

Seroprevalence Of Human Immunodeficiency Viruses In Pregnant Women

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Abstracts: Background: The human immunodeficiency virus (HIV) continues to be a burden globally and presents serious health problems in the developing countries. HIV data from antenatal women has been used to monitor trends in the general population. The present study was undertaken to evaluate the trend of HIV seroprevalence among pregnant women attending antenatal clinic in tertiary care government hospital. Materials and Methods: Blood samples of registered ANC (antenatal care clinic) patients were collected and screened for HIV-1 and HIV-2 antibodies at Integrated counselling and testing centre (ICTC) by the three rapid tests protocol as per the guidelines laid down by the World Health Organization (WHO testing strategy III) and the testing policy of National AIDS Control Organisation (NACO), Government of India. Results: The overall seroprevalence of HIV-1 in pregnant women was 0.20%. A decrease in seroprevalence of HIV-1 antibodies in ANC patients is noted. No pregnant female was found seroreactive for HIV-2 antibodies. Conclusion: Seroprevalence of HIV is declining in pregnant women. The prevention of parent to child transmission of HIV (PPTCT) programme is helping in control of the spread of HIV. Awareness should be made among the pregnant women regarding the need and benefits of getting tested to ensure proper utilization of PPTCT services [Ahir G Natl J Integr Res Med, 2018; 9(6):40-43]

Key Words: Human immunodeficiency virus, Integrated Counselling and Testing Center, seroprevalence

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Introduction: Human Immunodeficiency virus (HIV) can be transmitted from mother to child vertically through the placenta, exposure to vaginal fluids at the time of labor and through breast milk. Pooled data from various cohort studies conducted prior to preventive interventions, estimated the risk of in utero transmission to be approximately 10%, intrapartum transmission to be 15% and postpartum transmission to be between 10 and 15%¹. In India, prevention of parent to child transmission (PPTCT) of HIV program was started under National AIDS control program (NACP) in year 2002. The primary aim of PPTCT was HIV testing of every pregnant woman and eliminate transmission of HIV from mother to child². With effective PPTCT program, the risk of vertical transmission of HIV in children can be decreased to less than 2%¹. The elimination of mother-to-child transmission of HIV has to be achieved by 2020 as per national and global commitments as per the National Strategic Plan for HIV/AIDS 2017 by National AIDS control organisation (NACO)³. Surveillance of human immunodeficiency virus (HIV) infection among pregnant women attending antenatal care clinics (ANC) has been the mainstay system of monitoring of HIV epidemic in India⁴. So the present study was undertaken to evaluate the trend of HIV seroprevalence among pregnant women attending antenatal clinic in tertiary care government hospital.

Material and methods: This study was conducted in Integrated counselling and testing centre (ICTC), from April 2015 to March 2018. Pregnant women registered at the antenatal clinics of this hospital were routinely advised to undergo HIV screening after pre-test counselling and informed consent. All the essential information was collected from the pregnant women by interviewing them. HIV screening was done after pre-test counselling and informed consent. A total of 8924 patients were screened over a period of 3 years. Blood samples were collected and screened for HIV-1 and HIV-2 antibodies by the three rapid tests protocol as per the guidelines laid down by the World Health Organization (WHO testing strategy III) and the testing policy of NACO, Government of India (NACO, 2007) first test- HIV Comb-aids test, second test- Meriscreen anti HIV (1&2) tri-line test and third test- AIDSCAN HIV1/2 Rapid spot test. The tests were performed at Department of Microbiology, Government Medical College, Akola. Samples tested reactive in the first method were subjected to tests with two different rapid tests, the samples were considered as positive when found reactive by all three different methods. All tests were done according to manufacturer's instructions. Data was collected; compiled and analyzed.

Results: A total of 8924 samples of ANC patients were screened at ICTC from April 2015 to March

2018. All the ANC patients were registered and had undergone pre-test counselling. Overall, HIV-1 antibodies were detected in 18 out of 8924 samples tested. Thus HIV -1 seroprevalence rate was 0.20%. The seroprevalence of HIV-1 antibodies in antenatal women was 0.27%, 0.23% and 0.14% in years 2015-2016, 2016-2017, 2017-2018 respectively. Thus a decrease in

seroprevalence of HIV-1 antibodies in ANC patients is noted (fig1). No pregnant female was found seroreactive for HIV-2 antibodies. A year-wise analysis showed that the number of pregnant women screened for HIV was increased from 2015 (1824) to 2018 (4107). The number of women tested and their prevalence is as in table 1.

