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HIV and Pregnancy: Factsheet in a Tertiary Care Hospital in West Bengal, India

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Abstract: *HIV infection in sexually active women is a sensitive marker to track course of HIV epidemics. Pregnant women represent low risk population, so prevalence in pregnant women is proxy to HIV seroprevalence in general population. The study aims at determining seroprevalence of HIV in antenatal women with their demographic characteristics.*

A retrospective study was done among pregnant women attending antenatal clinic of a tertiary care hospital for six years from March 2013 to March2019. Pre-test counselling, HIV testing, and post-test counselling were done as per NACO guidelines. Antiretroviral prophylaxis was given to seropositive women and their children. Demographic data of seropositive women with CD4 count during pregnancy were analysed.

53969 patients (59.87%) out of 90134 have accepted HIV testing. Forty -eight women were found to be seropositive with a seroprevalence rate of 0.09%. Majority of seropositve women were young multigravida, have secondary education and belonging to rural area. Ten out of forty-eight partners of seropositive women were found to be HIV seronegative. Out of the 48 seropositive women, one (2%) opted for pregnancy termination, and 45(93.7%) had delivered in our institution. All mother and baby pairs have received antiretroviral prophylaxis.

Keywords: *Human Immunodeficiency Virus, Pregnant, Seroprevalence*

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I. Introduction

Human Immunodeficiency Virus (HIV) is an RNA virus belonging to retroviridae family and lentivirus subfamily. HIV infection is the most dreadful but a potentially preventable infection. Clinical feature varies from in apparent infection to death. At the end of 2009, an estimated 33.3 million individuals were living with HIV infection according to the Joint United Nations Programme on HIV/AIDS (UNAIDS).1 It is usually transmitted by four ways: (1) unprotected sexual intercourse [homosexual/heterosexual]; (2) infected blood and blood products; (3) sharing of needles in intravenous drug users [IDU]; and (4) vertical transmission [mother to child transmission]. Occupational hazard comes under a rare mode of acquisition of this infection. High risk groups are FSW (female sex workers), MSW (male sex workers), transgenders, IDUs, migrants and truckers [bridge population] and their partners.Pregnant women belong to low risk population. Rate of transmission of HIV from male to female is two to three times higher than that from female to male [1] Some serotypes of HIV have higher affinity towards Langerhans' cells of the cervix .

India is considered as low prevalence nation though it has the third largest number of people living with HIV/AIDS.[2]Adult HIV prevalence is estimated to be 0.30% in male and 0.22% in female. National adult (15-49 yrs) HIV prevalence in India is estimated to be 0.26%, as per NACO report 2015-2016. [3] The overall HIV seroprevalence among pregnant women was considered a proxy for prevalence among the general population. National prevalence rate is 0.29% in the country, with an overall declining trend. [4]HIV data from antenatal women has been used to monitor trends in general population and prevalence in young children. [5,6]

More than 70% of HIV infections are result of heterosexual transmission and over 90% of infections in childhood result from mother to child transmission. [7] Mother can transmit the disease to her child during pregnancy (23-30%), at the time of birth (50-65%), by breastfeeding (12-20%) [8]. Children (<15 years) accounted for 12% of total new infections [4]. The risk of transmission of HIV from infected mother to her children is estimated to be around 20-45% without any intervention.[9]

Estimation of HIV seroprevalence in pregnant women provides essential information about status of effective implementation of AIDS control program. Very few studies are available from West Bengal showing the trend of HIV prevalence in antenatal population.

. This study was done to determine the prevalence of HIV in pregnant women and to analyse the services provided in PPTCT centres.

