

Prevalence of HIV infection in pregnant women in Mumbai, India: Experience from 1993-2004 and 2008

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ABSTRACT

Aim: Prevalence of HIV among pregnant women in India is of great concern, especially to prevent HIV in children. Mother-to-child transmission of HIV is the most common cause of transmission of HIV in children. Prevalence of HIV infection in pregnant women in India has ranged from 0.7% to 1.2%. Thus, estimating prevalence of HIV in pregnant women would aid in developing and prioritizing prevention of parent-to-child transmission of HIV programs. **Materials and Methods:** All pregnant women referred to the antenatal clinic from 1993 onward were tested for HIV infection by ELISA test after pretest counseling. A woman was diagnosed to be HIV infected if she tested positive on more than two HIV ELISA tests. Prevalence of HIV infection in them was calculated and also whether there was an increasing trend was determined. **Results:** A total of 123,439 pregnant women were tested for HIV from 1993 to 2004, of which 1797 women were HIV infected. Overall, the prevalence rate was found to be 1.4%. Prevalence rose from 0.76% in 1993 to 2.37% in 1998. However, from 2004, the prevalence has decreased to 0.6%. **Conclusion:** Prevalence of HIV in pregnant women in Mumbai is decreasing.

Keywords: HIV, pregnant women, prevalence

Introduction

India has a large population of HIV-infected individuals with prevalence ranging from high in states such as Tamil Nadu, Andhra Pradesh, Telangana, and Karnataka to low to mid prevalence in other states.^[1] As per the National Aids Control Organization, national adult HIV prevalence is estimated at 0.26% in 2015 with the prevalence of 0.30% among males and at 0.22% among females.^[2] The total number of people living with HIV in India is estimated at 21.17 lakhs (17.11–26.49 lakhs) in 2015.^[2] However, prevalence of HIV among pregnant women in India is of great concern, especially to prevent HIV in children. Mother-to-child transmission of HIV is the most common cause of transmission of HIV in children. As per UNAIDS percentage of pregnant women living with HIV who were taking antiretroviral therapy for preventing mother-to-child

transmission of HIV has increased from <5% in 2005 to 14% in 2008, and number of pregnant women needing antiretroviral treatment is estimated to be around 35,000 in 2015.^[2,3] Thus, estimating prevalence of HIV in pregnant women would aid in developing and prioritizing prevention of parent-to-child transmission of HIV (PPTCT) programs. Although various studies have commented on prevalence of HIV in pregnant women in various areas of India and Maharashtra which ranged from 1.11%–2% in 2002–2003 and have now decreased to 0.37%–0.2% by 2011–2012,^[4,5] there are very limited data from Mumbai, a city situated in Western India and in the State of Maharashtra, which has the highest number of adults living with HIV in the country (3.01 lakhs).^[2] Thus, changes in prevalence rates over a period of years cannot be derived from them. We have established a PPTCT program at our center – B. J. Wadia Hospital for children since 1993 and have routinely screened pregnant women for HIV. We thus undertook this study to determine the prevalence of HIV in pregnant women and to

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Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/2249-4863.219990

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How to cite this article: Shah I, Lala M, Damania K. Prevalence of HIV infection in pregnant women in Mumbai, India: Experience from 1993-2004 and 2008. J Family Med Prim Care 2017;6:240-2.

determine if there is any change in this prevalence over a period of years.

Materials and Methods

All pregnant women referred to the Antenatal Clinic at Wadia Group of Hospitals, Mumbai from 1993 onward were tested for HIV infection by ELISA test after pretest counseling. Patients were counseled regarding HIV disease, testing during pregnancy, and prevention of HIV transmission in children. Only when women were convinced about the same, they were tested for HIV by consent. Patients who underwent HIV testing were included in the study. Those who were already HIV infected (previously detected), and those who denied HIV testing were excluded from the study. A woman was diagnosed to be HIV infected if she tested positive on more than two HIV ELISA tests. HIV ELISA was done by DETECT-MC and HIV-CHEK test. A positive test was reconfirmed by doing another blood test immediately on a fresh blood sample. After posttest counseling, those women who tested positive were offered PPTCT of HIV program and treated accordingly. Records of these patients were obtained from the yearly annual report of the hospital.

