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HIV SEROPREVALENCE IN ANTENATAL ATTENDEES AND UTILIZATION OF INTEGRATED COUNSELING AND TESTING CENTRE (ICTC) SERVICES – A STUDY IN A TERTIARY MEDICAL INSTITUTE OF RURAL AREA

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ABSTRACT

Introduction: Integrated counseling and testing centers (ICTC) provide an excellent opportunity for activities to prevent parent to child transmission of HIV/AIDs. This study was carried out to find the HIV seroprevalence among antenatal clinic attendees and to analyze the utilization of ICTC services in a rural institute of India.

Method: A retrospective analysis of utilization of ICTC services by pregnant women over 8 years at a tertiary care medical institute of central Maharashtra was done. Pre-test counseling, HIV testing and Post-test counseling was done by trained staff of ICTC centre . Single dose oral Nevirapine (200 mg) was given to seropositive women during active labour. Nevirapine syrup 200 mg/ kg body weight was administered to newborn. Analysis of outcome of seropositive pregnancies and exposed babies was done.

Results: Out of new antenatal attendees 26,487 pregnant accepted pre-test counseling and 25,740 (97.17%) were tested for HIV. 144 women were found positive with seroprevalence rate of 0.44 %, 3.5% opted for pregnancy termination, 15.73 % delivered vaginally and 85.39 % underwent caesarean section. All the mother- baby pairs received nevirapine prophylaxis. 27 exposed babies were tested at 18 months of age and 2 were found to be positive**.**

Conclusion: PPTCT centers act as excellent venues to impart information, education and counseling to expectant mothers and 100 % counseling rates and excellent testing rates can be achieved. With proper sensitization of health care providers almost all mother baby pairs can be administered the antiretroviral drug at the appropriate time.

Keywords: HIV, Antenatal women, ICTC Services, Rural India

1. Introduction

Globally, the HIV epidemic continues to remain a serious public health problem with an estimated 33.3 million (31.4–35.3 million) people currently living with HIV. Overall, good progress has been made in reducing heterosexual transmission of HIV through 100% condom use programs and community-based peer led interventions[1]. There has also been noteworthy success in ensuring safe blood transfusion services averting hundreds of thousands of infections every year. However limited progress has been made in providing access to prevention of mother-to-child transmission services. Overall, a mere 18% (range: 5 - 80%) of pregnant women had access to HIV testing and counseling in 2009. Lack of access to antenatal care services has been cited as a major barrier for expanding HIV testing and counseling among pregnant women[1].

Mother to child transmission (MTCT) is the largest source of HIV infection in children below the age of 15 years. Children are affected through vertical transmission from mother to baby. The efficiency of transmission from an infected mother to infant ranges between15% to 25% in developed countries and between 25% - 45% in developing countries[2]. Pediatric HIV is thus becoming a serious concern. Increasing numbers of children infected by HIV have a propensity to alter the mortality rates in childhood. AIDS threatens to reverse years of steady progress in child survival, and has already doubled infant mortality in the worst affected countries[3]. Prevention of mother-to-child transmission (PMTCT) of HIV has been at the forefront of global HIV prevention activities since 1998, following the success of the short-course zidovudine and single-dose nevirapine clinical trials [1]. National AIDS Control Organization (NACO) reported the overall HIV prevalence of 0.48 percent in year 2007 among ANC clinic attendees[2, 4]. According to NACO report, 30,000 infants are born with HIV infection through perinatal transmission every year[5]. Various sentinel surveillance surveys in last five years by different state authorities in India have reported the HIV prevalence ranging

between 0.1 to 1 percent among antenatal women[6-9]. The Joint Technical Mission on PPTCT (2006) estimated that out of 27 million annual pregnancies in India, 1, 89,000 occur in HIV positive pregnant women. In the absence of any intervention, an estimated cohort of 56,700 infected babies will be born annually[7] .

The Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT) programme was started in India in the year 2002. By National AIDS control society (NACO) and in the same year it was taken up by Maharashtra AIDS Control Society (MSACS). Infection to the newborn is transmitted by the mother perinataly however taking into consideration the role of male partner in the transmission; in India the Project is termed Prevention of Parent to child transmission (PPTCT). The National AIDS Control Program (NACP) Phase III (2007-2012) aims at stopping and reversing the epidemic of HIV in India over the five year period [5)]. In order to screen women affected by HIV virus, PPTCT centers were started in year 2002 in Maharashtra, a progressive state in India. HIV counseling and voluntary Testing facilities were offered to all women attending antenatal clinics free of cost. During counseling sessions, women are informed about the mode of spread of HIV infection, and its effects on her health and that of her offspring. Counseling helps uninfected women to assess their current or future risk of HIV infection and gives her chance to modify her risk behavior. Infected pregnant women can take informed decision regarding continuation or termination of current pregnancy. Though lot of efforts are being taken by the competent authorities for screening, intervention and follow up of mother baby pairs, few studies have reported the impact of these PPTCT centers and little information is available about how these centers are fairing specially in the rural areas. Thus this study was undertaken to analyze the counseling services, results of voluntary HIV testing and the therapeutic interventions carried out to reduce the perinatal transmission.