II. Materials& Methods

This retrospective hospital based study was done at Murshidabad Medical College and Hospital, Berhampore, West Bengal from March 2013 to March 2019

Study design: Retrospective observational study

Study Location*:*Study was done at a tertiary care teaching hospital in the Department of Microbiology

Study duration: March 2013 to March 2019

Sample size: Total 90134 pregnant mothers who attended pre-test HIV counselling duringstudy period from March 2013 to March 2019

Inclusion criteria:

1. Pregnant Women
2. HIV seropositive

Procedure methodology

A total 90134 pregnant mother attended pretest counselling. Among them 53969 pregnant women accepted HIV testing. 48 women were found HIV seropositive. Also, those women who presented to the emergency department of our hospital directly in active labourand whose HIV status was unknown were tested for HIV. The total number of HIV positive deliveries in our hospital during study period was 48 in our hospital during the same duration of time. For all these women pre-test counselling, HIV testing and post-test counselling was done by trained personnel as per NACO guidelines. Counselling comprised of information about HIV infection, its mode of spread, importance of HIV testing, and preventive measures that are available for reducing mother to child transmission. Data about socio-demographic and obstetric factors were gathered. After counselling women was offered HIV testing by opt-out approach. Only those who were willing for test were tested for HIV after informed consent using three different rapid tests as per NACO guidelines. Post-test counselling was done according to the test results. Partner testing was offered to all pregnant women. Information about MTP services was given to those who did not want to continue their pregnancy. For those who intended to continue their pregnancy were advised for regular follow up at ANC and PPTCT centre. Confidentiality of data was maintained throughout the study. All the seropositive patients were advised for institutional delivery. Those women who tested positive for HIV and delivered before April 2014 were given prophylactic single dose Nevirapine therapy at the time of delivery and from April 2014 onwards seropositive women were referred to ART centre for lifelong ART regimen (Triple drug regimen) irrespective of their CD4 count and WHO clinical stage as per updated NACO guidelines for prevention of mother to child transmission of HIV.

III. Result

During the study period from March 2013 to March 2019, pregnant mothers who registered at antenatal clinic at Murshidabad Medical College & hospital in West Bengal , pre-test counselling was offered to them but only 90,134 attended the counselling. Among them 53969 (**60.41%**) accepted HIV testing. Out of these, 48 patients were found to be HIV seropositive with a prevalence rate 0.09% (Table 1).

TABLE 1:HIV Seropositivity in Antenatal Women

Women attended pre-test counselling	Women accepted HIV testing	% Women HIV tested	Women found HIV positives	% Sero Positivity
90134	53969	59.87%	48	0.09%

In present study out of 53969 pregnant women 48 women were found positive with 0,09% HIV seroprevalance rate.

Table no 2 shows that 56% HIV positive women were in 18 to 25 years age group followed by 26 to 30 years group (42%). One 32 yrs old pregnant woman was declared HIV seropositive.

Table 2: Age of HIV seropositive pregnant mother

Age		No of seropositive pregnant mother	% of seropositivity
	18-25 yrs.	27	56
	26-30yrs	20	42
	31-35 yrs.	1	2

