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Original Article

Demographic pattern of parents of HIV infected and exposed children

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ABSTRACT

Aim: Whether children born to HIV infected parents belong to a particular parental occupation or a particular locality in Mumbai is not known. We thus undertook this study to determine whether parental occupation or residence is associated with increased risk of HIV.

Study design: Retrospective study.

Setting: Pediatric HIV Clinic at a tertiary hospital, Mumbai.

Methods and materials: All HIV exposed infants and HIV infected children who were referred to the Pediatric HIV Clinic over a period over 20 months were included in the study. Parents HIV status and their occupation and residential area was determined. Incidence of HIV in parents, in various occupations and in different areas of Mumbai was analyzed.

Results: Among the fathers, 123 (60%) were HIV infected, 37 (18%) were HIV negative and in 45 (22%) the HIV status was not known. Among the mothers, 171 (83.4%) were HIV infected, 4 (2%) were HIV negative and in 30 (14.7%) the HIV status was not known. Among the fathers, 24 (59%) businessmen, 26 (59%) contract workers, 16 (53%) clerks, 18 (72%) drivers, 12 (67%) laborers were HIV infected, 12 (75%) government workers, 3 (60%) tailors and 1 (50%) teacher were HIV infected. Among the mothers, 152 (88%) housewives, 7 (100%) clerks, 3 (75%) teachers were HIV infected, 2 (67%) laborers and maid servants each and 1 (100%) each bar girl and tailor respectively were HIV infected. There was no difference in HIV status between housewives and non-housewives ($p = 0.135$). HIV status among fathers' and their occupation was also similar. As per their residence, 65 families (32.5%) stayed in eastern suburbs, 63 (31.5%) stayed in Western suburbs, 42 (21%) stayed in Central Mumbai, 20 (10%) stayed in other cities, and 5 each (10%) stayed in South Mumbai and New Bombay. Again the HIV status was not specific to any residential area.

Conclusion: HIV in families is not restricted to any particular parental occupation or in any particular areas in Mumbai.

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1. Introduction

As per recent statistics there are 3.1 million people living with HIV/AIDS in India out of which 0.9 million are children.¹ Mumbai with area of 603 square km has a population of 20.5 million and a incidence of 2942 cases of HIV AIDS in 2008.² In children, HIV is usually a vertically transmitted disease and parents would be also HIV infected.³ Initially epidemic of HIV was seen more commonly in truck drivers, commercial sex workers and in men who have sex with men (MSM).⁴ Subsequently the epidemic of HIV has affected various strata of the population and is now even seen in 1–2% of pregnant women in Mumbai.⁵ Whether children born to HIV infected parents belong to a particular parental occupation or a particular locality in Mumbai is not known or transmission to children is seen in all strata is not known. We thus undertook this study to determine whether parental occupation or residence is associated with increased risk of HIV.

2. Methods and material

Our Pediatric HIV and Perinatal Clinic in central Mumbai is part of a 200 bedded children's hospital which is a tertiary referral center for various pediatric disorders. In our Pediatric HIV clinic, management of HIV infected children as well as prevention of transmission of HIV from parent to children (PPTCT) are the areas of focus. As part of PPTCT, all pregnant women are screened for HIV infection and if found to be positive are enrolled in the PPTCT programme. Their husbands are also screened for HIV disease. Children born in the PPTCT programme are labeled as HIV exposed till their HIV infection is either confirmed or ruled out by HIV PCR or HIV ELISA at 18 months of age. In our study, parents of all HIV exposed infants and HIV infected children who were referred to the Pediatric HIV Clinic over a period over 20 months were included in the study between the year 2005 and 2007. HIV status of parents was checked by ELISA after informed consent. The diagnosis of HIV was established as per the guidelines of National AIDS Control Organization (NACO).⁶ Parents occupation and residence were determined from the medical records. Parents whose HIV status was not known, or their residence or occupation were not clearly mentioned in the records were excluded from the study.

For our study purpose areas of Mumbai were divided into western suburbs which comprises of area between Dahisar and Dadar; central Mumbai which comprises of area between Dadar and Worli; eastern suburb which comprises of area between Dombivali and Dadar; south Mumbai which comprises of area south of Worli and New Mumbai which comprises of areas north of Vashi. The address of each patient was confirmed by the ration card or driving license so that a recall bias was nullified.

