Original Article

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To Determine the Vertical Transmission Rate of HIV in the PPTCT Programme since its Initiation in 2005 in Umaid Hospital, Jodhpur (Rajasthan)

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Abstract

Background: As a part of the PPTCT program by NACO, the PPTCT program was started in our institute in April 2005. So this study is planned to note the vertical transmission rate of HIV in the PPTCT program as well as to have an evaluation of the PPTCT program in our institute since the initiation of this programme in 2005. **Subjects and Methods:** The present study was carried out in the department of Obsteterics and Gynaecology, Umaind Hospital attached to Dr. S. N. Medical College, Jodhpur. The data over this period were analyzed. As per the strategy and policy prescribed by NACO, tests (E/R/S) were performed on the serum samples. Those found HIV positive went for confidential post-test information and counseling regarding through intimation about the vertical transmission and importance of their institutional deliveries. **Results:** The present study shows that 29.82% of the seropositive women had anemia 26.31 had deranged LFT, 36.84% had genital infections. Mostly 99.18% new born were given Neviraoine. We found that 10 seropositive mothers had puerperial pyrexia, 8 had mastitis, 6 had UTI, 1 had episiotomy gap and another 1 had wound sepsis or gaping in LSCS wound. **Conclusion:** Prevention is the cure and antenatal clinic is the best opportunity to educate so simple intervention strategies under this PPTCT program will reduce the incidence of pediatric HIV infection in our scenario.

Keywords: Vertical Transmission, NACO, Newborn Babies, AIDS.

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Introduction

After discovery of first epidemic in 1981 in California and New York, the human Immunodeficiency Virus (HIV) infection has gained enormous momentum and within a few years it became a pandemic, spreading to all parts of the world.

First case of HIV infection in India was detected in April 1986 among the prostitute in Madras, following which Government of India stepped up serosurveillance among the group practicing high risk behavior like STD patients, professional blood donors, prostitutes etc. Cumulative number of AIDS cases in India as reported to NACO until Aug 06 were 1,24,925 out of which 88,245 were male and 35,750 were female1. Maximum numbers of AIDS cases were in the 30 to 49 year age groups. Total numbers of cases of HIV infection in India till 2004 were 5.134 million, of which urban HIV infection accounted for 41.43% & rural HIV infection 58.57%. HIV prevalence in India is 0.91%.[2]

India is a country having more than one billion population and an estimated 5.21 million people infected by Human Immunodeficiency Virus (HIV) prevalence among antenatal women in India is 0.88%.[3] Because of the large population, India is contributing a lion's share to the global HIV pandemic in spite of a low prevalence rate of HIV infection. The UN population division projects that India's adult HIV prevalence will peak to 1.9% in 2019. The UN has also estimated that there will be 12.3 million AIDS deaths during 2000-2015 while 49.5 million deaths during 2015-2050 are expected to occur according to the projections of previous figures.[4]

It is evident now that the HIV has the unique property to infect the child of an HIV positive mother in the following ways:

1. When the baby is in the mother's womb, transmission of HIV may take place through placental route during the last trimester of pregnancy. Possibility of such transmission is 5-10%.
2. During delivery and labor when the possibility goes up to 10-20%.
3. During breastfeeding with the possibility of transmission of 10-20%. (If the mother gets infected after childbirth possibility of transmission during breastfeeding becomes as high as 29%).

It has been estimated that in 90-95% cases the child acquires HIV from the mother.

This important new information about HIV prevalence has spurred the Government of India and international agencies to greatly reduce the official estimate of HIV prevalence for India to 2.47 million Indians, down from the official estimate of 5.2 million for the previous year. This new national estimate reflects the availability of improved data (from NFHS-III and an expanded surveillance system) rather than a substantial decrease in actual HIV prevalence in India.[5]

About half of women in Rajasthan have had sexual intercourse by the time they are 17 years of age, 20 years of age. Among youth 15-24 years of age, women are much more likely than men to have ever had sex. The earlier age at sexual intercourse for women than men is a consequence of the fact that first sexual intercourse largely occurs within marriage and women marry at younger ages than men.

