during 1993-97 and 2000-01 showed a stable HIV-2 prevalence over time, at 2.47% of all HIV diagnoses. The frequency of HIV-2 in a blood donor population at a tertiary referral hospital in Southern India between the period 1998-2007 was also similar at 2.8% of all HIV diagnoses [1.3% HIV-2 and 1.5% HIV 1 & 2 dual infections][10].

This retrospective study was undertaken to study the prevalence of HIV-2 infections and its co-incidence with HIV-1 in attendees of ICTC, Department of Microbiology, Siddhartha Medical College/Government General Hospital, Vijayawada which is a tertiary care hospital in South India.

MATERIALS AND METHODS

A Hospital based retrospective study was conducted in ICTC, Department of Microbiology, Siddhartha Medical College/Government General Hospital, Vijayawada, which is a tertiary care hospital catering to the needs of Vijayawada and the adjoining areas to know the prevalence of HIV2 infections in individuals attending the ICTCs. This four year study included patients referred from various departments and surrounding hospitals or direct walk-in attendees from 1st January 2011 to 31st December 2014. As a routine practice, all patients were counselled and informed consent was taken from each patient before testing for HIV. Peripheral blood [5ml] was withdrawn and screened for HIV-1 & 2 after separating the serum [Immunocomb J Mitra and Co. Pvt Ltd, Delhi, India, SD BIOLINE HIV-1/2, 3.0, Standard Diagnostics, Inc. Korea, and PAREEKSHAK 1/2 Triline Card Test, Bhat Bio-tech India Pvt Ltd. or Trispot Bhat Bio-tech India [P] Ltd.] following the manufacturer's instructions.

All patients diagnosed as HIV infected using NACO/WHO HIV testing strategy III were included in this study for analysis[18]. The patients were classified as HIV-1 infected, HIV-2 infected and HIV-1 and HIV-2 co-infected based on their second and third test results. Data was summarized using percentage and analysed.

RESULTS AND DISCUSSION

This study focuses on the prevalence of HIV-2 infection and its co-infection with HIV-1 in patients attending ICTC, Department of Microbiology, Siddhartha Medical College/Government General Hospital, Vijayawada. During the study period, a total of 40,575 samples were tested for HIV and 5,942 were found to be reactive. A Seroprevalence rate of 14.64% for HIV was seen in our study. Of those reported as positive, 13.92%, 0.48% and 0.24% were reactive for HIV-1, HIV-2 and HIV-1 & HIV-2 co-infected. The frequency of HIV-2 was noted to be 4.96% out of all HIV diagnosed cases, with 3.48% HIV-2 monotypic and 1.62% HIV-1 &2 dual infections in our study and this correlates with study by Chiara et al from a tertiary care clinic in Tamil Nadu with 5.3% HIV-2 and 1.34% HIV-1&2 of all HIV diagnoses [6,8,18].

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A total of 293 were reactive for HIV-2 of which 195[66.55%] were HIV-2 monotypic infection and 98[33.45%] HIV-1 & 2 co-infected [Table-1]. The reactivity of HIV-2 was 0.72%, of which HIV-2 monotypic infection was 0.48% and its co-infection with HIV-1 was 0.24% in our study. Various studies from South and West India has reported that HIV-2 prevalence ranges from 0.3 – 2.1% and this correlates with our study [11,12,13]. Murugan and Amburajan observed a prevalence of 0.29% of HIV-2 in south Tamil Nadu, and Solomon et, al. reported a prevalence rate of 0.9% with HIV-2 among urban population.

Studies conducted both in West Africa and India have demonstrated that HIV-2 prevalence is decreasing over a period of years. However, the prevalence of HIV-2 and dual infection in our study was constant over a period of four years [14].

TABLE 1: PREVALENCE OF HIV INFECTION

STUDY YEAR	TOTAL TESTED	NON-REACTIVES	REACTIVES	HIV-1	HIV-2	HIV-1&2
2011	10,588	8,776	1,812(17.11)	1,741(16.50)	45(0.43)	26(0.25)
2012	10,215	8,502	1,713(16.77)	1,614(15.80)	61(0.60)	38(0.37)
2013	8,683	7,525	1,158(13.34)	1,098(12.65)	39(0.45)	21(0.24)
2014	11,089	9,830	1,259(11.35)	1,196(10.79)	50(0.45)	13(0.12)
TOTAL	40,575	34,633	5,942(14.64)	5,649(13.92)	195(0.48)	98(0.24)

TABLE 2: GENDER-WISE DISTRIBUTION OF CASES

YEAR	MALE (R2)	FEMALE(R2)	MALE(R1&2)	FEMALE(R1&2)
2011	19	26	17	09
2012	34	27	22	16
2013	18	21	10	11
2014	29	21	08	05
TOTAL	100(51.3%)	95(48.7%)	57(58.2%)	41(41.8%)

TABLE 3: AGE-WISE DISTRIBUTION OF CASES

AGE IN YEARS	HIV 2		HIV 1 & 2	
	MALE	FEMALE	MALE	FEMALE
15 – 30	07	13	05	07
31 – 45	53	54	36	19
45 – 60	37	22	15	16
>60	03	07	01	-
TOTAL	100(51.3%)	95(48.7%)	57(58.2%)	41(41.8%)

A total of 100 [51.3%] were males and 95 [48.7%] were females of the 195 reactive for HIV-2 and 57[58.2%] males and 41[41.8%] females were HIV-1 & 2[98] Co-infected [Table-2]. Infection rate in males was more than that of females in most of the studies and it is almost equal in our study [13, 15,16] and this is in accordance with the study reported by Nayana A Ingole, et al. that there is no statistically significant difference in HIV types as regards gender [15].

A total of 162 of the 293 cases reactive for HIV-2 belong to 31 – 45 years age group in both the types of infections in both male and female patients followed by 46 – 60 years [90]. Majority [55.29%] of HIV-2 infected clients were in the age group of 31-45 years followed by 46-60 years [30.71%] in our study and this correlates with studies by various authors reporting a maximum prevalence in 21-50 years age group [16,17]. The age groups ranging from 21-50 in our study show a prevalence of 84.64% which is in accordance with our National figures indicating that 89% of the cases occur among sexually active individuals aged 20-49 years[17][Table-3].

Intimating the partner for Counselling and testing is an important tool in prevention and transmission of HIV. In this study, spouses of 100 HIV-2 positive clients were counselled and tested for HIV and partner of 58

were found to be positive [Concordant couples] and 42 were negative for HIV [Discordant couples]. Of the 42 discordant couples, 59.25% were male partner/husband positive and female partner/wife negative and 40.74% were female partner/wife positive and male partner/husband negative. This correlates with studies by different authors from India, reporting spouse status in reactivity to HIV in general not differentiating HIV-1 or HIV-2 [20,21]. Early diagnosis of HIV cases is necessary to prevent transmission of the virus, especially in serodiscordant couples.

CONCLUSION

Data generated in ICTCs is an important indicator of prevalence of HIV and types of HIV infection [monotypic or dual]. It is important to differentiate between HIV-1 and HIV-2 as the clinical course and treatment modalities differ. Cost-effective tests should be used to study the exact prevalence and incidence of HIV-2 in the community. Hence, HIV testing, diagnosis and treatment are key strategies in preventing the spread of HIV infection where the ICTCs play a major role. Partner infection rate with HIV-2 is also important and common as seen with HIV type I. Counselling of serodiscordant couples is a challenging problem and should be effective in preventing further transmission of infection among the partners and also help in maintaining an effective moral bond between the partners.

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