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Original Research Article

## Study of antenatal prevalence of HIV and its trend in a tertiary care hospital

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### ABSTRACT

**Background:** HIV/AIDS has become a global problem since first detection in 1981. Women of childbearing age constitute nearly half of the 30 million adults currently living with HIV/AIDS worldwide. Pregnant women are considered as low risk for HIV so estimating prevalence in such low risk people provides us a good basis for long term strategy for implementation of HIV/AIDS control programme. The objective of this study was to study acceptance of antenatal HIV testing during routine ANC checkups using opt in strategy. To study prevalence of antenatal HIV and its trend.

**Methods:** Observational and analytic study. Antenatal women coming for routine antenatal care in obstetric OPD were counseled and blood sample were taken according to guidelines for HIV testing from period 1/1/2014 to 31/12/2018.

**Results:** Out of total 23907 women attending antenatal clinic 23841 accepted HIV testing, Out of these 72 were found positive, making HIV seroprevalence rate of 0.30. 42 spouses were also found positive.

**Conclusions:** Though seroprevalence of HIV in antenatal women is low, slowly rising trend worths a caution for us.

**Keywords:** Antenatal, Counseling, HIV/AIDS, Trend, Seroprevalence

### INTRODUCTION

In recent years HIV and AIDS has emerged as the major health problem throughout the world. Research is going on every area from molecular biology to community medicine to save the humankind from this disease which has become epidemic in some of the countries. Women of childbearing age constitute nearly half of the 30 million adults currently living with HIV/AIDS worldwide.<sup>1</sup> Though India is categorized as low HIV prevalence nation; it has the third largest number of people living with HIV/AIDS.<sup>2</sup>

HIV data from antenatal women has been used to monitor trends in the general population and to predict the seroprevalence in young children.<sup>3,4</sup> The parent-to-child

transmission occurs in approximately 25 to 35% of HIV positive women, which accounts for 4% of the total HIV infection load in India.<sup>5</sup> Major route of transmission of HIV in general population is heterosexual contact, but maternal to child transmission remains the largest contributor to seropositivity in children under fifteen year of age.<sup>6</sup> Maternal transmission of HIV can occur transplacentally before birth, peripartum by exposure to blood and body fluid at delivery, or postpartum through breastfeeding.<sup>7</sup> Perinatal transmission accounts for 91% of all AIDS cases among children in the United States and 90% of infection in sub-Saharan Africa.<sup>8-10</sup>

According to NACO, it is estimated that about 30,000 infants acquire HIV infection each year.<sup>6</sup> Data received from various studies conducted before preventive

interventions, estimated the risk of in utero transmission to be around 10%, intra partum to be 15% and postpartum to be between 10% and 15%. With effective PPTCT program, the risk of vertical transmission of HIV in children can be decreased to less than 2%.<sup>11</sup> Therefore, screening of pregnant women at an early stage of pregnancy may help in prompt counseling and therapy, thereby reducing the risk of transmission to the child.

Currently, women are encouraged to deliver normally and breastfeed their babies while taking antiretroviral drugs. This approach increases the HIV-free infant survival (WHO 2010). Various studies conducted worldwide conclude that HIV testing should be universal rather than selective because selective HIV testing in antenatal clinics may fail to detect majority of cases.

So we undertook this population based study to determine the rate and trends of HIV seroprevalence among asymptomatic pregnant women attending antenatal clinics in GMERS sola.

## METHODS

This study was carried out in GMERS Medical College, Sola, Ahmedabad associated hospital. This study was hospital based study which included 23907 pregnant women who attended the antenatal clinic of GMERS medical college, Sola Ahmedabad from January 2014 to December 2018.

### Inclusion criteria

- All pregnant women attending antenatal clinic within same period found to be pregnant.

### Exclusion criteria

- Those HIV positive women who were non-pregnant and attended OPD.

For the antenatal women first pre-test counseling was done by expert HIV counsellor and obtaining written informed consent, blood sample was collected. Five millilitre of blood was collected from each patient accepting HIV testing by venepuncture into plain container. Blood was allowed to clot for 30 minutes at room temperature and serum was separated after centrifugation at low speed.

The sample was tested for HIV antibodies as per NACO guidelines. The first antibody test was RAPID test. If the initial result is positive than it is confirmed using rapid test three times, if all 3 tests are positive than patient is declared as HIV positive.

After the HIV test result is known, post-test counseling was done and result declared. Positive test results disclosed only after post-test counseling of patient. Counseling was private, and kept confidential.

The HIV positive pregnant women get their CD4 count done, and tested for any other infection. Proper antenatal care was given; hospital delivery is advised for them following universal precautions.