The PPTCT project was started in Mahatma Gandhi Institute of Medical Sciences, Sewagram, a Tertiary Care Medical Institute in Rural Maharashtra, Central India in September, 2002 with the aim to prevent the perinatal transmission of HIV from an HIV infected pregnant mother to her newborn baby. The programme entails counselling and testing of pregnant women in the Integrated Counselling and Testing Centres (ICTCs), antiretroviral treatment to the positive mother and baby and follow up .This study was aimed to find out the seroprevalence of HIV amongst the rural pregnant women and analyse the utilisation of PPTCT services under the ICTC scheme.

2. Material and Methods

This was a retrospective study in which the study population consisted of all women attending antenatal clinic at Kasturba Hospital, MGIMS, Sewagram from September 2002 to December 2010. An area has been designated in the antenatal outpatient for the ICTC services. Here the Pretest counseling of all pregnant women was done by trained counselor in groups of 6-8 where they were informed about mode of transmission of HIV infection, importance of care during pregnancy and delivery, proper use of condom, health and hygiene during pregnancy, importance of regular antenatal visits, nutrition, importance of HIV testing, HIV prevention and infant feeding issues .History regarding marital status, occupation, risk behavior and contraceptive practice was taken. The women were then offered the HIV test by the “Opt out” approach which means that those who are not willing can opt out of the test. The HIV test of willing women was done after informed consent by using three different spot tests for each woman as per the NACO guidelines. These were Combaids, Tridot and SD Bioline, all provided free of cost by the Government of Maharashtra. The report was made available to the women on the same day. One-to-one post test counseling was done while sharing the report with the woman and advice was given depending on the test result. Strict confidentiality was maintained by the counselor. HIV seronegative women were counseled about HIV prevention and risk reduction behaviors. Partner notification /testing were done in seropositive cases and information regarding available MTP services was given to those who could avail them according to National MTP law. For others and to those who wished to continue pregnancy in spite of positive result regular follow up was advised and antenatal services were provided by obstetrician according to hospital protocol. These women were evaluated by proper history, clinical examination and relevant laboratory tests. Physician consultation was sort in individual cases according to need.

A system was developed to identify the counseled, tested, negative and positive cases without compromising the confidentiality of the woman so that maximum antenatal attendees

could be included in the program. This was in the form of a rubber stamp containing the alphabets C- for counseled, T –for tested, S- for safe and Tc- for Take care (positive case). The front page of the antenatal case record of the woman was stamped with the appropriate stamp. Thus no positive case could be missed in the follow up visit as well as in the labor room when she reported in labor. All women were advised institutional delivery. They received single dose of oral Nevirapine 200mg in the active stage of labor preferably 4 hours prior to the expected delivery time. Newborns received Syrup Nevirapine 2 mg /kg body weight within 72 hours of birth. Counseling regarding safe breast feeding practices was given to all. HIV rapid test was done for the exposed baby at 18 months of age. The data was collected in a predesigned proforma and analysis was done in EPI info software. Ethical clearance was obtained from institutional ethical committee.

