

Prevalence of Human Immunodeficiency Virus in Antenatal Mothers in a Rural Tertiary Care Hospital

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ABSTRACT

Objective: To know the prevalence of human immunodeficiency virus (HIV) among antenatal mothers.

Materials and methods: It is a retrospective study of antenatal mothers attending the integrated counseling and testing centre (ICTC), College of Medicine and JNM Hospital, Kalyani, from January 2009 to December 2013. Antenatal mothers were counseled and in those willing to undergo test rapid testing was done. First time positive cases were retested two more times by two different companies rapid test kit. The samples were considered as positive when found reactive by all three different methods.

Results: In our study, a total number of 11343 new antenatal mothers were registered. The pretest counseling could be done for 9437 antenatal mothers. After counseling, testing could be done in 9211 antenatal mothers. In our 5 years study period, a total of six cases were HIV positive. Out of these HIV positive cases, three were in 2009, no case was detected in 2010, one was in 2011, one in 2012 and one in 2013. Thus, the incidence of HIV (in tested mothers) is 0.13% in 2009, 0 in 2010, 0.06% in 2011, 0.07% in 2012 and 0.05% in 2013. Overall incidence was 0.065%.

Conclusion: There is a declining trend of HIV prevalence among antenatal mothers reflecting that prevention campaigns are working effectively.

Keywords: HIV, ICTC, Antenatal, Prevalence.

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INTRODUCTION

Offering testing and counseling to pregnant women provides an opportunity to know their human immunodeficiency virus (HIV) status and empower them to make own decisions to prevent mother-to-child transmission.¹ It also helps to identify women who are HIV negative and educate them to remain negative. 'Opt-in' or 'opt-out' approaches have been used while offering HIV testing. In the opt-in approach, pregnant women are given pretest counseling and are asked to undergo HIV testing. If they choose to get a test done, consent is taken, usually in writing. In the opt-out approach, women are told that HIV testing is a standard part of antenatal care, but they have the option to refuse the test. Center for disease control (CDC) recommends an opt-out approach as the testing rate is 85 to 98%.² The World Health Organization (WHO) and UNAID (The Joint United Nations Program on HIV/AIDS) introduced a routine opt-out approach in countries with high prevalence.³

Human immunodeficiency virus infection among pregnant women poses particular risks to their family, offspring and health workers at the time of delivery. Reported transmission rates of mother to child transmission ranged from 13 to 32% in industrialized countries and from 25 to 48% in developing countries.⁴ In breastfed infants upto 20% of infants may acquire HIV through breastfeeding, depending on the duration of breastfeeding and other risk factors, such as the presence of mastitis, breast abscess and other local factors.⁵ Early marriage, sexual abuse against women, illiteracy, etc. are the major socioeconomic reasons of vulnerability of women to HIV infection. Six Indian states are considered to have high HIV-AIDS prevalence (>1%): Manipur, Nagaland, Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra.

The determination of HIV incidence in a population is important to: (i) monitor the epidemic, (ii) improve the targeting of populations for interventions, and (iii) to evaluate the effectiveness of HIV prevention and treatment programs.⁶ Human immunodeficiency virus data from antenatal women have been used to monitor trends in the general population and to predict the seroprevalence in young children.^{7,8} UNAID reports reveal that mother-to-child transmission is the largest source of HIV infection among children below the age of 15 years.

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MATERIALS AND METHODS

This is a retrospective study from January 2009 to December 2013 carried out in the Department of Obstetrics and Gynecology, in College of Medicine and JNM Hospital, Kalyani, West Bengal (India). The data were collected from integrated counseling and testing center (ICTC). The parameters were seen as follows:

- Number of antenatal women screened
- Number of women received pretest counseling
- Number of test done
- Number of women collected their reports
- Number of women received post-test counseling
- Number of HIV positive women, their period of gestation at delivery, mode of delivery, any complication, antiretroviral (ARV) prophylaxis, condition of baby, whether breastfed or not, follow-up.

All the antenatal women were counseled and in those who were willing to undergo test, rapid testing [National Aids Control Organization (NACO), and National Rural Health Mission, (NRHM) authenticated] was done. First time positive cases were retested two more times by two different companies rapid test kit (supplied by government) as there is no supply of enzyme linked immunosorbent assay (ELISA) or any test facility to the center. The samples were considered as positive when found reactive by all three different methods. All positive test results were disclosed only after post-test counseling of the patients. Positive cases were followed up. They received capsule nevirapine 200 mg single dose within

4 hours of onset of labor pain. The newborns were given nevirapine syrup single dose as 2 mg/kg body weight.