Table 1: Total number of registered ANC patients tested and their HIV seropositivity over a period of 3 years

Period	No. of Registered ANC patients	No. Of patients for Pre-test counselling	No. of patients Tested	No. Of reactive patients	% positivity of HIV-1 antibodies	% positivity of HIV-2 antibodies	No. Of patients for Post test-counselling
April 2015 - March 2016	1824	1824	1824	05	0.27	0	1801
April 2016 – March 2017	2993	2993	2993	07	0.23	0	2968
April 2017 - March 2018	4107	4107	4107	06	0.14	0	4080
Total	8924	8924	8924	18	0.20	0	8849

Maximum number of ANC patients, 11(61.11%) positive for HIV-1 antibody were found in the age group of 18-25 years as in table 2. Table 2 Age-wise distribution of HIV-Positive pregnant women

Age group (yrs)	No. Of ANC mother positive for HIV-1 antibody	No. Of ANC mother positive for HIV-2 antibody	% Positivity
18 -25	11	0	61.11%
26 -33	6	0	33.33%
34 – 41	1	0	5.56%
>=42	0	0	0
Total	18	0	100%

Discussion:

HIV data from antenatal women has been used to monitor trends in the general population and to predict the seroprevalence in young children^{5, 6}. In the present study, 8924 pregnant women screened for HIV after pretest counselling and informed consent over a period of 3 years. The seroprevalence rate of HIV in pregnant women was found to be 0.20% (Table 1). According to HIV Sentinel Surveillance (HSS) 2014-15, the overall HIV prevalence among ANC clinic attendees, considered proxy for prevalence

among the general population, continues to be low at 0.29% in the country with overall declining trend at the national level⁷. A study carried out by Sayare P et al in the same region, the prevalence of HIV-1 antibodies in ANC patients over a period of 6 years from January 2010 to December 2015 was found to be 0.44%⁸. Thus a declining rate of seropositivity is seen in ANC patients in our region (fig 1). In a study by Pai et al in Navi Mumbai region, significant downward trend in seropositivity of HIV among pregnant women over the last decade was observed with overall prevalence rate of 0.2% over last 5 years⁹. This is in accordance to our study.

The seropositivity of HIV in ANC patients from different studies from different regions across the country was studied. The seropositivity of HIV-1 antibodies in ANC patients by Gedam et al from April 2012 to June 2013 in Nagpur region of Maharashtra was found to be 0.55%¹⁰. In a study by Sibia et al. in 2014 in northern India, seroprevalence rate of 1.03% was observed¹¹. Nayak et al observed a seropositivity of HIV of 0.5% in a study in 2014 in Cuttack region¹². Thus a high seropositivity of HIV was observed in past years and there is need to carry out more studies to find out the trend of HIV in recent years.

The prevalence of HIV-2 remains highest among the West African countries like Guinea Bissau, Ivory Coast, Senegal, Burkina Faso, The Guinea, Ghana and Gambia¹³. In the present study, none of the ANC patient was found to be positive for HIV-2 antibodies. This is in accordance with the studies carried out by Sayare et.al, Gedam et.al in the same region^{8, 10}. In a study by Ingole N et al in India from 2009 to 2012, a case of mother to child transmission of HIV-2 was observed¹⁴. Also in a study by Agrawal S et al in Mumbai region from 2007 to 2009, 3 cases of mother to child transmission of HIV-2 were observed¹⁵. As HIV-2 is being reported from various parts of the country and its treatment modalities differ from HIV-1, screening for HIV-2 should be carried out routinely¹⁰.

In our study, there was a significant increase in the numbers of pregnant women who underwent testing over a period of three years (Table 1). This significant increase in the number of women who agreed to undergo testing is a positive sign of general public awareness and result of the interventional measures implemented by the PPTCT program which is a cost-free programme.

In the present study maximum seropositivity (61.11%) was seen in the age group of 18 – 25 years in pregnant women (table2). A higher positivity among the younger age groups concurs with the findings of Gupta et al (41.9% in the 20-24 years age group), Pai et al (89% in 21 to 30 years age group), and Verma et al (50% in the age group of 21-25 years)^{9, 16, 17}. In India the average age of marriage among the women is 23.5 years¹⁸. This therefore explains the reason for most women of 21-30 years age group to attend antenatal clinics and hence more percentage of seropositivity in this age group.

Conclusion: Seroprevalence of HIV is declining in pregnant women. Therefore it may be recommended that every pregnant woman should be screened for HIV after pretest counselling and obtaining informed consent. Awareness should be made among the pregnant women regarding the need and benefits of getting tested to ensure proper utilization of PPTCT services. Appropriate antenatal screening, intervention and preventive strategies during pregnancy, delivery and breastfeeding will bring down the mother to child transmission of HIV

and achieving the target of NACO of elimination of mother to child transmission of HIV by 2020.

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