Research Article

SOCIO-DEMOGRAPHIC PROFILE AND RISK FACTORS OF HIV/AIDS AMONG CHILDREN ATTENDING THE ICTC BHU VARANASI

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ABSTRACT

Background and Objectives: HIV infection was detected in our country in 1986 in a sex worker in Chennai (Tamil Nadu), a southern state of India whereas the virus was originated in Africa during 1959-1960. The first AIDS case was detected in 1981 in U.S.A. It has now become a global epidemic. Presence of a HIV infection everywhere highlight the spread from urban to rural areas, from the high risk to the general population and from the permissive to conservative societies. The major contributors to the spread of disease are migrants with low literacy status. About 85% transmission of disease is horizontal. The estimate of HIV infected population in 2007 was 2.4 million in India.
Globally the epidemic is fastly increasing from highest risk group to bridge population and then general population. Antenatal clinic data indicate a rising HIV prevalence among women, which contributes to increasing HIV infection in children. The prevalence of HIV infection in India was 0.60% among women attending antenatal clinics (ANC).
The objectives of this study are to find out the prevalence and risk factors with 95% CI and status of presenting various morbidities.
Material and Methodology: The data for this study was collected from (Voluntary Counseling and Testing Centre (VCTC) (now renamed as ICTC), IMS, BHU, Varanasi from September, 2016 to August, 2017. Out of 5400 screened cases, 436 were children in the age group 0-14 years who visited the S.S. Hospital, for their treatment or called for screening if their parent was HIV positive. 2-3 ml blood sample was taken in a plain vial. HIV testing was done by following strategy-II/III guidelines of WHO-NACO. χ^2 test was used to determine significant association if any between the study variables and HIV positivity. Multinomial logistic regression method was used to compute the Odds ratio and adjusted odd ratio (95% CI) for the risk factors of HIV
Result: The prevalence of HIV was 17.9% among children in the age group 0-14 years ranging from 16.9% in rural to 23.2% in urban. Odds ratio was 1.49 with 95% CI (0.80-2.77). The positivity rate was observed 20.4% and 26.7% in the age group 0-4 and 5-9 years with zero positivity in the age group 10-14 years. The prevalence was approximately double in the joint family (22.7%) as compared to nuclear family (12.6%). About 50% prevalence was observed among the children suffering with weakness, loose motion, tuberculosis & anorexia. Both father and mother of positive children had the positive status. 82.1% father and 76.1% mother of all study subjects were HIV positive. More than one fourth children had loosed their father/mother or both. These children are innocent but facing the problem of acceptance in society, care by the parents, co-morbidities, quality of life etc. due to activities performed by the parents.
Conclusion: The national and state government should plan to increase their commitment to strengthen HIV treatment, care and support for children infected and affected by HIV/AIDS and their family members by expanding policy initiatives and committing resources more than ever before.

INTRODUCTION

Across the globe, AIDS is responsible for an increasing number of deaths each year. UNAIDS/WHO of the estimated 2.1 million killed in 2007 around half a million were children aged below 15 years. At the end of 2007, an estimated 2.5 million children globally were living with HIV (1). According to NACO (2007), 2.5 million people are currently living with HIV/AIDS in India with adult prevalence of 0.3 %. It is estimated that 70,000 children below the age of 15 are infected with HIV and 21,000 children are infected every year through mother-to-child transmission (Updated NACO estimates 2007)(2). The country has an increasing population of children living with HIV and those who have lost either one or both parents to an AIDS-related illness. However, there are no official estimates available on children affected and orphaned by HIV and AIDS in India. Some of the HIV high prevalence state in India such as Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, Manipur and Nagaland are grappling with increased numbers of children infected and affected by HIV and AIDS.

Most children living with HIV – around 9 out of 10 – live in Sub-Saharan Africa, the region of the world where AIDS has

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taken its greatest toll. Large numbers of children with HIV also live in the Caribbean, Latin America and South/South East Asia. Around 90% of all children living with HIV acquired the infection from their mothers during pregnancy/ birth/ breastfeeding (3).

Paediatric HIV infection is a growing health challenge worldwide, with an estimated 1500 new infections every day. In developed countries, well established prevention programme keep mother-to-child transmission rates at less than 2%. However, in developing countries, where transmission rates are 25-40%, interventions are available to only 5-10% of women. Children with untreated natural infection progress rapidly to disease, especially in resource-poor settings where mortality is greater than 50% by 2 years of age. As in adult infection, antiretroviral therapy has the potential to rewrite the natural history of HIV, but is accessible only to a small number of children needing therapy (4).