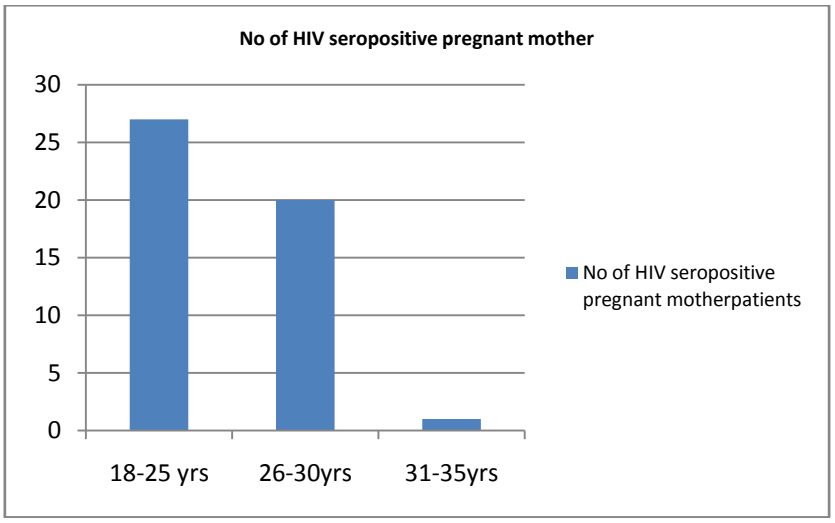


Table3: Literacy rate among HIV seropositive pregnant mother

Education		No of seropositive pregnant mother	% of seropositivity
	Illiterate	7	15
	Primary	16	33
	Secondary	22	46
	Graduate	3	6

Table 3 shows that most of (46%) the seropositive pregnant mother had secondary education.

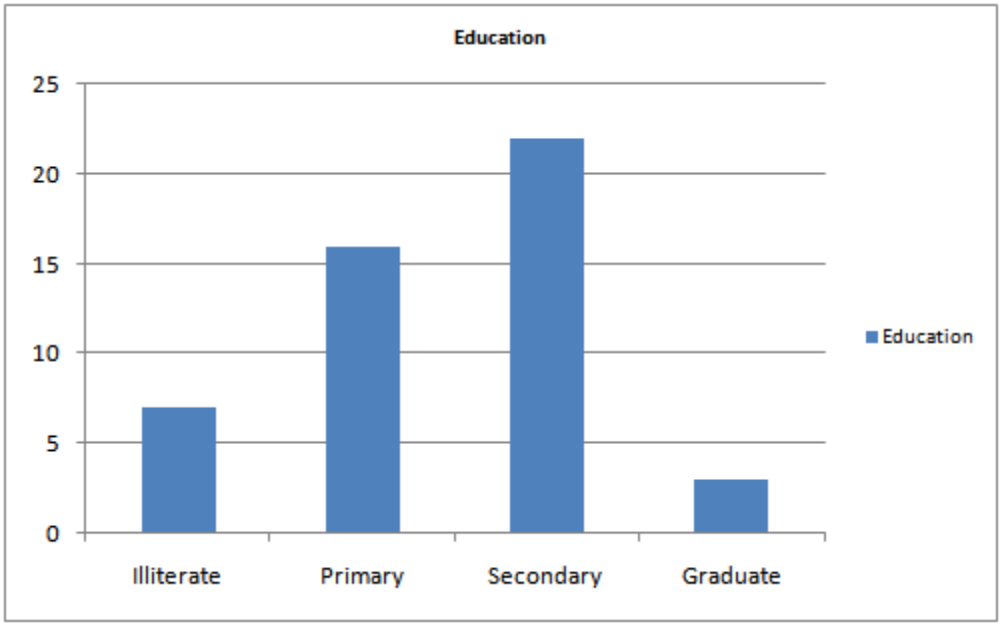


Table no 4 shows 46% seropositive women were primigravida and rest 54% seropositive pregnant women were multigravida.

Table no 4: Gravidity ofHIV of seropositive pregnant mother

Gravidity		No of seropositive pregnant mother	% of seropositivity
	Primigravidity	22	46
	Multigravida	26	54