Regarding occupation, salaried officials with a desk job were labeled as clerks, those who drove vehicles for a living were labeled drivers, those who had their own business were labeled businessmen, those who did labor work were labeled as laborers and those who worked on a contractual basis were labeled as contract workers, those who taught in educational

institutes were labeled as teachers, those who worked as maids were labeled as housemaids, those mothers who worked at bars for a living were labeled as bar girls and those mothers who were not working were labeled as housewives.

Details such as socioeconomic status, drug abuse, alcoholism, smoking, psychological status of parents were not available in the medical records and thus were not included as part of the study analysis. Opportunistic infections in parents with HIV infected were noted and included in the descriptive data.

HIV status as per occupation and residence were compared using chi square test. P value of <0.05 was taken as significant.

3. Results

A total of 205 children in the age group of 10 days–15 years were referred to the Pediatric HIV Clinic of which 120 children were referred as part of PPTCT programme and 105 children were HIV infected and referred for further management. Their mean age of children referred were 3.5 ± 4.3 years and a median age of 0.6 years (95.8% CI 0.2–2.5 years). Among the fathers, 123 (60%) were HIV infected, 37 (18%) were HIV negative and in 45 (22%) the HIV status was not known. Among the mothers, 171 (83.4%) were HIV infected, 4 (2%) were HIV negative and in 30 (14.7%) the HIV status was not known. Among the fathers, 41 (22.4%) were businessmen of which 24 (59%) were HIV infected, 44 (24%) were contract workers of which 26 (59%) were HIV infected, 30 (16.4%) were clerks of which 16 (53%) were HIV infected, 25 (13.7%) were drivers of which 18 (72%) were HIV infected and 18 (9.8%) were laborers of which 12 (67%) were HIV infected, 16 (8.7%) were government workers of which 12 (75%) were HIV infected, 5 (2.7%) were tailors of which 3 (60%) were HIV infected and 2 (1%) were teachers of which 1 (50%) was HIV infected. Among the mothers, 173 (89.2%) were housewives of which 152 (88%) were HIV infected, 7 (3.6%) were clerks and all (100%) were HIV infected, 4 (2.1%) were teachers and 3 (75%) were HIV infected, 3 (1.5%) each were laborers and maid servants of which 2 each (67%) were HIV infected, and 1 (0.5%) each was a bar girl and tailor respectively and both were HIV infected. There was no difference in HIV status between housewives and non-housewives ($p = 0.135$) and also among different occupations in the father ($p = 0.812$).

As per residence and HIV status of parents, 25 (60%) HIV infected fathers were staying in central Mumbai, 40 (62%) were staying in eastern Mumbai, 12 (48%) were staying in New Mumbai and other city, 40 (63%) were staying in Western Mumbai and 2 (40%) were staying in South Mumbai. There was no difference in HIV status in different parts of the areas of Mumbai ($p = 0.199$). Similarly in HIV infected mothers, 36 (86%) were staying in central Mumbai, 55 (85%) were staying in eastern Mumbai, 19 (76%) were staying in new Mumbai and other city, 4 (80%) were living in south Mumbai and 54 (86%) were living in western Mumbai. There was no difference in HIV status among mothers in different parts of the areas of Mumbai ($p = 0.831$).

Tuberculosis co-infection was most common opportunistic infection seen in 21 HIV infected fathers and 12 (52%)

HIV infected mothers. Other opportunistic infections were diarrhea in 2 HIV infected mothers and in 1 HIV infected father, amoebic liver disease in 1 HIV infected father, hepatitis in 1 HIV infected mother and in 3 HIV infected father, herpes zoster in 3 HIV infected mothers and in 1 HIV infected father.