3. Results

During the period of 8 years 3 months (September 2002 to December 2010) 26,487 new antenatal registrations were made in the Obstetrics outpatient. Pretest counseling was provided to all. Out of the 26,487 women who were counseled 25,740 (97.17%) accepted the test, and 114 were found to be positive for HIV. Thus the seropositivity rate was 0.44 %. In the labor room 1195 women were tested in emergency hours out of which 10 were positive (0.83 %). Year wise data is shown in Table 1. The seropositivity was 0.60% to 0.66% in 2002 and 2003 respectively. It rose to 0.95 % in 2004 but showed a steady fall since then to reach 0.24% in 2010. However there was one more rise of 0.72 % in 2006. . The fall in seropositivity from 0.60 % to 0.24 % over an 8 year period was found to be statistically significant (P value < 0.05). Trends in HIV seropositivity is shown in fig.1. Four women (3.5%) opted for pregnancy termination. The mean age of seropositive women was 23.4 years. Majority of the women were primigravida, Hindu by religion, resident of rural area with a low socioeconomic status were educated up to secondary school and were housewives' by occupation. High risk behavior was not noted in majority of them. Husbands of these women were either farmers, laborers or had small scale businesses. 4 out of the 114 (3.5 %) were unwed mothers. Twelve (10.52 %) reported that their husband had died in the recent past due to illness. Eighty nine women (78.07 %) had delivery in the institution out of which 14 (15.73%) had vaginal delivery and 76 (85.39%) underwent caesarean sections. All mother baby pairs delivering in the institute received Nevirapine prophylaxis. Six mothers delivered at a nearby Primary Health Centre out of which 2 mothers did not receive Nevirapine. Four delivered at District level hospitals in the vicinity of which 1 did not receive Nevirapine. Rest 15 positive women were lost to follow up. Only 27(30.33 %) babies could be tested at 18 months of age due to poor post natal follow up, 2 out of 27 tested positive. 9 babies (10.1 %) died in the period of follow up of 7 years at varying ages starting from just after birth to 6 years of age (Table 2).

4. Discussion

Voluntary counseling and testing (VCT) is a critical component of any PMTCT program. Many studies have reported that counseling impacts risky behaviors. In "opt in-approach" of counseling and testing pregnant women are given pretest counseling and offered an HIV test. If they choose to get a test done, consent is taken, usually in writing. However women worry that they will be stigmatized for accepting the test. An alternative model is routine testing, whereby women are told that HIV testing is a standard part of antenatal care, but they can opt out if they want to. This is the 'opt out' approach. Unless they decline they will receive an HIV test [10-11]. Center for Disease Control (CDC) recommends an opt out approach as the testing rate is 85-98% but with an opt in approach testing rate ranges from 25-83% [12]. In a study conducted in Gujarat, the acceptance of HIV testing in opt-out approach was 90.6% [13]. In the present study, the overall acceptance of HIV test with opt-out approach was 97.17 %. This high testing rate may also indicate the good counseling skills of the counselor and the faith shown by the rural women on the health provider. Here in India, the doctor is viewed with lot of respect and the patient usually does not refuse an advice if given properly, thus emphasizing the importance of proper communication skills of the counselor.

In the present study all new registrations in the antenatal clinic were counseled by the counselor giving a 100% counseling rate. If the women were missed on her first visit she would be located in her subsequent visit. The system of stamping the antenatal card of the women with rubber stamp containing the alphabets C, T, S and Tc helped in this. Yet despite its benefits,

routine testing doesn't address the issue of women not returning to receive their results. This is why some programs have introduced rapid testing. Unlike conventional HIV tests, which take days or even weeks, rapid tests can produce a result in as little as twenty minutes. This usually means that many more women learn their HIV status. However, it also means that women have less time to prepare themselves for the result. In a multicenter study on rapid HIV testing during labor, Bultery et al [14] report 90 % positive predictive value,100% sensitivity and 99.9% specificity of rapid tests. In our study rapid tests were used which could give results within 20 minutes. This helped in increasing the post test counseling rates in the study.

States such Tamil Nadu, Maharashtra, Andhra Pradesh, Karnataka, Manipur and Nagaland were labeled five years back, as high prevalence states with antenatal seropositivity rate of more than 1 percent. In terms of geographical break-up, 118 districts have HIV prevalence more than 1 percent among mothers attending ante-natal clinics. The 2006 estimates indicate that the epidemic has stabilized or seen a drop in Tamil Nadu and other southern states with a high HIV burden. Yet, new areas have seen a rise in HIV prevalence, particularly in the northern and eastern regions. Twenty-six districts have been identified with high prevalence, largely in the states of Madhya Pradesh, Uttar Pradesh, West Bengal, Orissa, Rajasthan and Bihar[15].

Shyamala et al[16] from south west India compiled year wise detection of seropositive cases, and showed a rising trend in antenatal clinics from 0.2% in 1997 to 1.4% in 2001. On the other hand, a reduction of more than a third in HIV-1 prevalence in 2000-04 in young women in South India has been reported[3]. In the present study a steady fall was seen in the HIV seroprevalence from 0.66% in 2002 to 0.24 % in 2010. This fall is probably because of increased awareness about HIV, modification of high risk behavior and increased use of condoms. The overall seroprevalence found in our study was low i.e. 0.44%. This seroprevalence is the same as that reported by Maitra in 2006 (0.4%)[17]. Similar prevalence of 0.35 % was noted by Joshi (2006-2007)[13]. Gomes[18] reported higher utilization of ICTC services in teaching institutes as compared to government district hospitals in Karnataka. 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. Yet, 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.