An estimated 50 000 HIV-infected children are born every year in South Africa, compared with around 25 per year and 190 per year in the UK and USA, respectively(5).

Objectives

1. To assess the extent of HIV infections among study subjects.
2. To assess the differentials of positivity rates for various socio- demographic characteristics and
3. To find out the odds ratio and 95% CI for various co-morbidities.

MATERIAL & METHOD

The present study is based on Prospective data, which were collected from VCTC (now renamed as ICTC), Department of Microbiology, I.M.S., B.H.U., Varanasi, during the period September-2016 to August-2017. The cases were either referred from different OPD's of the Sir Sunderlal Hospital of B.H.U. or called for screening if their parent was HIV positive. Nearly all the cases were from eastern Uttar Pradesh, Western Bihar, Western Madhya Pradesh and Jharkhand. About 2-3 ml. of blood samples was collected in a plain vial. All the samples either symptomatic or asymptomatic cases were tested for HIV positivity using strategy II/III as per WHO/NACO guidelines. This study is based on all 436 children (aged 0-14 years) out of total 5400 screened cases.

Statistical Analysis

To find out the association between different risk behavior factors and sero-positivity status Chi-square test has been used and data were analyzed by using SPSS package 15.0. Multinomial logistic regression method was used to compute the Odds ratio and 95% CI for the risk factors of HIV.

RESULTS

The percentage distribution of HIV positivity status according to age, gender, residential status, educational status, occupation, family type and history of hospitalization of the children is represented in table1. The distribution of children in the age groups 0-4, 5-9 and 10-14 were 24.8%, 48.2% and 27.1% along with positivity 20.4 %, 26.7% and 0% respectively. This positivity is not related to age exposure infection, this HIV infection among children is due to vertical transmission. The gender wise positivity status of this infection was not found significant (P= 0.36). The positivity percentage

was found 16.9% and 23.2% in rural and urban habitant children respectively but there is statistically insignificant association (P= 0.141). Among illiterate children the positivity was 23.5% in compared to 15.3% among having up to primary education and 0% among the children with higher education than primary level. Among studying children, the positivity percentage was 0% as compared to 25.2% among non studying children. Approximately double positivity percentage was observed in joint family as compared to nuclear family. The children having the history of hospitalization had one and half times higher positivity as compared to non-hospitalized children. According to per capita income (PCI) of the family, 276 (63.3%) children belong up to Rs.600/= per month with a positivity percentage of 20.3% and 13.8% in the PCI group of above Rs.600/= pm. This shows that positivity rate is approximately one and half times higher in low per capita income group as compared to high PCI group. Although the difference is not observed statistically significant (P=0.09).

The HIV positivity rate according to various co-morbidities is presented in table 2. The data shows that approximately fifty percent children had their HIV positive status suffering with weakness, loose motion, anorexia and tubercular infections.

Out of 73(16.7%) study subjects suffering with fever, 12(16.4%) were seropositive (OR=0.885, 95%CI; 0.451-1.737). 58(13.3%) children were suffering from weakness and 28(48.3%) of them were seropositive (OR= 6.123, 95% CI; 3.378-11.098). Approximately 50% seropositivity was observed in children suffering from loose motion, anorexia and tuberculosis with OR=4.889(95%CI; 1.533-15.590), OR=4.432(95%CI; 1.653-11.883) and OR=5.002 (95%CI; 2.303-10.865) respectively. 16.9% seropositivity was observed in children suffering from other co-morbidities (OR=0.909, 95% CI; 0.529-1.564). It is very significant to see that 44(16.7%) children were seropositive and were apparently healthy. All the positive study subjects had their father and mother both seropositive. Out of 110 (27.7%) children who had lost their parents 22(20%) of them were seropositive.

DISCUSSION

In spite of large number of seropositive children around the world, AIDS is often assumed to be disease that kills only young and adults indulge in risky sexual behavior and drug addiction. In Africa more than 1 in 3 new born infected with HIV die before the age of one, over half die before reaching their second birthday and most are dead before they are 5 years old(6). Sex and HIV education must be provided to children at school level to reduce the infection and also mitigate the stigma and discrimination of HIV/AIDS.