### Statistical analysis

The data were analyzed using the Chi-square tests.

## RESULTS

As per Table 1 we can see that data was collected and analyzed from total of 23841 pregnant women who had accepted testing (out of total 23907 antenatal women) during the period of five year from January 2014 to December 2018. Total 72/23841(0.30%) pregnant women were found HIV positive.

**Table 1: Antenatal HIV testing uptake.**

Antenatal HIV testing uptake (n=23841)	Total	Percentage
New ANC register	23907	-
Women who accepted testing	23841/23907	99.72%
HIV positive women	72/23841	0.30%
Women who attended post-test counseling	19150/23841	80.32%
Number of spouses testing positive	42/72	58.33%

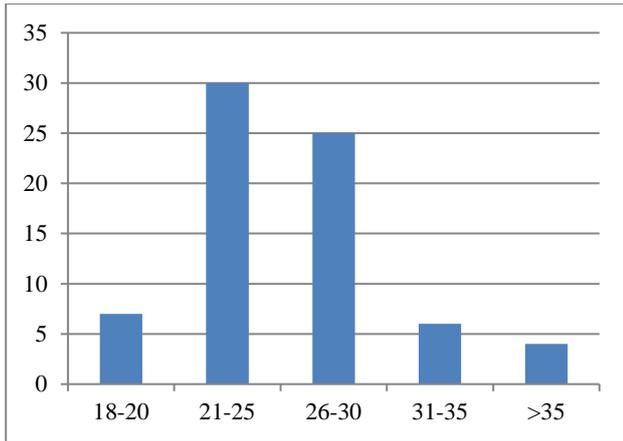
19150/23841 (80.32%) women attended post-test counselling. 42/72 (58.33%) spouses of HIV positive women were also found to be HIV positive. Those who tested negative were advised repeat testing after 3 months and use of barrier contraception in the meantime.

**Table 2: Maternal demographic characteristics.**

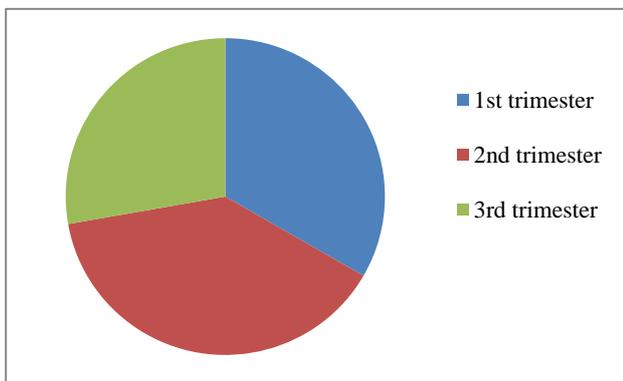
Characteristics	Mean±sd	
Age (years)	25.81±4.24	
Gravidity	2.1±1.19	
Parity	1.52±1.12	
Characteristics	No.	Percentage
First trimester	24	33.33%
Second trimester	28	38.88%
Third trimester	20	27.77%
Literate women	55	76.38%
Literate husbands	70	97.22%

As depicted in Table 2, in this study we found the average age of the HIV positive women was 25.81±4.24 years and gravidity 2.1±1.19, parity 1.52±1.12.

While following the literacy level we found that 76.38% HIV positive women were literate, while 97.22% of spouse was literate.



**Figure 1: Age of the mother at the time of diagnosis.**



**Figure 2: Gestational age at the time of diagnosis.**

As seen in Figure 1 majority of women while of young age at the time of diagnosis, age period between 21 to 25 having the most followed by 26 to 30 years age. While below 20 and above 30 chances are low.

As we can find from Figure 2 and Table 2, in this study majority of HIV positive cases were attending the antenatal clinic in second trimester (38.88%), followed by first trimester (33.33%) and third trimester (20%).

**Table 3: Occupation of husband.**

Occupation	Number	Percentage
Driver	7	9.72
Worker (laborer)	51	70.83
Job	10	13.88
No data	4	5.55

**Table 4: Occupation of women.**

Occupation	Number	Percentage
House wife	64	88.88
FSW	1	1.38
Worker (laborer)	7	9.72

As we can see from Table 3, while analyzing occupation of the husband of HIV positive women we found that

majority (n=51) are laborer (worker) making nearly 70.83% of the pool followed by 13.88% with job (n=10). Husband of 7 positive women were driver making 9.72% while for 4 (5.55 %) no data was found.

As we can see from Table 4, while analyzing occupation of HIV positive women themselves we found that most of the women (n=64) were house wives making nearly 89% of women who were found positive, followed by workers (laborer) (n=7) making nearly 10% of women. Similar study done by Sibia P et al, found that 63.25% women were housewives.