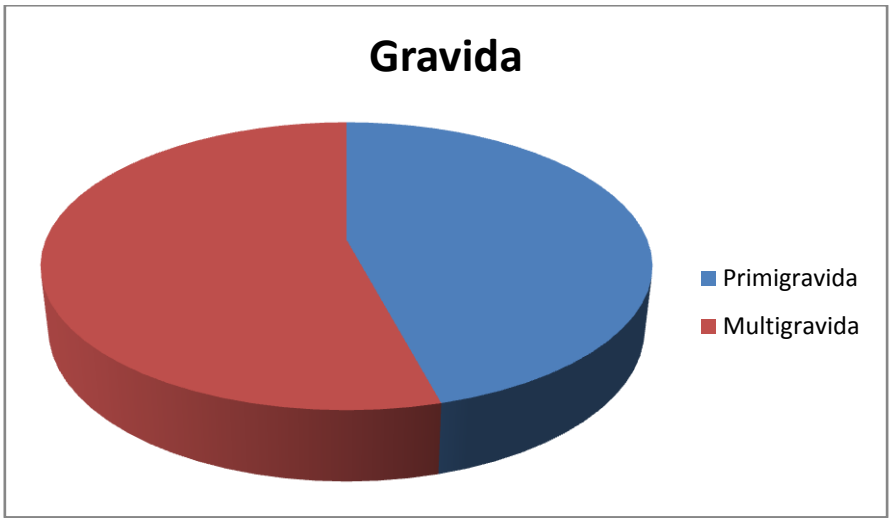


Table no 5 shows that majority (56%) of HIV positive women came from rural area. Rest 44% women came from urban area.

Table no 5: Place of Residence of HIV seroposive pregnant mother

Residence		No of seropositive pregnant mother	% of seropositivity
	Rural	27	56
	Urban	21	44

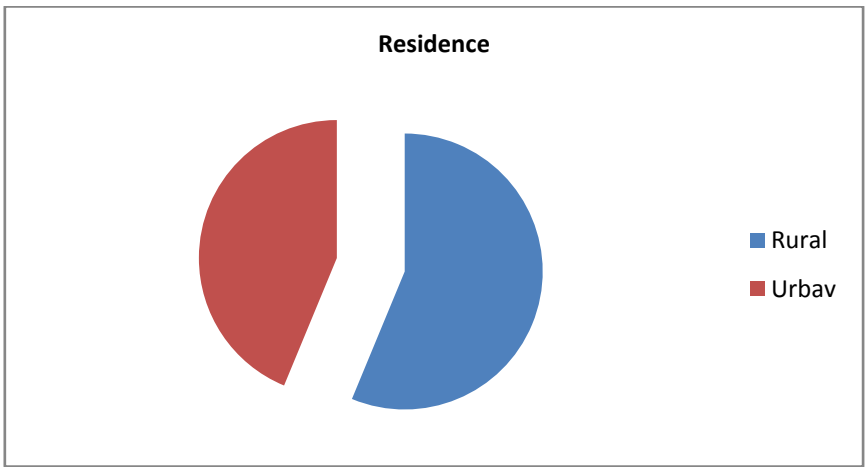


Table no 6 shows that majority of seropositive women were Hindu by religion.

Table no 6: Religion of HIV seropositive women

Residence	Majority had secondary education	No of seropositive pregnant mother	% of seropositivity
	Muslim	23	48
	Others	1	2