RESULTS

This study was carried out for a period of 5 years and the total number of new antenatal women registered was 11,343. Maximum number of antenatal women registration (2794) was in 2009. The pre-test counseling could be done for 9437 antenatal women. After counseling, testing could be done in 9211 antenatal women. While test report was collected by 8789 women; post-test counseling was done for all women who came for report collection irrespective of the status of the report. Table 1 shows in details the above findings.

In our 5-year study period, a total of six cases were HIV positive. Out of these HIV positive cases, three cases were in 2009, no case was detected in 2010, one case was in 2011, one case in 2012 and one case in 2013. Thus, the incidence of HIV (in tested women) is 0.13% in 2009, 0 in 2010, 0.06% in 2011, 0.07% in 2012 and 0.05% in 2013. Overall incidence was 0.065%. Four cases came for follow-up after 6 weeks but only one of the cases came for follow-up after 6 months (Table 1).

Table 2 shows the age, parity, literacy, occupation of patient and her husband. Out of the six cases, four were illiterate, five were housewife and one case was sex worker. Three cases had vaginal delivery, two cases underwent cesarean section while one case was lost to follow-up (Table 3). The babies of all these mothers were

Table 1: Total number of antenatal mothers registered, counseled, tested in ICTC and total HIV positive mothers detected with their follow-up

Years	ANC attendance (New)	Pretest counseling could be done	Test done	Test report collected	Post-test counseling could be done	HIV positive	Follow-up	
							At 6 weeks	At 6 months
2009	2794	2371	2324	2237	2237	3	2	0
2010	2627	1860	1834	1704	1704	0	0	0
2011	2550	1834	1681	1643	1643	1	1	0
2012	1455	1455	1455	1328	1328	1	1	0
2013	1917	1917	1917	1877	1877	1	1	1 (baby negative)
Grand total	11343	9437	9211	8789	8789	6	5	1

Table 2: Age, parity, literacy and occupation of HIV positive mothers and their husband's HIV status with occupation

Case no. and years	Age (years)	Para (P)	Literacy	Husband's HIV status	Occupation	
					Wife	Husband
1/2009	20	P1	Illiterate	Not known	Housewife	Daily worker
2/2009	25	P1	10 + 2	Positive	Housewife	Business
3/2009	20	P0	Illiterate	Negative	Housewife	Business
4/2011	21	P0	Illiterate	Not known	Housewife	Daily worker
5/2012	19	P0	Illiterate	Positive	Housewife	Expired
6/2013	25	P0	Class 5	Negative	Sex worker	Daily worker

Table 3: Details of delivery, breastfeeding and therapy received by mother and baby

Case no. and year	Gestation at test	Gestation at delivery	Mode of delivery	Complication of labor or puerperium	Breastfeeding	Therapy received by mother and baby
1/2009	19 week+			Lost to follow-up		
2/2009	18 week +	40 weeks	CS	Nil	Not done	Both received Nevirapine
3/2009	32 week +	40 weeks	VD	Nil	Not done	Both received Nevirapine
4/2011	5 week +	38 weeks	CS	Nil	Not done	Both received Nevirapine
5/2012	16 week +	40 weeks	VD	Nil	Done	Both received Nevirapine
6/2013	10 week +	39 weeks	VD	Nil	Not done	Both received Nevirapine

CS: Cesarean; VD: Vaginal delivery

fine. Both mother and baby received nevirapine therapy in all the cases. Breastfeeding was done in one of the cases in spite of counseling. Puerperal period was uneventful in all the cases (Table 3).

DISCUSSION

Detection of maternal infection early in pregnancy through voluntary counseling testing (VCT) and HIV testing is critical for prevention of mother to child transmission (PMTCT).⁹ Though India is categorized as low HIV prevalence nation, it has the third largest number of people living with HIV/AIDS.¹⁰ According to National Family Health Survey-III (NFHS-III) figures, India had an estimated 2.47 million people between the ages of 15 and 49 years living with HIV in 2007.

