HIV seroprevalence among the pregnant population and utilisation of integrated counselling and training centre facilities at a teaching hospital in Rural Maharashtra

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RESEARCH

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Abstract

Background

Human Immunodeficiency virus (HIV) transmission is widespread across the globe. Millions of pregnant women are affected due to the high risk behaviour of their partners. Mother-to-child vertical transmission, has increased the burden of paediatric HIV population.

Method

A retrospective analysis of data on the utilisation of Integrated Counselling and Training Centre (ICTC) services by pregnant women at a tertiary care hospital in Ahmednagar district of Maharashtra, India from 1 January 2003 to 31 December, 2009. Pre-test counselling, HIV testing and post-test counselling was done by the trained staff of an ICTC centre as per National AIDS Control Organisation (NACO) guidelines. Anti-retroviral prophylaxis in the form of single dose oral Nevirapine (200mg) was given to seropositive women during active labour. Nevirapine syrup was administered to newborn babies. Analysis of the demographic profile of seropositive women was done.

Results

Out of 12,719 pregnant women attending the antenatal clinic, 10,491 (82.48%) accepted pre-test counselling and HIV testing. One hundred and forty-five women were found to be seropositive with a seroprevalence rate of 1.38%; 11% did not come for collection of the laboratory report and missed the post-test counselling. Most of the seropositive women belonged to rural areas (81.37%), had low-socioeconomic status (77.93%), were illiterate, and were unaware of their serostatus and their husband's risk behaviour. Less than 30% of women were using contraceptives. After registration, the majority of seropositive women (89.65%) attended the antenatal clinic regularly; 11% opted for pregnancy termination; 76% delivered vaginally and 12% underwent Caesarean section. A further 86% of women and 80% of newborns received Nevirapine prophylaxis. Postnatal follow-up of babies was very limited.

Conclusion

HIV seroprevalence among the pregnant population is declining steadily. More and more women are availing the facilities of ICTC centres. Integration of PPTCT (Prevention of Parent To Child Transmission) and RNTCP (Revised National Tuberculosis Control Programme) has improved the uptake of services. Free Anti-Retroviral Treatment (ART) for seropositives will help in controlling the disease progression and will reduce the vertical transmission.

Key Words

HIV, ICTC, Seroprevalence, Vertical transmission.

What this study adds:

1. HIV seroprevalence is declining among the pregnant population in rural Maharashtra.

2. Heterosexual high risk behaviour of the male partner is responsible for high seroprevalence in the young pregnant population.
3. ICTC plays an important role in the diagnosis, counselling and treatment of seropositive pregnant women.
4. Integration of PPTCT and RNTCP has improved the uptake of ICTC services.

Background

HIV is spreading steadily throughout the world. Developing and underdeveloped countries are worst affected for various reasons.[1] 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.[2] Children are affected through vertical transmission from mother to baby. According to a NACO report, 30,000 infants are born with HIV through perinatal transmission every year.[2] 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.[3] During this period, the prevention of HIV transmission has been given the topmost priority.[4] The control of vertical transmission has been given due importance in the disease prevention strategy. 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. Various sentinel surveillance surveys in the last five years by different state authorities in India have reported HIV prevalence ranging from between 0.1 to 1% among antenatal women.[5-8] The free ART programme has been scaled up in the last three years. 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.

This paper analyses the counselling services, results of voluntary HIV testing and the therapeutic interventions carried out to reduce the perinatal transmission at a tertiary hospital located in the rural area of Maharashtra, India.

Method

All women registered at the Pravara Rural Hospital, Loni antenatal clinic from January 2003 to December 2009 were enrolled as the study population. These women had received individual or group counselling before a voluntary HIV test. The counselling comprised of history taking in relation to the individual's marital status, occupation, risk behaviour 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. Three different spot tests were used as per NACO guidelines for confirming the serostatus of the individual (combaid, tridot and SD bioline). These tests are Dot immunoassay tests intended for qualitative detection of IgG/IgM antibodies to the HIV type 1 and/or type 2 in human whole blood, serum or plasma. Dot immunoassay employs the same principle as enzyme immunoassay (EIA) whereby the immobilised antigen-antibody complex is visualised by means of colour (chromogenic) producing reactions. Comb Aid, SD Bioline and tridot tests work on a similar principle. Women were asked to collect their reports on the same day. 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 CD_4 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 counselled regarding breast feeding and contraceptive options.