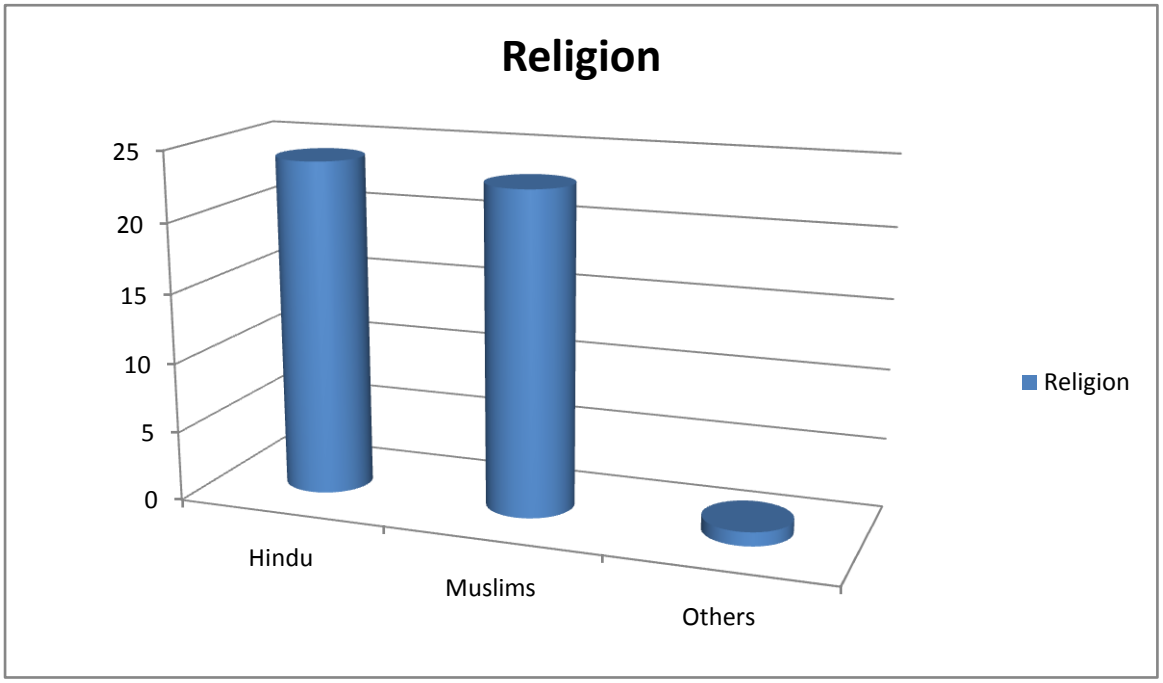
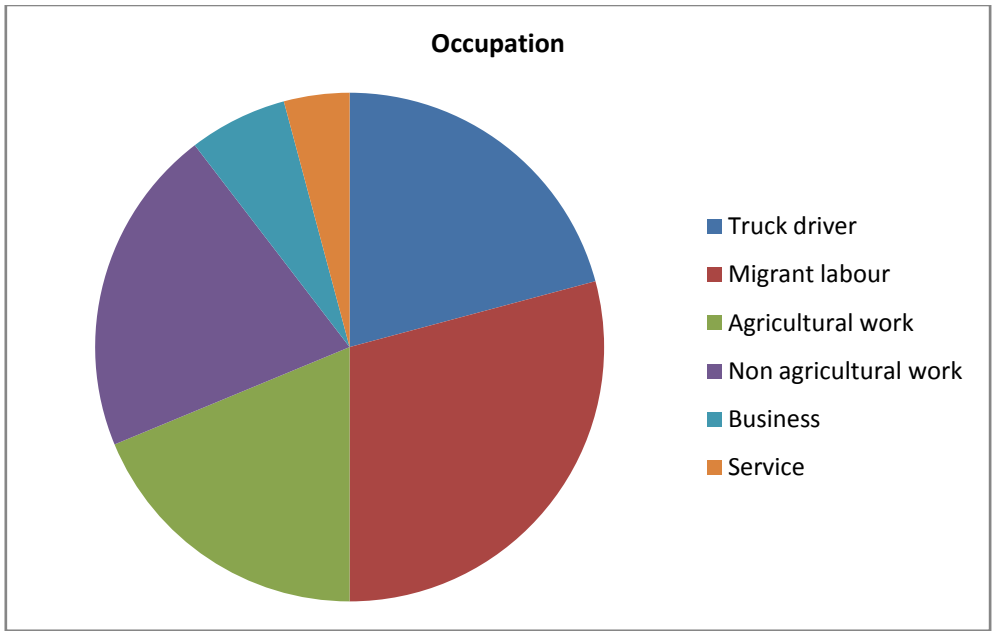


Table7: Partners occupation of HIV seropositive women

Occupation	No of partner
Truck driver	10
Migrant labour	14
Agricutural labour	9
Non Agricultural labour	10
Business	3
Service	2



Husbands of 10 HIV positive pregnant women out of 40 HIV positive pregnant women were confirmed to be negative giving 25% serodiscordant result (taking consideration of refusal of husband for testing).