4. Discussion

In children, HIV is usually a vertically transmitted disease. The findings from a study suggest that farmers were the least affected parents of HIV positive children differ significantly from results obtained from other areas and may also suggest that HIV may be more prevalent in urban rather than rural areas.⁷ Initially epidemic of HIV was seen more commonly in truck drivers, commercial sex workers and in men who have sex with men (MSM)⁴ According to a study prevalence of HIV decreases with increase in educational status of the community.⁸ Mumbai's socioeconomic growth of the city is one of the important indicator to review the city's vulnerability to HIV. It includes household wealth, educational status, occupation and area living in. Recent estimates show that 56% of the population stay in slums in Mumbai.⁹ Almost 45 lakhs people are employed out of which 41% are employed in industries and 58% in the tertiary sector like drivers etc.¹⁰ With respect to area south Mumbai and western Mumbai are more developed areas socioeconomically as compared to other areas. Navi Mumbai is a recently set up community. Some studies have found an inverse relationship between socioeconomic status and HIV incidence.¹¹ In our study 88% HIV infected mothers were housewives. A similar study by Angyo et al reported that 60.9% mothers of HIV infected children are housewives. The authors suggested that decreased family income due to a single working parent might contribute to a higher incidence of HIV infection.¹² According to a study for the fathers of HIV positive children, HIV infection was more prevalent among civil servants and long distance drivers. This group of workers have a tendency to patronize commercial sex workers who are reported to have a high incidence of HIV (35–75% of cases).¹³ According to a study HIV prevalence in attendees who are on daily wages is higher than those who have business or service as their occupation.¹⁴ This is in not in compliance with our study where HIV infection was seen equally in all types of occupation among the fathers even though drivers and laborers were more affected but it was not statistically significant. There was no marked difference in HIV status area wise. Tuberculosis is the most serious opportunistic infection found in almost 60% of subjects according to many studies.¹⁵ This was in compliance with our study.

We conclude that in a metropolitan city like Mumbai, HIV in families is not restricted to any particular parental occupation

or to any particular areas in Mumbai and the epidemic now affects every strata of the community.

Conflicts of interest

All authors have none to declare.

REFERENCES

1. International Institute for Population Sciences (IIPS) and Macro International. *National Family Health Survey (NFHS-3) 2005-06: India*. vol. 1. Mumbai: IIPS; 2007.
2. *Annual Surveillance Study*. Mumbai, India: National AIDS Control organization; 2008 http://nacoonline.org/upload/Publication/Annual_Report_NACO_2008-09.pdf. Accessed 20.09.2012.
3. AIDS epidemic update. *Global Summary of the HIV/AIDS Epidemic*. 1998 http://www.unaids.org/en/media/unaids/contentassets/dataimport/publications/irc-pub06/epiupdate98_en.pdf. Accessed 20.09.2012.
4. Prevalence and awareness of HIV infection among men who have sex with men 21 cities, United States. *MMWR Morb Mortal Wkly Rep* Sep 24 2010. 2008;59:1201–1207.
5. Monitoring AIDS Pandemic (MAP) Report, AIDS in Asia: Face the Facts. 2004 http://data.unaids.org/UNA-docs/map_aidsinasia_11jul04_en.pdf. Accessed 20.09.2012.
6. Guidelines for HIV testing. National AIDS Control Organization Update. March 2007 http://www.who.int/hiv/pub/guidelines/india_art.pdf. Accessed 20.09.2012.
7. Topouzis D. *The Implications of HIV/AIDS for Rural Development Policy and Programming: Focus on Sub-Saharan Africa*, Study Paper No.6 UNDP. 1998.
8. Perkins JM, Khan KT, Subramanian SV. Patterns and distribution of HIV among adult men and women in India. *PLoS ONE*. 2009;4:e5648.
9. MCGM. *Public Health Department at a Glance and IBID*. 2008 http://startcc.iwlearn.org/doc/Doc_eng_16.pdf. Accessed 20.09.2012.
10. Govt of Maharashtra. *Greater Mumbai Disaster Management Action Plan, Maharashtra*. 2007 http://startcc.iwlearn.org/doc/Doc_eng_16.pdf. Accessed 20.09.2012.
11. Ibrahim F, Anderson J, Bukutu C, Elford J. Social and economic hardship among people living with HIV in London, Department of Public Health, City University London, London, UK. *HIV Med*. 2008;9:616–624.
12. Angyo OIA, Okpeh ES, Onah J. AIDS in Jos Nigeria. *West Afr J Med*. 1998;17:268–272.
13. Guha P, Sardar P. Prevalence of Paediatric HIV Infection in Eastern India-First report. *J AIDS Clinic Res*. 2011;2:5.
14. Dutt R, Patil D. Sociodemographic profile of HIV positive clients. *Bombay Hosp J*. 2011;53:25–29.
15. Rajasekaran S, Jeyaseelan L, Raja K, Ravichandran N. Demographic & clinical profile of HIV infected children accessing care at Tambaram, Chennai. *Indian J Med Res*. 2009;129:42–49.