Results

Of 12,719 pregnant women attending the antenatal clinic, 10,491 (82.48%) accepted pre-test counselling and HIV testing. One hundred and forty-five women were found to be seropositive with a seroprevalence rate of 1.38%(Table 1). Year-wise data is shown in Table 2. Demographic characteristics of seropositive women is shown in Table 3. The mean age of women detected positive was 22 years.

The majority of women were multiparas, Hindu by religion, residents of a rural area, belonging to low socioeconomic status, educated upto secondary school and housewives or labourers by occupation. The husbands of many seropositive women were either drivers, small-scale industry workers or were working away in metropolitan cities. Most of the women were unaware of their serostatus before the test. Less than 30% were using contraceptives regularly. The majority did not have addiction or high risk sexual behaviour. Furthermore, the majority of seropositive women (89.65%) attended the antenatal clinic regularly; 11% opted for pregnancy termination; 76% delivered vaginally and 12% underwent Caesarean section. Moreover, 86% of women and 80% of newborns received Nevirapine prophylaxis. Postnatal follow-up of babies was very limited (See Table 4).

Pregnant women (No.)	Pre-test Counselling No.	HIV tests No.	Post-test counselling No.	Seropositive no (%)
12719	10491	10491	9401	145 (1.38%)

Table 1: Details of pregnant women undertaking pre-test, HIV test and post-test at ICTC for the period 2003-2009.

Pregnant women	Year						
	2003	2004	2005	2006	2007	2008	2009
No. of women registered	1042	888	974	1198	1826	3131	3760
No. of women counselled and tested	1042	888	974	1198	1566	1867	2956
No. of seropositive women	41	20	11	21	20	16	16
% Seropositive	3.93	2.25	1.12	1.75	1.27	0.85	0.54

Table 2: Year-wise seropositivity among pregnant women

Discussion

Screening of pregnant women for HIV serostatus has many implications. Currently used HIV tests have high sensitivity and specificity. Pre-test counselling plays an important role in improving the acceptability for HIV testing. 'Opt-in' or 'Opt-out' approaches have been used while offering HIV testing. In the 'Opt-in' approach, pregnant women are given pre-test counselling and are asked to undergo HIV testing without choice. In the 'Opt-out' approach, pregnant women are told that the HIV test will be included in the standard group of prenatal tests, and that they have the option to refuse the test. The opt-in approach is less accepted by clients than the opt-out approach. The Centre for Disease Control (CDC) recommends an opt-out approach, as the testing rate with it is 85–98%.[7] The WHO and UNAID introduced a routine opt-out approach in countries with high prevalence.[10] In a study conducted in Gujarat, the acceptance of HIV testing in the opt-out approach was 90.6%. In the present study, the overall acceptance of the HIV test with opt-out approach was 82.48% (10,491/12,719). In spite of the free availability of counselling and testing facilities, 20% of women remain unscreened for HIV throughout pregnancy. Rapid tests provide reliable results within one hour. Clients are expected to collect the report on the same day. For various reasons, many women do not collect the report and do not attend the post-test counselling. In the present study, it was observed that 11% of women did not collect the laboratory report. 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 counselling during the pre-test could be another reason for non-attendance at post-test counselling.

