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A Study on Incidence of HIV Infection among Pregnant Women Attending Antenatal Clinic in a Tertiary Care Hospital

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Abstract: ***Background: Estimating the HIV seroprevalence in a low risk population, such as pregnant women, provides crucial data for tracking the trajectory of HIV in the general population and aids in the prevention of transmission from mother to child. Methods: This study involved 2000 pregnant women who attended antenatal clinic at Dr. BVP Rural Medical college, Pravara Institute of Medical sciences-Loni, Ahmednagar, Maharashtra India between January 2022 and July 2022. Following pre-test counseling and informed consent, a blood sample was taken and analyzed for HIV antibodies in accordance with NACO recommendations. ELISA was the initial antibody test. Two more tests were performed to confirm any positive results from the initial test. Results: 15 pregnant women out of 2000 were discovered to have HIV, with a seroprevalence rate of 0.5%. The majority of seropositive females (87.5%) were in the 20–30 age range.12.5% of the population was aged 15 to 19. Seroprevalence was greater in people under 20 (1.9%), people with longer reproductive histories (2.4%), and people without a high school diploma (3%). The majority of HIV-positive women had migrant husbands, then truckers. Conclusions: Despite the fact that our study population is not representative of all of India because it is a hospital-based study with a small sample size, this research shows a little increase in HIV prevalence among pregnant women. More than 90% of paediatric AIDS cases are caused by mother-to-child HIV infection during pregnancy, birth, or breast-feeding. Reduced mother-to-child HIV transmission will be achieved through effective antenatal screening, interventions, and preventative measures during pregnancy, delivery and nursing.***

Keywords: HIV, Infection, Pregnancy

1. Introduction

Since 1986, when the first case of AIDS was discovered in India, reports of HIV infection have been made in all 50 states and the union territories. In 1987, India started a national AIDS control program. The six Indian states of Manipur, Nagaland, Andhra Pradesh, Tamil Nadu, Karnataka, and Maharashtra are thought to have significant HIV-AIDS prevalence (>1%). Although India is among the top 10 nations with a high prevalence of HIV among pregnant women and the third largest country in terms of the HIV epidemic, the prevalence of HIV infection among pregnant women is now about 0.7%. In many areas of the nation, the frequency of HIV among pregnant women has been rising. The main socioeconomic causes of their susceptibility to HIV infection are illiteracy, early marriage, violence, and sexual assault towards women. Because HIV can be passed from an infected mother to her child throughout pregnancy, labour, and delivery, as well as via breastfeeding, prenatal screening is crucial. The reported transmission rates were from 25-48% in poor countries and 13-32% in industrialised nations. [1] Depending on the length of breastfeeding and other risk factors including the existence of mastitis, a breast abscess, and other local variables in the newborn, up to 20% of infants may contract HIV through breastfeeding. [2]Mother to child transmission is by far the most important route of HIV infection transmission in children under the age of 15. [3] While heterosexual contact is the most frequent means of transmission here, perinatal transmission is responsible for 4% of India's overall HIV infection load. [4] More than 90% of paediatric AIDS is brought on by mother-to-child HIV infection during pregnancy, delivery, or breast-feeding. As the number of HIV-positive women in India rises, it follows that, if the infection is not discovered during pregnancy, the number of newborns who contract the virus during pregnancy would likewise rise. Therefore, early pregnancy screening may aid in prompt counseling, lowering the risk of perinatal transmission. For the efficient implementation of an AIDS control program, to anticipate the seroprevalence in young children, and to track the spread of HIV inside our nation, it is crucial to estimate the seroprevalence of HIV in a low risk group like pregnant women.

2. Methods

2000 pregnant women who attended the antenatal clinic of Dr. BVP Rural Medical College, Pravara Institute of Medical sciences-Loni, Ahmednagar from January 2022 to July 2022 were included in this retrospective hospital-based descriptive analysis. The antenatal clinic of this hospital routinely recommended HIV testing to pregnant women who had enrolled there. Following informed consent and pre-test counseling, a blood sample was taken. According to NACO procedures, the sample was tested for HIV antibodies. ELISA was typically the first antibody test. Two more tests are used to confirm the initial result, if it is positive. Following the completion of post-test counseling and the statement of the HIV test result. Data confidentiality was upheld at all times. Suitable prenatal care is provided. As a general precaution, having them delivered in a hospital is advised. According to pre-designed questionnaires, information regarding socio-demographic characteristics was gathered. Microsoft Excel was used to analyse the data and calculate the percentage and proportion.