The average HIV prevalence among women attending antenatal clinic in India is 0.48% as per NACO annual report 2010 to 2011. In India during 2010 to 2011, 6.6 million out of total 27 million pregnant women were counseled and tested, 16,954 out of 43,000 estimated HIV positive pregnant women were identified.¹⁰ The total number of people living with HIV/AIDS in India is estimated at around 20.9 lakh in 2011. Against the annual target of 90 lakh in 2012 to 2013, about 57,09,691 (63%) pregnant women were counseled and tested by December 2012, yielding detection of 9,451 HIV seropositives (positivity 0.17%).¹¹

The overall, HIV seroprevalence found in our 5 years study was 0.065%. Similar seroprevalence of 0.66% were noted by Dash et al in 2012, 0.56% by Mandal et al in 2010, 0.77% by Parmeshwari et al in 2009 and 0.72% by Nagdeo et al in 2007.^{1,12-14} However, seroprevalence of 0.17% were observed by Chaudhuri et al in 2010 and 0.35% by Joshi et al in 2010.^{15,16}

A reduction of more than one-third in HIV-1 prevalence during 2000 to 2004 in young women from south India had been reported.¹⁷ Prevention of parent to child transmission (PPTCT) data suggested that there was

gradual fall of seroprevalence in high prevalence states such, as Andhra Pradesh from 2.08 to 0.93%, Maharashtra (1.51-0.51%), Tamil Nadu (0.45-0.35%), Karnataka (1.98-0.75%), Manipur (2.04-1.09%) and in Nagaland (1.66-1.19%) from the year 2005 to 2008.¹⁸ There was also gradual decrease in low prevalence states like Gujarat, Haryana, Goa, Kerala, Madhya Pradesh and Mizoram from the year 2005 to 2008.¹⁹

Similar declining seropositivity among pregnant women were also been reported from African countries like in Lusaka, Zambia and Ethiopia, where there was decrease of seroprevalence from 7.97 to 2.03% during 5 years period (2006-2010).^{19,20} However, some states in the North, such as Odisha, Chhattisgarh, Jharkhand and Uttarakhand, some in the North West region including Punjab, Chandigarh and Delhi, and some low prevalence states of North East including Assam have shown rising trends in adult HIV prevalence.¹¹

Overall, HIV prevalence was higher among urban than rural population. However, some states had a slightly higher HIV prevalence among rural population than urban population, namely, Punjab, Tamil Nadu and Uttar Pradesh.²¹

The steady dip in prevalence rate could be a result of effective awareness programs and education regarding HIV especially in young adults after implementation of National Aids Control Program-III (NACP-III, 2007-2012).

The HIV sentinel surveillance in West Bengal is carried out annually by WBSAPCS. According to the cumulative data of the surveillance from 1998 to 2008, the prevalence of HIV in antenatal clinic (ANC) is 0.45% in 1998, 0.13% in 1999, 0.39% in 2000, 0.16% in 2001, 0.31% in 2002, 0.44% in 2003, 0.43% in 2004, 0.86% in 2005, 0.40% in 2006, 0.42% in 2007 and 0.21% in 2008.²²

According to vulnerability of the districts in West Bengal to HIV, four districts are indicated as 'A' consisting of Kolkata, Bardhaman, Purulia and Uttar Dinajpur. Four districts are 'B' comprising Darjeeling, Jalpaiguri,

Purba Medinipur and Murshidabad. While, remaining 11 districts are in 'C' category.²³ 'C' category means less than 1% ANC prevalence in all sites during last 3 years with less than 5% in all STD clinic attendees or any high-risk groups with known hot spots (truck driver, migrants, tourist, etc).

The prevalence of HIV in ANC in 2011-2012 in West Bengal is 0.12% (done in 265 ICTCs) with 1.08% prevalence in the total population.²⁴ Our college is situated in Nadia district which comes under 'C' category. The total HIV prevalence in Nadia district is 0.71% (as on 31.10.2012).²⁵

CONCLUSION

Integrated counseling and testing centers provide comprehensive, family centered clinical and supportive services that empower the pregnant women to take her own decisions and prevent the transmission of HIV to her infant by continuous information, education and counseling. Overall declining trend in HIV prevalence is seen in our study and in national statistics too. Declining HIV seroprevalence rate indirectly indicates that prevention campaigns are working effectively, awareness, condom usage and preventive sexual behavior has increased.

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