It is an established fact that until a remedy and a vaccine is found, only way of arresting or controlling the disease is by prevention. Prevention can be only done with cent percent success by involvement of all section of population. The only weapon to achieve prevention is by the way of health education. Keeping this in view government of India has launched well planned health education programme for the prevention of HIV infection through mass media under under National AIDS Control Programme.[6]

The Govt. of India launched a national programme for the control of HIV/AIDS in 1992. Rajasthan state AIDS control society was established in 19987. National programme for control of HIV/AIDS include the prevention and control of sexually transmitted disease, blood safety, hospital infection control, clinical management of HIV/AIDS, condom programme, surveillance and research, IEC, reduction of impact of HIV/AIDS and programme management. A substantial proportion of input has been IEC, as information is seen as major defense to protect one-self from HIV/AIDS. The approaches used have included mass media, interpersonal communication, and other means of communication. Similarly the non government agencies are also instrumental in creating the awareness on AIDS.[7]

According to NACO number of HIV positive women is increasing and with it the number of babies with HIV infection. NACO is already in the process of rolling out PPTCT programs (phase wise) in different states with the technical support from UNICEF in the following manner.

First phase (2002): PPTCT centers in 81 hospitals in high prevalence states.

Second phase (2002-2003): PPTCT centers in 157 District Hospital and Maternity Centers in high prevalence states.

Third phase (2003-2004): PPTCT centers in 79 Hospitals in low prevalence states.

Forth phase (2004-2006): PPTCT centers in 450+ District Hospital and Maternity Centers in low prevalence states.

Though HIV prevalence is apparently low in India, the vast PPTCT program appears to be less cost effective but it is a vital platform to deliver the message of HIV prevention among the common monogamous women.

As a part of the PPTCT program by NACO, the PPTCT program was started in our institute in April 2005. So this study is planned to note the vertical transmission rate of HIV in the PPTCT program as well as to have an evaluation of the PPTCT program in our institute since the initiation of this programme in 2005.

Subjects and Methods

The present study was carried out in the department of Obsteterics and Gynaecology, Umaind Hospital attached to Dr. S. N. Medical College, Jodhpur. The data over this period were analyzed. The variables studied included age, sex, marital status, occupation, place of residence, pattern of risk behavior and HIV serostatus.

The guidelines of NACO are followed in our PPTCT center. The counselor interviewed the attendees under strict confidentiality. After pretest counseling and obtaining consent of the attendees was done laboratory technician, collected their blood samples. As per the strategy and policy prescribed by NACO, tests (E/R/S) were performed on the serum samples. Those found HIV positive went for confidential post-test information and counseling regarding through intimation about the vertical transmission and importance of their institutional deliveries. For those who wanted to have termination of pregnancy (MTP) after post-test counseling the procedure was carried out. At the onset of labour the positive women was given oral nevirapine according to NACO guideline. The labour was conducted with universal precaution. After the birth of the baby, nevirapine syrup was given to the newborn as per the NACO guidelines. If the mother came in the very advanced stage of labor (delivery occurred within two hours of admission) or she had confinement in the labour emergency only, then the new born bebies were given two does of nevirapine according to NACO guidelines because nevirapine does given to mother does not give protection against the vertical transmission of HIV in such cases. All the mothers were counseled in detail about the merits and demerits of breastfeeding. The mother and babies were ask to come for the follow up visits every six months after birth till the 18 months of the age of baby. Each case was studied in detail and recorded in the proforma.

All these data were collected, compiled and analyzed for this study purpose without taking the identity of the women into account.

