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Research Article

TREND OF SEROPREVALENCE OF HIV AMONG ANTENATAL CLINIC ATTENDEES AT A TERTIARY CARE HOSPITAL

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ABSTRACT
Human Immunodeficiency Virus (HIV) /Acquired Immunodeficiency Syndrome (AIDS) is increasing at an alarming rate globally. Apart from heterosexual route, mother-to-child transmission is the next most important route of HIV transmission accounting for over 90% of infections in children. HIV infection in women occur primarily during their reproductive years, hence pregnancy provides a unique opportunity for implementing prevention strategies against HIV infection. Objectives were to determine the seroprevalence & study trend of HIV infection during pregnancy. This retrospective study was conducted among pregnant women attending the antenatal clinic of a tertiary care centre within a five year period, 2008-2012. Antiretroviral prophylaxis with nevirapine was given to seropositive women and their children. Out of 36072 pregnant women attending the antenatal clinic, 27116 (75.17%) accepted pre-test counselling and HIV Testing 15560(43.13%). 119 women were found to be seropositive with a seroprevalence rate of 0.76%. Seroprevalence of HIV infection among antenatal women is low and trend of HIV seroprevalence is declining.

Key Words : *HIV, Seroprevalence, Mother to Child Transmisssion, Antiretroviral Prophylaxis*

INTRODUCTION
Human Immunodeficiency Virus (HIV) /Acquired Immunodeficiency Syndrome (AIDS) is increasing at an alarming rate globally. HIV infection is transmitted vertically from mother to child (Pitkin J et.al 2003).
HIV is spreading steadily throughout the world. Developing and underdeveloped countries are worst affected for various reasons (WHO. Progress report 2010). The disease is spreading mainly through unsafe heterosexual activity.
Annual Sentinel Surveillance by the NACO reported the overall HIV prevalence of 0.48% in 2007 among ANC clinic attendees. Children are affected through vertical transmission from mother to baby. According to a NACO report, 30000 infants are born with HIV through perinatal transmission every year. Perinatal transmission occurs in approximately 20–25% of HIV positive women in Asia. UNAID (the Joint United Nations Programme on HIV/AIDS) reports reveal that mother-to child transmission is the largest source of HIV infection among children below the age of 15 years. The National AIDS Control Programme (NACP) Phase III (2007–2012) aims to stop and reverse the epidemic in India over a five-year period. (NACP 2008-2009) During this period, the prevention of HIV transmission has been given the topmost priority. (UNAID) Various sentinel surveillance surveys in the last seven years by different state authorities in India have reported HIV prevalence ranging from between 0.1 to 1% among antenatal women. In order to screen women affected by the HIV virus, PPTCT centres were started in 2002 in Maharashtra. HIV counselling and voluntary testing facilities are offered free of charge to all women attending antenatal clinics. During counselling sessions, women are told about the mode of spread of HIV infection, and the likely effects of HIV infection on their health and the health of their offspring. Counselling helps uninfected women to assess their current or future risk of HIV infection. It gives the women the chance to modify their risk behaviour. Identification of pregnant women with HIV infection helps in informed decision making regarding the continuation or termination of the current pregnancy. (TSAIDSCS, GSAIDSCS, RSAIDSCS, HIV sentinel surveillance Maharashtra 2006-2007).
In 2005, the World Health Organization (WHO) and Joint United Nations Program on HIV/AIDS (UNAIDS) estimated that the total number of people living with HIV worldwide was just over 40 million

and women represents half of the people infected with HIV. Maternal transmission of HIV can occur transplacentally before birth, peripartum by exposure to blood and body fluid at delivery, or postpartum through breastfeeding (De Cherney AH 2006).

The efficiency of transmission of HIV from an infected mother to infant ranges from 15% to 25% in developed countries and 25% to 45% in developing countries. Two third of the transmission occurs late in pregnancy or during labour and delivery. The risk of acquiring infection through breast milk is also documented. Rise of HIV infection in women may give rise to increase in pediatric AIDS cases, which may become a major public health problem in coming years. Hence effective interventions are needed which can interrupt such vertical transmission (Ukey PM 2005).

Heterosexual transmission is by far the most common route for contracting HIV infection in India.HIV infection among female commercial sex orkers in certain areas is rising. (WHO Regional Health Report 1998) But prevalence in this group does not reflect the prevalence of general population. Prevalence of HIV in pregnancy would indicate the HIV prevalence in female population and to some extent in general population. Mother to child transmission is by far the most significant route of transmission of HIV infection in children below the age of 15 years (Parmeshwari *et al.* 2009).