In India, the prevalence ranges from less than 1 % to 5.9%. Higher prevalence rate is reported in other South East Asian Countries like Thailand (8%) and Myanmar (7%)[3]. This high prevalence amongst pregnant women reveals the vulnerability of this low risk group to HIV infection. Ukey [3] reported a prevalence of 1.38 % in their study conducted in central Maharashtra. Parmeshwari [19] reported a seroprevalence of 1.14 percent (2002) and 0.7 percent (2007) among antenatal women. Between 2005 and 2006, prevalence has fallen in some major states – in Maharashtra from 0.80 to 0.74 percent, and in Tamil Nadu from 0.47 to 0.39 percent. Yet, new areas of concern have emerged. In West Bengal, prevalence has gone up from 0.21 to 0.30 percent and in Rajasthan from 0.12 to 0.17 percent[15]. Rajasthan State AIDS Control Society (RSACS)[7] reported a positivity of 0.19 % in antenatal women while Tamil Nadu State AIDS Control Society (Tan SACS) reported a seropositivity from 0.5 to 0.7 % in antenatal women [6]. MSACS reported a seroprevalence of 0.75 %(2007) [8]. The figures reported in the present study are much lower than that reported by MSACS.

The mean age of positive women was 22.4 years. Ukey reported that HIV infection was highest in the age group of 19-24 years (46.94%) followed by 25-29 years (31.29%) [3]. It may be because of the fact that this is the most sexually active group. High prevalence in this group can be considered as forecasting of financial burden as well as loss of youth for the nation.

In the present study 4 out of the 114 (3.5 %) were unwed mothers indicating unsafe sexual behavior and need for adolescent health education. Twelve (10.52 %) reported that their husband had died in the recent past due to illness. These may be cases of sexual partners having full borne AIDS and thus indicate the importance of partner notification and testing. Only 4 women (3.5%) underwent medical termination of pregnancy in spite of presence of safe MTP services. This is because of the social makeup of Indian families where fertility is considered as the major requirement to live a satisfactory life even in the event of the possibility of the baby being HIV positive. Chaudhary [12] in his study reported that 17% of their patients opted for pregnancy termination.

Eighty nine (78.07 %) in our study had an institutional delivery in Kasturba hospital and all the mother–baby pairs (100%) received oral

nevirapine prophylaxis. This indicates excellent sensitization of health care providers towards the PPTCT program and strong commitment towards its goals. Two who delivered at primary health center and 1 who delivered at District hospital did not receive Nevirapine. Chaudhary [12] also reported that all seropositive women received ARV prophylaxis. However Ukey in his study reported that only 48.3 % mother baby pairs received Nevirapine [3]. This was because some women returned to their parent's home in spite of all the efforts of the staff, as it is a custom in many communities of the region, some delivered at home and in private hospitals. Joshi [13] reported that 66.7 % mother –baby pairs in their study received Nevirapine. This may be because some of the women came in advanced labor and some of them were fully dilated and delivered immediately without giving any time to administer Nevirapine. Mathe (2007) [20]in his study reported that of the 94 HIV positive women 59 (62.8%) received antiretroviral prophylaxis and 35 (37.2%) did not receive Nevirapine despite their identification at the prenatal clinic. Among these 35 women, 26 (27.7%) of the expected women arrived fully dilated and thus went directly to the delivery room. Nine (9.5%) of the expected women who delivered at the Oicha maternity were not administered the product by the midwives. Thirty three pregnant women out of 59 (55.9%) received Nevirapine within the time recommended i.e. two hours of the onset of contractions. Twenty four of 59 women (40.7%) did not receive the Nevirapine within the time recommended, but within an average delay of 11.00 hours.

In the present study 14 (15.73%) had vaginal delivery and 76 (85.39%) underwent caesarean sections. According to Guidelines for PPTCT Elective cesarean deliver reduces the perinatal transmission by 50 % percent and should be the choice in ideal settings. In case vaginal delivery is opted for safe delivery practices with minimum interventions, delayed rupture of membranes, avoiding episiotomies and unnecessary blood transfusions should be followed to reduce transmission [21]. In the present study 85.39 % women opted for cesarean sections thus emphasizing the good counseling skills of health providers and concern of expectant mothers towards the safety of the unborn child as they were ready to use all possible means to reduce the transmission. Other researchers have reported varying cesarean section rates. Joshi reported 41.66% [13], Ukey 21.33 % [3] and Choudhary [12] reported 42.86 % cesarean rates.