Results

Our study shows that the new antenatal registration in the year 2005 to June 2010. It depicts women who attended pre-test counseling & accepted HIV testing. The acceptance of HIV testing in 2005 was 25.83%, 2006 was 66.29%, 2007 was 45.79%, 2008 was 46.14%, 2009 was 61.83%. the average rate of women who accepted HIV testing being 52%. It also shows women who tested positive and who came for post test counseling. It also figures out the Spouses/Partners being 77.77% in 2005, 93.33% in 2006,

84.61% in 2007, 73.33% in 2008, 90.62% in 2009 &100% upto June 2010 [Table 1].

The most of the patients had CD4 counts more than 350, 32.81% seropositive women had CD 4 counts above 500, 29.68% had CD4 counts < 200, 23.43% had CD 4 counts between 351-500, 7.81 % had CD 4 count between 200-350. The remaining 6.25% of the seropositive women had CD 4 count more than 700. All of the above patients were referred to ART Center [Table 2].

The present study shows that 29.82% of the seropositive women had anemia 26.31 had deranged LFT, 36.84% had genital infections, 8.77% had tuberculosis, another 8.77% reported sinusitis, 5.26% had UTI, 3.50% had pneumonia and 1.75% had mouth ulcers. This table included paients of 2009-10 only as earlier data in this infant stage. LFT deranged in 26.31% was probably due to ART side effect [Table 3].

We found that 10 seropositive mothers had puerperial pyrexia, 8 had mastitis, 6 had UTI, 1 had episiotomy gap and another 1 had wound sepsis or gaping in LSCS wound [Table 4].

Our study observed that 25 babies were followed till 18 months of age. Out of them 21 were found HIV negative and 4 were found HIV positive. 4 babies had DNA PCR done. All were negative by DNA PCR and they were also followed till 18 months of age [Table 5].

Table 1: Antenatal HIV Testing Uptake

S.No	Antenatal HIV Testing	2005	2006	2007	2008	2009	2010
1.	New anternatal registration	20910	27528	20342	23439	23279	8822
2.	Women attended per test counseling	1684 8.05%	9761 35.44%	11217 55.14%	15439 65.86%	14993 64.40%	6665 88.13%
3	Women accepted HIV testing	435 25.83%	6471 66.29%	5137 45.97%	7125 46.24%	9235 61.59%	5120 65.85%
4	Women who attended post test counseling and collected report	95 21.83%	25 39.99%	3655 71.15%	5701 80.01%	7754 83.96%	4560 89.06%
5	HIV positive	14 3.21%	25 0.38%	29 0.56%	50 0.70%	51 0.55%	22 0.42%
6	HIV positive women who attended post test counseling	14 100%	25 100%	29 100%	50 100%	51 100%	21 100%
7	Spouses/partners of HIV positive women counseled	14 100%	23 92%	19 65.51%	50 100%	49 96.07%	21 100%
8	Spouses/Partners of HIV positive women tested	9 64.28%	15 65.21%	13 68.42%	15 30.0%	32 65.30%	14 66.66%
9	Number of spouses/partners HIV positive out of those tested	7 77.77%	14 93.33%	11 84.61%	11 73.33%	29 90.62%	14 100%

Table 2: Total showing CD4 count of seropositive women

CD 4 Count	Number of Seropositive Women	%age
<200	19/64	29.68
200-350	5	7.81
351-500	15	23.43
501-700	21	32.81
more than 700	4	6.25

Table 3: Associated Morbidities of the Seropositive Women

S. No.	Morbidity	Number of Women	%age
1	Tuberculosis	5	8.77
2	Pneumonia	2	3.5
3	UTI	3	5.26
4	Genital Infection	21	36.84
5	Mouth Ulcers	1	1.75
6	Diarrhoea	28	49.12
7	Sinusitis	5	8.77
8	Intestinal Parasites	5	8.77
9	Hepatitis B	Nil	Nil
10	Hepatitis C	Nil	Nil
11	Anemia	17	29.82
12	LFT Deranged	15	26.31

Table 4: Morbidities in postpartm phase in seropositive women

S.No.	Morbidity	Number	%age
1	Purerperial pyrexia	10	7.81
2	Mastitis	8	6.25
3	Endometutis	Nil	Nil
4	Episiotutis	1	0.78
5	Wound sepsis/gaping in LSCS	1	0.78
6	UTI	6	4.68