## DISCUSSION

India's socio-economic status, traditional social ills, cultural myths on sexuality and a huge population of marginalized people make it extremely vulnerable to HIV/AIDS.<sup>12</sup>

**Table 5: Review of literature - seropositivity of HIV in India.**

Study	Location	Seroprevalence
Parameshwari et al	Namakkal, TN	0.70%
Gupta et al	AIIMS, New Delhi	0.88%
Devi et al	Renga Reddy Dist, AP	0.45%
Chaudhuri et al	Kolkata, WB	0.16%
Ashtagi et al	Belgaum, Karnataka	0.70%
Dash et al	Berhampur, Orissa	0.66%
Kulkarni et al	Nanded, Maharashtra	0.76%
Mehta et al	Jamnagar, Gujarat	0.38%
Kwatra et al	Ahmednagar, Maharashtra	1.38%
Ukey et al	Nagpur, Maharashtra	1.38%

From our data we can see the acceptance and response to universal HIV counseling and voluntary screening in an antenatal tertiary care unit using an opt-in strategy. Voluntary testing strategies are of two types, opt-in and opt-out. In the opt-in approach HIV testing is offered by the family physician or obstetrician and can be done only after proper counseling and written well informed consent. The proportion of women agreeing to accept HIV testing through the opt in approach is reported to be in the range of 36% to 86%.<sup>13,14</sup> In our study, the acceptance of HIV testing was 99.72%. HIV prevalence in pregnant ladies in our study is 0.30%, which might be explained by the fact that antenatal women attending this hospital are poor, illiterate, migrated from outside of Gujarat and lives in the area where people with high risk behavior resides.

HIV infection among pregnant women poses particular risk to their family, offspring and health workers at the time of delivery.<sup>9,10</sup> To provide utmost care to both mother and fetus it is essential that we can identify the HIV seropositive mother in antenatal period. HIV seropositive women may elect to terminate their pregnancy, and at that time contraception or sterilization can be offered to them. Pre- and post-test counseling may educate pregnant women about methods to prevent HIV infection, and its transmission.

As seen in Table 5 various studies done in India has found different seroprevalence rate ranging from 0.16 to 1.38.

Chaudhary et al has found seroprevalence rate of as low as 0.16 in his study in 2007 in west Bengal while Kwatra et al, and Ukey et al, found seroprevalence of 1,38 in their study in Maharashtra in 2011 and 2005 respectively.

While most of the researchers found seroprevalence of around 0.60 to 0.80 in their study.

In our study we found seroprevalence rate of 0.30.

While analyzing the trend of seroprevalence, we found a rise in the HIV seroprevalence rate from 0.19% in 2013-2014 to 0.30% in 2014 to 2018. Even though the change in prevalence rate was statistically insignificant ( $p > 0.5$ ) due to non-comparable number of women included, the trend indicates concern. In our study we found post test compliance rate little low around 80% suggesting that women are not too compliant with post test counseling, the reason for the same may include patient perception that she is not at risk, fear of rejection by friends and family, and fear of the diagnosis.<sup>15</sup> Other reasons could be poor awareness and education about HIV, and perhaps not enough emphasis being placed on the importance of the post-test counseling during the pretest counseling visit.

In our study we found most of the mothers are in the age group between 20-30 followed by older age groups signifying that in india majority of women are infected after marriage with heterosexual sex relation with husband.<sup>16-18</sup> This is different from the findings of the studies conducted in developed countries where intravenous drug abuse is a major route of transmission.<sup>19-21</sup> The National AIDS control organization (NACO) of India estimated that some 60% of cases of HIV infection are found in rural areas, where about half of India's citizens live.<sup>22</sup> In rural and urban areas, women of reproductive age are principally at risk for HIV acquisition through marriage- this risk reflects their husband's premarital behavior and sexual premarital behavior and sexual concurrency during marriage.<sup>22</sup> So for early case finding of HIV and for implementation of PPTCT, HIV screening of all antenatal women should be a continued process and be mandatory.

## CONCLUSION

Our study indicates an increasing trend of HIV prevalence in housewives and pregnant mothers. This will directly transform into a high perinatal transmission and a reciprocal increase in pediatric AIDS cases. Therefore, it may be recommended we can minimize, if not prevent, the pediatric HIV infection by early screening of pregnant mothers for HIV followed by perinatal short term chemotherapy, safe delivery practices and modified infant feeding.

Many a times prenatal care is the only contact that women might have with health services, therefore pregnancy may be the only opportunity to diagnose HIV infection, and to provide measures to prevent perinatal transmission and disease progression. Therefore, counseling and testing for HIV infection should be offered routinely to all pregnant women.

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