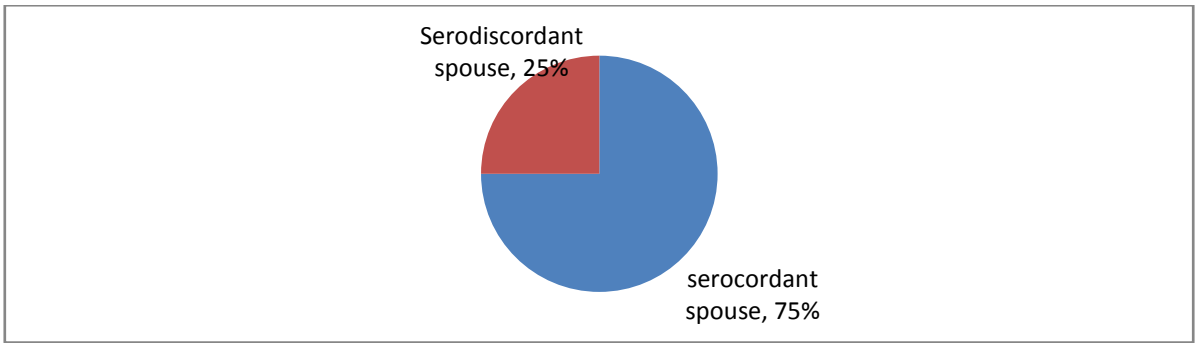


Fig1: Serostatus of spouse

Total number of pregnant women tested positive for HIV as well as women delivering in our hospital per year during study period shows a variable trend.