Table 5: Results of Nevirapine Prophylaxis

Babies followed till 18 months of age	Found HIV positive	Found HIV negative	Transmission rate	Efficacy of nevirapine
25	4	21	16%	84%

Discussion

This study demonstrate the acceptance and response to universal HIV counseling and voluntary screening in this busy antenatal tertiary care unit using an OPD out strategy. Voluntary testing strategies are of two types opt in and opt out. Under the OPD out approach HIV testing is offered by the obstetrician and can be done only after formalized counseling and informed consent. The proportion of women agreeing to undergo HIV testing through the opt out approach is reported to be in the range of 36 to 86% In this study the acceptance of HIV testing is 25.83%, 66.29%, 45.79%, 46.14%, 61.59%, 65.85% in the year 2005 to June 2010 respectively as shown in [Table 1]. Average rate of testing being 52%. This suggests that PPTCT is becoming an integral part of effective and routine antenatal care. But still the rate of testing is low as compared to other studies. In other studies like that of Yadav & Mishra8 in a peripheral hospital is Beed district the rate of testing is 99%, whereas in Choudhary Bose study,[9] the rate of testing is 83.23%, in other studies the rate of testing is 86 to 90% In Maitra study the rate of testing is 90%.[10] Whereas it is 64% in the study reported by M. Dash. Padhi et al,[11] at MKCG Medical College. BerhampurIndia.

This may be attributed to either increased awareness about the disease, lesser stigma associated with it now-a-days, expanded coverage of testing of probably due to more number of women feeling the need to get tested just because of availability of CD 4 counts and ART in our city. The total attendees of PPTCT center have increased over these years form 8.05% to 88.13% from year 2005 to June, 2010. Thus we can say that rate of testing has increased in the recent years by still efforts are required to achieve levels upto 90% to 100%. Efforts are also required to cover all the unbooked antenatal cases.

The most of the women had CD 4 count more than 350 (62.49%). In the study reported by Veronica, Andappan all women had CD 4> 500.[12] In our study, it range from 200 to >700 with maximum number of seropositive women having counts more 350.

As five babies were IUD & one was still birth, among the rest 99.18% babies were given syrup NVP. Single does NVP prophylaxis to mother and infant is widely used in resources-constrained settings for PPTCT programs. The simplicity and low cost of nevirapine single done refimen suggests that this highly efficacious drug might be very useful in prevailing settings of developing countries like India. As the tablet does not require refrigeration it can be offered to the mother in the labour. In this study 84.37% of women received NVP prophylaxis while 99.18% infants received nevirapine syrup. In Parmeshwari, Mary et al.[13] study 83% mothers & 96% babies received nevirapine. In Choudhary, Ghosh study 100% mothers & babies received nevirapine.[9]

According to NACO, the transmission rate is 15-35% if no intervention is undertaken but if nevirapine is used it may reduce to 10%. Mother to child transmission (perinatal transmission) in this study as shown in table 34 is 16.0%. Similar results have been reported by Vyas, Hooja, Singal, et al.[14] in their study (from 5.6-12%). Parmeshwari, Diana, Mary et al. (2008)13 in the study reported this transmission as 15%.

Efficacy of NVP was found to be 84% in this study as out of 25 babies followed till 18 months of age 21 were found negative and 4 were found positive. Veronica, Andappan et al.[12] reported an efficacy of NVP to be 36.67%. HIV NET 012 randomized trail reports the efficacy of single does of NVP to be 49%.

Conclusion

A thorough pre & post-test counseling, involvement of positive people & proper health education are needed to maintaion a low HIV prevalence rate in Rajasthan.

Prevention is the cure and antenatal clinic is the best opportunity to educate so simple intervention strategies under this PPTCT program will reduce the incidence of pediatric HIV infection in our scenario.

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