Table 1 illustrates that seropositivity reduces as the educational status is increased. So, all children and young people should receive primary education along with effective health and HIV education to mitigate the epidemic. As majority of Indian population reside in rural areas, majority of the study subjects also belong to rural areas and 62(16.9%) were seropositive out of all (78) seropositive.

It is also found that joint family trend is usually followed in our country. The percentage of children residing in joint family were 229(52.5%) with seropositivity of 22.7% as compared to 12.6% in nuclear family.

Table 1 HIV positivity status accordingly to socio-demographic variable among the study subject

Variable	No. of study subject	HIV +ve cases in (%)	χ^2-value/P-value
Age group (year):			
0-4	108(24.8)	22(20.4)	37.17
5-9	210(48.2)	56(26.7)	P<0.001
10-14	118(27.1)	0(0.0)	
Gender :			0.84
Male	248(56.9)	481(19.4)	P=0.36
female	188(43.1)	30(16.0)	
Residential status:			1.57
Rural	367(84.2)	62(16.9)	P=0.141
Urban	69(15.8)	16(23.2)	
Educations :			
Uneducated	213(48.9)	50(23.5)	14.07
Upto primary	183(42.0)	28(15.3)	P<0.001
Above Primary	40(9.2)	0(0.0)	
Occupation:			38.61
Not student	310(71.1)	78(25.2)	P<0.001
Student	126(28.9)	0(0.0)	
Family type:			7.62
Nuclear	207(47.5)	26(12.6)	P=0.006
Joint	229(52.5)	52(22.7)	
Hospitalised:			7.69
Yes	85(19.5)	24(28.2)	P=0.006
No	351(80.5)	54(15.4)	
Per Capita Income:			2.95
1-600	276(63.3)	56(20.3)	P=0.09
601 and above	160(36.7)	22(13.8)	

Table 2 Distribution of seropositivity percentage among the study subjects according to the co-morbidities

Variable	No. of study subject	HIV +ve cases in (%)	χ^2-value/P-value	Old ratio	95% CI
Fever:			0.126		
Yes	73(16.7)	12(16.4)	NS	0.885	0.451-1.737
No	363(83.3)	66(18.2)			
weighloss:			4.33		
Yes	19(4.4)	0(0.0)	p=0.022	1.230	1.175-1.288
No	417(95.6)	78(18.7)			
weakness:			42.05		
Yes	58(13.3)	28(48.3)	p<0.001	6.123	3.378-11.098
No	378(86.7)	50(13.2)			
Loose motion:			8.66		
Yes	12(2.8)	6(50.0)	p=0.010	4.889	1.533-15.590
No	424(97.2)	72(17.0)			
Cough:			5.53		
Yes	24(5.5)	0(0.0)	p=0.008	1.234	1.177-1.292
No	412(94.5)	78(18.9)			
Anorexia:			10.25		
Yes	17(3.9)	8(47.1)	p=0.005	4.432	1.653-11.883
No	419(96.1)	70(16.7)			
tuberculosis:			19.53		
Yes	29(6.7)	14(48.3)	p<0.001	5.002	2.303-10.865
No	407(93.3)	64(15.7)			
others:			0.118		
Yes	130(29.8)	22(16.9)	p=0.423	0.909	0.529-1.564
No	306(70.2)	56(18.3)			
Apparently Healthy:			0.682		
Yes	264(60.6)	44(16.7)	p=0.242	0.812	0.495-1.332
No	172(39.4)	34(19.8)			
Father +ve:			21.14		
Yes	326(82.1)	78(23.9)	p<0.001	0.761	0.716-0.808
No	71(17.9)	0(0.0)			
Mother +ve:			30.54		
Yes	302(76.1)	78(25.8)	p<0.001	0.742	0.694-0.793
No	95(23.9)	0(0.0)			
Parents expired:			0.012		
Yes	110(27.7)	22(20.0)	p=0.507	1.031	0.594-1.789
No	287(72.3)	56(19.5)			

CONCLUSION

Counseling and support for children and their families can considerably improve their quality of life; relieve suffering and assistance in the practical management of illness.

Along with the primary education sex and HIV education must be provided at different stages to reduce the pandemic.

In order to develop appropriate means of enabling and protecting people, either as children or adults, against the

epidemic, adequate and judicious attention need to be imparted to the rights and realities of childhood.

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