Maternal antibodies remain in the infant till the age of 18 months thus tests for exposed babies are done at 18 months of age. The follow up of babies after birth till the age of 18 months proved a difficult task in this study and only 27(30.3 %) reported for the test. Similar difficulty in follow up was encountered in the Gujrat study by Urvashi et al [13] where 34.38 % babies could be traced till 18 months. This low figure could be due to social factors, fear of the baby being positive, migration to other areas etc. In the present study 2 babies were found to be positive at 18 months of age. Follow up of remaining babies was not available. This emphasizes the need for better system to keep a track of the exposed babies so that impact of the program can be better judged. However whatever follow up was available suggests that the transmission rate was considerably low after single dose of Nevirapine to mother and baby.

The study reveals, that follow up of the mothers and the children in the PPTCT program is limited. The status of the children born to the seropositive women is largely unknown. Thus better studies need to be planned so that the monitoring is not only in terms of HIV transmission but also in terms of child survival. However this study excellently depicts the HIV seropositivity in a rural setup of India on the basis of which further interventional and monitoring programs can be planned.

Conclusion:

From the study we can conclude that PPTCT centers can act as excellent venues to impart information, education and counseling to expectant mothers. If the system is followed properly 100 % counseling rates can be achieved. Excellent testing rates can be achieved with good pretest counseling and tracking of each new registration in the antenatal clinic. Prevalence of HIV in rural antenatal woman is low. With proper sensitization of health care providers almost all mother baby pairs can be administered the antiretroviral drug at the appropriate time. However better system for post natal follow up needs to be developed to know the impact of the program

Tables

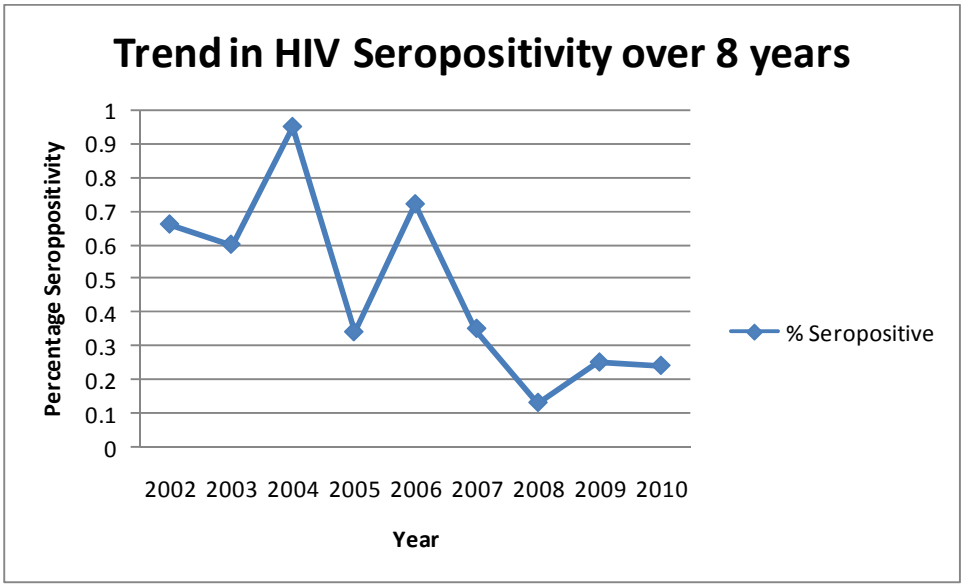
Table 1: Year-wise ICTC Services and HIV seropositivity among pregnant women

Pregnant women	Year									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
No. of women counseled	875	2814	3857	4002	4199	3515	4213	4156	3021	26487
No. of women tested	603	2299	2917	2623	3425	3404	3707	3898	2864	25740
No Seropositive	4	14	28	9	25	12	5	10	7	114
% Seropositive	0.66	0.60	0.95	0.34	0.72	0.35	0.13	0.25	0.24	0.44%

Table 2: Utilization of ICTC Services and Pregnancy Outcome in seropositive women delivered at Kasturba Hospital

Pregnancy outcome	No. of women / newborn	Percentage
Medical termination of Pregnancy	4	3.5
Vaginal Delivery	14	15.73
Caesarean section	76	85.39
Prophylactic nevirapine therapy for mother – baby pair	89	100
Babies tested at 18 months of age	27	30.33
Babies testing positive	2	2.24
Babies dying in 6 years of follow up	9	10.1

Figure 1 showing Trends in HIV Seropositivity over 8 years



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