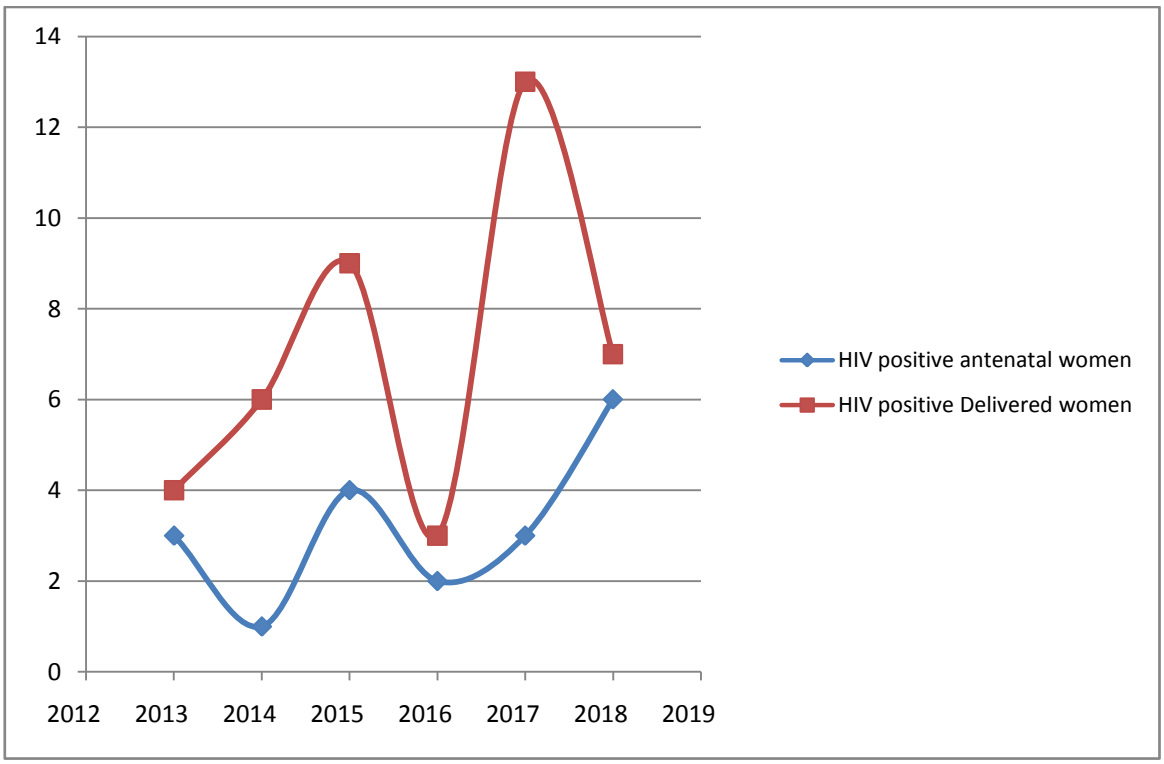


Fig 2: Year wise trend of HIV positive status in antenatal women and delivered women in Murshidabad Medical College, West Bengl

Majority of seropositive women attended the antenatal clinic regularly for follow up. Only 2% women opted for MTP. Forty five women (95.8%) who continued with their pregnancy delivered in our institution. Two women gave birth of stillborn babies. 62% of women delivered vaginally and 38% of women delivered by caesarean section. Two patients delivered at sub-divisional hospital of nearby area. All, of the mother and babies delivering at our institution, had received ARV prophylaxis.

TABLE 7: Outcome of pregnancy

	No of woman/ new-born	%
Termination of pregnancy	1/48	2
Delivery in our Institute	45/48	93.7
Live birth	43/45	100
Stillborn	2/45	
Vaginal delivery	28/45	62
Caesarean section	17/45	38
Antiretroviral prophylaxis		
Mother	45	100
Child	43	100

Table no 7 shows that CD4 counts were grouped under different headings. They are <250 cells/µl, 251-500 cells/µl, 501- 650 cells/µl and >650 cells/µl. The lowest CD4 count recorded was 145cells/µland highest CD4 count recorded was 949cells/µl

Table7:CD4 count of HIV seropositive womenat pregnancy

CD4 count during pregnancy (cells/µl)	**No of pregnant mother**
<250	6
251-500	23
501-650	15
>650	4

IV. Discussion

The NACO Technical Estimate Report (2015) estimated that out of 290 lakhs annual pregnancies in India, 35,255 occur in HIV positive pregnant women. In the absence of any intervention an estimated (2015) cohort of 10,361 infected babies will be born annually. [10]

The HIV testing in ICTC can be offered as either opt- in or opt- out approach. Centre for Disease Control (CDC) recommends an opt out approach as the testing rate is 85-98% [11] In the present study the overall acceptance of HIV testing using opt-out approach is 59.87%. Joshi et al and Sinha et al reported higher (83% and 79% respectively) while Kulkarni et al reported a lower (43.13%) acceptance rate of HIV testing using the opt-out approach. [12-14] But Parameshwari et al. and Chaudhari et al reported HIV testing in 100% and 96% antenatal cases respectively. [15,16] To achieve high rates of counselling and testing, good counselling skills and experience of the counsellor is fundamental.

The average HIV seropositivity among women attending antenatal clinic in India is 0.29% as per NACO annual report 2015-2016.[4] The present study reveals a prevalence rate of 0.09%. Recent studies from different authors have reported different seropositivity rates, ranging from 0.08% to 1.03%. Kaur G et al reported a seroprevalence of 0.08% in Jammu which is similar to our study.[17] Mehta et al. from Jamnagar, Gujarat reported 0.38% and Kulkarni et al from Nanded, Maharashtra reported 0.76% seroprevalence in antenatal women. [18] Sibia et al reported a high (1.03%) seropositivity from Punjab. [19]

The most recent data of 14th round of HIV Sentinel Surveillance among ANC clinic attendee's shows that Maharashtra (0.32%), Punjab (0.32%), Rajasthan (0.32%) and Tamil Nadu (0.27%) recorded HIV prevalence similar to the national prevalence (0.29%).