Definite cure for HIV is still far from reach but prevention of further spread of disease is in our hands. As HIV infection in women occurs primarily during their reproductive years, pregnancy provides a unique opportunity for implementing HIV infection prevention strategies in women. If we estimate seroprevalence in pregnancy, the effective & timely intervention will reduce the transmission of infection to newborn babies (Kaur *et al.* 1994).

The ART facilities are offered to seropositive woman free of charge. The number and scope of facilities have increased over the years. The integration of services with RNTCP has further increased the utilisation of services under the 'ICTC' programme.

Considering the large number of antenatal women attending ANC clinic and relatively less availability of information about seropositivity over period of years amongst them. Hence, the study was planned to determine the trend of seroprevalence of HIV infection in pregnant women attending Antenatal Care (ANC) Clinic of a Tertiary Care Hospital.

MATERIALS AND METHODS

All women registered at antenatal clinic of a tertiary care centre from January 2007 to December 2011 were enrolled as the study population. These women had received individual or group counseling before a voluntary HIV test. This retrospective study is aimed at assessing the trend of prevalence of HIV infection among pregnant women attending the antenatal clinic of a tertiary care centre within a five year period, 2007-2011. The counseling comprised of history taking in relation to the individual's marital status, occupation, risk behavior and contraceptive practices. The women were given information on the mode of transmission of HIV infection, importance of care during pregnancy and delivery and proper use of condoms. A HIV test was done after taking informed consent. Pre-test counselling, HIV testing and post-test counselling was done by the trained staff of an PPTCT centre as per National AIDS Control Organisation (NACO) guidelines Three different spot tests were used as per NACO guidelines for confirming the serostatus of the individual (combaid, tridot and SD bioline).

Post-test counselling was done on the basis of the test result. Partner notification/testing was offered in seropositive women. Information about MTP (Medical Termination of Pregnancy) services was given. Women, who wished to continue with the pregnancy, were asked to come for regular follow-up and were managed by an obstetrician and physician together. These women were evaluated by proper history, physical examination and relevant laboratory tests. Since 2009, ART has been offered free of charge to women having a CD4 count below 350. They were advised for institutional delivery. These women received a single dose oral Nevirapine tablet in the active stage of labour. Newborn babies of seropositive mothers received Nevirapine syrup. Following delivery women were further counseled regarding breast feeding and contraceptive options.

RESULTS AND DISCUSSION

Table 1: Details of total pregnant women undertaking pre-test, HIV test and post-test counselling at PPTCT from 2007 to 2011.

Total ANC registered (No.)	Pre-test Counselling No.	HIV Tests No.	Post-test counselling No.	Seropositive No.	% Seropositive
36072	27116	15560	13957	119	0.76

Out of 36072 pregnant women attending the antenatal clinic, 27116 (75.17%) accepted pre-test counselling and HIV testing 15560 (43.13%). One hundred ninteen women were found to be seropositive with a seroprevalence rate of 0.76% (Table 1).

In the present study, out of 27116 who attended pretest counselling it was observed that only 13957 women undergone post test counseling. There are many reasons for this non-compliance. Patients have misconceptions that they are not at risk. There is always an element of fear of the test result being positive. Inadequate emphasis regarding the importance of post-test counseling during the pre-test could be another reason for non-attendance at post-test counseling.

The result of this study carried out in a tertiary care centre from 2007 to 2011 among pregnant women attending antenatal clinic shows an overall HIV prevalence of 0.76%.

Our study shows that the prevalence of HIV infection among antenatal women has not reached to an alarming state in this part of the country. But this is the time to take actions so that not only mother to child transmission can be prevented but also new infections can be prevented among prospective parents. If we can act properly we will be able to prevent the epidemic. If we fail, the country may face the consequence that is faced by South Africa today where one out of four pregnant women is infected with HIV (Chaudhuri S 2007).

In our study, HIV seroprevalence rate was found to be 0.76% in pregnant women. In India, it ranges from less than 1 % to 5.9%. Slightly higher prevalence rate is reported in other South East Asian Countries like Thailand (8%) and Myanmar (7%).This high prevalence amongst pregnant women reveals the vulnerability of this low risk group to HIV infection (Ukey PM 2005).