Statistical analysis

Prevalence of HIV in these pregnant women was determined for every year from 1993 onward till 2004 to in 2008 by retrospective analysis.

Results

A total of 128,625 pregnant women were tested for HIV from 1993 to 2004 and 2008, of which 1797 women were HIV infected. Prevalence rate was found to be 1.4%. Table 1 depicts prevalence of HIV among pregnant women in a year-wise distribution where prevalence has ranged from 0.6% to 2.37% with prevalence rising from 0.76% in 1993 to 2.37% in 1998. However, from 2004, the prevalence has decreased to 0.6%.

Discussion

Prevalence rate of HIV infection among pregnant women in Mumbai has ranged from 0.95% in 2008 to 0.63% in 2012.^[6] However, there are no estimates available to determine the trend of prevalence over a period of years. Although we did find increasing prevalence from 1993 to 1998, the prevalence rate subsequently started showing a decreasing trend as has been reported from other parts of Maharashtra as well as from other hospitals in Mumbai. Overall, there has been a decrease in prevalence of HIV in the country with the epidemic well under control now.^[2] There is also increased awareness about the disease and methods of its prevention in the general population in the recent years. Giri *et al.* in their study from Loni, Maharashtra, have seen a significant decline of 0.75% (2008) to 0.22% (2011) in pregnant women.^[7] Our study also demonstrates a decline in HIV infection in pregnant women; however, the decline is not as steep as reported by other studies. This may be because

Table 1: Prevalence of HIV in pregnant women over a period of years

Year	HIV-positive (%)	Total
1993	95 (0.76)	12,436
1994	114 (0.92)	12,354
1995	111 (0.97)	11,557
1996	204 (1.66)	12,250
1997	153 (1.4)	11,077
1998	287 (2.37)	12,065
1999	176 (1.47)	12,126
2000	192 (1.74)	11,058
2001	183 (2.09)	8767
2002	124 (1.62)	7651
2003	95 (1.47)	6421
2004	33 (0.6)	5677
2008	30 (0.57)	5186
Total	1797 (1.4)	128,625

in Mumbai though the HIV epidemic has stabilized it may not be declining because of the high influx of migrant population every year. Incidentally, a recent study from North India has found that seroprevalence of HIV among women attending the antenatal clinic was 1.03% which is much higher than suggestive in various studies.^[8] Thus, it is necessary to constantly monitor the trend of HIV prevalence in this group of patients so that appropriate action can be taken as and when required. In fact, a study by Joshi *et al.* has demonstrated that addition of second HIV testing in women who initially test negative at 34 weeks of gestation may prove to be cost effective as they found four new HIV infections in 9097 women tested.^[9] Although we have not tested HIV in our patients second time, it would be worthwhile to ensure that no patients miss out on HIV treatment.

Our hospital is a charitable hospital with tertiary referral services for women and children and was first in Mumbai to offer PPTCT services. Although a number of deliveries at our center has seen a substantial decrease from 2000, it has not affected the prevalence rate of HIV in pregnant women. Limitation of our study is that it is a retrospective analysis and is only till 2008.

With effective counseling, education, and awareness about HIV, prevalence among HIV infection in pregnant women can be controlled and with PPTCT, mother-to-child transmission of HIV can be further decreased. In fact, Kunte *et al.* found in their study that though 70% of pregnant women were aware of existence of AIDS, only 33% knew about all the main modes of HIV transmission.^[10] Thus, strategies to create awareness among couples about HIV would aid in decreasing the HIV seroprevalence in pregnant women.

Conclusion

Prevalence of HIV among pregnant women has shown a decreasing trend in Mumbai. However, surveillance of HIV is constantly needed to ensure that epidemic remains under control and repeat testing may also pick up newly infected patients.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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