We observed that majority of seropositive women were multigravida, belongs to rural area and had secondary education similar to the observations made by Kaur G et al and Kwatra et al in their studies.[17,20] In the present study majority of seropositive women (56%) were in 18-25 year of age group. Ukey et al and Hussain T et al also made similar observation. [21, 22]

Husbands of 63% women were found to be HIV seropositive in the present study, Kaur G et al and Ukey et al reported higher seropositivity (80% and 96.59% respectively) in the spouses of such patients. In our study, almost one fifth of seropositive women had serodiscordant partners. This is an important observation as it shows that females can be the Index case where both partners are seropositive. It also underlines the need to involve both the partners in voluntary HIV testing and counselling. Husbands of 8 out of 48 HIV positive women did not turn up for HIV test due to lack of awareness of the importance of HIV counselling and testing or of social stigma.

A three dimensional approach is needed to prevent babies from acquiring HIV from their mothers.These are (i) primary prevention of HIV in women of child bearing age (ii) Prevention of unintended pregnancies among women living with HIV (iii) Prevention of HIV transmission from pregnant women infected with HIV to their child.

In the present study only 2% of seropositive women opted for pregnancy termination. Kwatra et al and Chaudhary et al reported that 11% and 17% of their patients respectively opted for pregnancy termination.[23]Forty five (81.57 %) seropositive women in our study got delivered at our institute. Tayade et al reported 78.07% institutional deliveries in their study.[24] In our study only 38% women were delivered by caesarean section and remaining 62% women had normal vaginal delivery. Joshi reported 41.66% and Choudhary et al reported 42.86 % caesarean rates. Caesarean section is not recommended for prevention of mother-to-child transmission unless there is an obstetric indication for the same.

Safe delivery practices have been observed in our Institute by taking work precautions such as avoiding artificial rupture of membranes, repeated vaginal examinations, assisted instrumental delivery, invasive foetal monitoring procedures, episiotomy and prematurity.

India has transitioned from the single dose Nevirapine strategy to that of multi-drug ARV prophylaxis. It has efficiently decreased the rate of transmission of HIV from mother- to-child to the level of less than 5%. [9] According to the new guidelines of NACO, effective from 1st January 2014, pregnant women who are found to be HIV positive are initiated on lifelong ART irrespective of CD4 count and WHO clinical Staging; their new-

born (HIV exposed) babies are initiated on 6 weeks of Syrup Nevirapine immediately after birth so as to prevent transmission of HIV from mother to child and is extended to 12 weeks of Syrup Nevirapine if the duration of the ART of mother is less than 24 weeks. [11]All the mother-baby pairs delivering at our institute (100%) had received ARV prophylaxis. Chaudhary et al and Tayade et al also reported 100% coverage, thus emphasising the good counselling skills of health providers and concern of mothers towards safety of their child. HIV infected mothers were counselled about hazards of mixed feeding. They regularly attended ANC to follow-up for their own wellbeing and wellbeing of their children, to prevent HIV transmission during post natal period

V. Conclusion

Our study reveals that the seroprevalence of HIV infection in antenatal women is relatively low in this region compared to the national average. Education, empowering women, reducing gender inequalities, literacy and creating awareness about HIV in the general population are directly needed to improve acceptance of HIV counselling and testing among pregnantmother. It also helps to overcome the social stigma attached to this disease. Motivation of their partner or spouses to accept the HIV testing is the key pivot to identify the undiagnosed population. We have succeeded to break into the tip of the iceberg only. A lot of hard labour is still required to reach into the depths of the ocean called HIV .What we have already done to control this problem is remarkable but a monumental task still remains ahead to be completed as fast as possible. When the level of health education succeeds in encompassing majority of our population it will clearly help to reduce the burden of this HIV epidemic. The incidence of acceptance of therapeutic measures by seropositive mothers, to minimize mother- to- child transmission of HIV, will also rise. With the optimum utilisation of PPTCT services and new multidrug ART in seropositive pregnant patients, we can hope to safeguard our present and future generations.

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