Table no. 2 shows the yearly distribution of HIV positive pregnant women detected attending antenatal clinic between 2007 and 2011. Out of total 15560 women tested for HIV, 119 (0.76%) were found to be HIV positive with the highest prevalence occurring in 2007 (1.58%) while, the lowest was noted in 2010 (0.46%). Figure 1 indicates an initial increase in the HIV prevalence in 2007 (1.58%) and then followed by constant decline till 2010 (0.46%) with slight increase in 2011(0.54%).

Screening of pregnant women for HIV serostatus has many implications. States such as Tamil Nadu, Maharashtra, Andhra Pradesh, Karnataka, Manipur and Nagaland were labelled five years ago, as high prevalence states with an antenatal seropositivity rate of more than 1%. Shyamala et al (2004) from south-west India reported year wise seropositivity in antenatal clinics. They observed a rising trend from 0.2% in 1997 to 1.4% in 2001. Other authors have reported opposite trends. In present study, we observed a gradual but significant decline in seropositivity from 1.58% in 2007 to 0.54% in 2011 during five year period. PPTCT programme was started in October 2002. The authors feel that this decline could be due to increased awareness regarding the use of condoms in women and men. The changing trend in seropositivity is shown in figure 1. Different authors have reported different seropositivity rates, ranging from 0.1% to 2.3%. Maitra and Kavishkar et al (2006) reported seropositivity of 0.4 – 1.09% in Gujarat. Parmeshwari et al (2009) from Namakkal District reported a seroprevalence of 1.14% (2002) and 0.7% (2007) among antenatal women. Urvesh et al reported a seroprevalence of 0.35% (2006– 2007) among

antenatal women. The Rajasthan State AIDS Control Society (RSACS) reported 0.1–0.2% seropositivity over a period of five years (2006–2010). A Tamil Nadu Sentinel Surveillance showed that a median positivity rate of HIV infection among antenatal women was 0.65% in 2004 and 0.5% in 2005. HIV Sentinel Surveillance conducted by Maharashtra State AIDS Control Society (MSACS) revealed a decline in seropositivity among antenatal women from 1.25% (2005) to 0.75% (2006–2007) in urban areas. Present figures of seroprevalence in this study match the figures reported by Maharashtra State authorities.

Table 2: Year wise details of pregnant women undertaking pre-test, HIV test and post-test counseling at PPTCT for the period 2007-2011

Pregnant Women	Year Jan-Dec 2007	Jan-Dec 2008	Jan-Dec 2009	Jan-Dec 2010	Jan-Dec 2011
No. of women registered	8787	8610	9591	3042	6042
Pre-test counseling no.	6693	5359	5995	4298	4771
No.of women HIV tested	2406	1936	3312	3684	4222
Post-test counseling no.	1427	1675	3369	3559	3927
seropositive women no.	38	16	25	17	23
% Seropositive	1.58	0.83	0.75	0.46	0.54

The timely administration of a potent combination of antiretroviral drugs during pregnancy can reduce the risk of mother-to-child HIV transmission to 2% or less, and also improve the health of the mother. But, first the pregnant women's HIV status must be known. There are two ways to do voluntary HIV testing. In "opt in-approach pregnant women are given pretest counseling and they must agree to getting an HIV test, usually in writing. In 'opt out' approach pregnant women are told that an HIV test will be included in the standard group of prenatal tests (that is to say, test given to all pregnant women), and that they may decline the test. Unless they decline they will receive an HIV test. Center for Disease Control (CDC) recommends an opt out aproach as the testing rate is 85-98% but with an opt in approach testing rate ranges from 25-83% (Chaudhuri, 2007).

A threefold strategy is needed to prevent babies from acquiring HIV from their mothers (i) preventing HIV infection among prospective parents (ii) avoiding unwanted pregnancies among HIV positive women and (iii) preventing the transmission of HIV from HIV positive mothers to their infants during pregnancy, labor, delivery and breast feeding Kanabus, 2006).

Conclusion

Seroprevalence of HIV infection among antenatal women is low and trend of HIV seroprevalence is declining. There is therefore every prospect that the detection of HIV through antenatal testing would result in a decrease in pediatric HIV infection and AIDS. Free ART for women who are seropositive will help to control the disease progression and rate of vertical transmission. Efforts should be consolidated to further stem the HIV scourge among pregnant women. In order to reduce prevalence of HIV infection in pregnant women and in the absence of protective vaccine, it is important to educate & aware them about HIV infection in order to safeguard our future generations. Timely detection and effective counselling can prevent further pregnancies and consequent transmission of HIV infection to the offspring.

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