Variable		No. of seropositives	Percentage
1. Age		22.23 ± 3.11	
2. Marital status	Married	139	95.86
	Unmarried	06	04.14
3. Parity	0	15	10.34
	1	63	43.44
	2	48	33.10
	3	17	11.72
	4 & above	02	01.37
4. Socio-economic status	Low	113	77.93
	Middle	29	20.00
	High	03	02.06
5. Residence	Urban	27	18.62
	Rural	118	81.37
6. Religion	Hindu	115	79.31
	Muslim	18	12.41
	Others	12	08.27
7. Occupation	Housewife	98	67.58
	Labourer	39	26.89
	Service	08	05.51
8. Addictions	Tobacco	12	08.27
	Pan/Ghutka	08	05.51
	None	125	86.20
9. Contraceptive use	None	105	72.41
	Condom	23	15.86
	IUCD	07	04.82
	OC Pills	10	06.89
10. No of sex partners of husbands	Single	73	50.34
	Multiple	72	49.66

Table 3: Demographic characteristics of seropositive women (n=145)

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[11] 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 the present study, we observed a gradual but significant decline in seropositivity during an eight year period. Seropositivity was above 3%, when the PPTCT programme started in 2002. Seropositivity has declined to 0.5% in 2009. 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 Table 3. Different authors have reported different seropositivity rates, ranging from 0.1% to 2.3%. Maitra and Kavishkar12 reported seropositivity of 0.4 – 1.09% in Gujarat. Parmeshwari et al reported a seroprevalence of 1.14% (2002) and 0.7% (2007) among antenatal women.[13] Urvesh et al reported a seroprevalence of 0.35% (2006–2007) among antenatal women.[14] 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. We observed that, the majority of seropositive women were from a low socioeconomic class, illiterate, living in rural areas, married and without any addiction. Post-test counselling sessions with husbands revealed that 50% of seropositive women's husbands had multiple sex partners. They were not using any barrier contraceptives for protection. Similar observations are made by Mehrotra et al[15] and Chaudhary Snehamay.[16] Perry et al[17] in his study in the West Indies, reported that men or women with a high number of lifetime partners are at greater risk of HIV infection. Overall, there has been good utilisation of therapeutic services offered at ICTC centres. Gomes et al[18] reported higher utilisation of ICTC services in teaching institutes as compared to government district hospitals in Karnataka. The majority of private nursing homes refer seropositive cases to ICTC centres for subsequent management. Private nursing homes are not willing to keep the patients with them and are apprehensive about the spread of disease to other patients or healthcare workers in their setting. In the present study 11% of seropositive women opted for pregnancy termination. A study by Chaudhary reported 17% of their patients opting for pregnancy termination. The majority of women deliver vaginally without any complications. Standard universal biosafety measures during the intrapartum period minimise the risk of accidental exposure to HIV. Health workers, nurses and resident doctors must be educated to use protective barriers to avoid exposure. The government has provided HIV kits for intrapartum use. Intrapartum Nevirapine is routinely used in seropositive women for reducing the risk of vertical transmission. At times, women report very late in labour and deliver immediately after admission. These women miss the Nevirapine prophylaxis. At times, it is given in a very early stage of labour. In the present study, 87% of mothers and 80% of newborn babies received Nevirapine. In a study by Chaudhary, all women received Nevirapine. All seropositive women must be counselled for regular follow-up at the ICTC centre. Women are advised to bring their babies to paediatric OPD for regular follow-up. All babies of a seropositive mother must receive prophylactic sulphamethoxazole as per the latest guidelines. 'ICTC' facilities are available for confirming the serostatus of babies. Decisions regarding breast feeding must be left to the mother and relatives. The mother must be told of the hazards of mixed feeding before discharge.

Sr. No	Pregnancy outcome	No. of women / newborn	Percentage
1.	Medical termination of Pregnancy • First trimester • Second trimester	 08 07	 11.53
2	Vaginal Delivery	99	76.15
3	Caesarean section	16	12.30
4	Live born baby	108	93.91
5	Prophylactic nevirapine therapy • Mother • Newborn	 100 93	 86.95 80.00

Table 4: Utilisation of ICTC services and pregnancy outcome in seropositive women

Conclusion

HIV seroprevalence among the pregnant population is declining steadily. More and more women are availing the facilities of ICTC centres. Integration of PPTCT and RNTCP has improved the uptake of services. Free ART for women who are seropositive will help to control the disease progression and rate of vertical transmission.

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CONFLICTS OF INTEREST

The authors declare that there are no competing interests.

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ETHICS COMMITTEE APPROVAL

The ethical committee of Rural Medical College, affiliated to Pravara Institute of Medical Sciences (Deemed University) Loni approved this study.