Results

Table 1: Sociodemographic profile of pregnant women

Sociodemographic profile	No of cases	Percentage (%)
Age		
< 20	100	5
21 – 25	1760	88
26 – 30	100	5
> 30	40	2
Literacy		
Illiterate	120	6
Primary	200	10
Secondary	1360	68
Higher Education	320	16
Gravida		
G1	1400	70
G2	540	27
G3 and more	60	3

Table 2: No of HIV positive pregnant women

Age	No of HIV positive women (n=15)	Percentage (%)
< 20	1	0.05
21 – 25	4	0.20
26 – 30	9	0.45
> 30	1	0.05

3. Discussion

India is very vulnerable to HIV/AIDS because to its socioeconomic position, traditional societal evils, cultural beliefs about sexuality, and large population of underprivileged people [5]. Parent to child transmission accounts for 25% to 35% of India's HIV infection load. [4]

After pretest counseling and informed consent, 2000 pregnant women were screened for HIV in the current study, and the prevalence rate of HIV was discovered to be 0.5%. Our study's findings are consistent with the average national HIV prevalence among pregnant women. The seroprevalence rate of 0.56% that Mandel et al from West Bengal observed is comparable to our findings. [6]Similarly The prevalence of HIV was found to be 0.41 percent, 0.45 percent, and 0.44 percent, respectively, in studies conducted by Giri et al. in Loni, Maharashtra; Devi et al. in Renga Reddy district, AP; and Patil et al. in Dhule, Maharashtra. [7-9] The seropositivity rates reported by several authors ranged from 0.16% to 0.88%. Seroprevalence rates of 0.88% were found in both the studies conducted by Gupta et al. in North India and Sarkate et al. in Maharashtra on pregnant women. [10] HIV prevalence rates were found to be 0.39% and 0.27%, respectively, in studies done by Khokar et al. in a tertiary care hospital in Gujurat and Farhana Aljabri et al. in a tertiary care hospital in South India. [11]Low prevalence rate of o.17% was recorded by Chaudhuri et al in Kolkata, West Bengal. [12] Recent research conducted in Akola, Maharashtra by Sayare et al. revealed a prevalence rate of 1.03%, indicating higher incidence in those areas. [13] In our study, out of a total of 22 HIV-positive pregnant women, 7 (88.75%) fell into the 20–30 age range, followed by 1 (12.5%) in the younger age range. In their analysis of 50 HIV-positive women, Giri et al. discovered that 17 (34%) of them were between the ages of 18 and 23 and 21 (42%) were between the ages of 24 and 28. [7] Similar to this, a recent study by Sayare et al (2016) in Akola, Maharashtra found that 77.8% of the patients who tested positive were between the ages of 20 and 29. [13]It shows that among newly sexually active pregnant women, the prevalence was high. Due to their underdeveloped vaginal tracts and easily torn tissue, young women are more susceptible to the HIV epidemic and the virus is more easily transmitted to them; yet, gender inequality prevents safer sexual practices, such as the use of condoms, in many nations. In our research, we only discovered 1 woman who was tested for HIV over the course of 6 months and was older than 30. Although we were unable to locate any pregnant people with HIV in this age group, the number of pregnant people is too small to make any meaningful observations.

Contrary to similar seroprevalence of 1.1% recorded by Mandel et al. in 2010 in our neighbour state of West Bengal, our study shows a slight increase in HIV prevalence in pregnant women. [6]Even though we conducted a hospital-based study with a small sample size, our study population is not necessarily representative of all of India. An increase in seroprevalence among expectant women will result in high rates of prenatal transmission and a corresponding rise in the number of pediatric AIDS cases. More than 90% of pediatric AIDS cases are caused by mother-to-child HIV infection during pregnancy, delivery, or breast feeding.

4. Conclusion

The mother-to-child transmission of HIV will decrease with appropriate antenatal screening, intervention, and preventative measures during pregnancy, delivery, and lactation. Because of this, it may be advised that all pregnant women undergo HIV testing after receiving pre-test counseling and obtaining informed consent. Although there is currently no cure for HIV, we can reduce, if not completely prevent pediatric infection through early screening, followed by brief chemotherapy, safe delivery, and modified infant feeding.

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