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Research Article

PROFILE OF CHILDREN AND ADOLESCENTS TESTED HIV POSITIVE IN ART CENTRE, GOVERNMENT GENERAL HOSPITAL, VIJAYAWADA, KRISHNA DISTRICT, ANDHRA PRADESH, INDIA

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ABSTRACT
More than 1,000 children are newly infected with Human Immunodeficiency Virus (HIV) every day because of lack of access to HIV treatment and millions of children every year are indirectly affected by the epidemic according to UNAIDS (2010). The present communication deals with the objective of revealing socio- demographic characteristics, family history and the mode of transmission of HIV children at ART (antiretroviral therapy) center of Govt. General Hospital, Vijayawada, Andhra Pradesh, India. It is a retrospective cross-sectional record based study from January 2009 to December 2011. Out of 1836 attendees of ART centre, 125 were HIV Positives. Of whom 65 subjects (52%) were males and 60 subjects (48%) were females (age, 1-20 years). High incidence of HIV/AIDS (aquired immunodeficiency syndrome) was found in the age group of 6-10 years with 73(58%) subjects. It was found that 92% of the children had HIV positive parents who already died. For 82% children, siblings' HIV status is not known; for 14% of the children, siblings' HIV status is positive but siblings' HIV status is negative for 4% of the subjects. Out of 125 children, 122 (97%) children became HIV positive through their HIV positive mothers at the time of their births i.e., through mother to child transmission (MTCT), 2 (2%) children through heterosexual partner and one child through blood transfusion. Appropriate testing, efficient linkages to care and treatment and support for the families and communities that provide the material, social, and emotional foundation for a child's development is needed.

Keywords: *Socio-Demographic Characters, HIV, MTCT, Family History, Siblings' Status*

INTRODUCTION
Over 10 million children currently under 15 years have lost one or both parents due to AIDS. The total number of children orphaned by the epidemic is forecast to more than double by 2010. Children orphaned by AIDS are at greater risk of malnutrition, illness, abuse, child labor and sexual exploitation than children orphaned by other causes, and these factors increase their vulnerability to HIV infection. They also suffer the stigma and discrimination often associated with HIV/AIDS and may be denied education, work, housing and other basic needs as a result (WHO, 2002).
India has an estimated 202,000 children infected by HIV/AIDS (UNAIDS, 2010). Using a conservative vertical transmission rate of 30%, a new cohort of approx. 56,700 HIV infected infants, is added every year. As of September 2006, the programme has about 45,000 individuals on ART through public, private and NGO supported ART centers. There are 2,300 children, who are currently receiving ART in India however; half of HIV-positive children die undiagnosed before their second birthday (NACO, 2006).
Children have specific needs for growth and development, and of early diagnosis of infection besides needing a strong family support. Orphaned and vulnerable children (OVC), both uninfected and infected added to the complexity of the issue in terms of vulnerability, social security, livelihood, poverty etc. Once HIV infection is confirmed and for the older children, who have contracted HIV through other routes, the areas of importance include correct diagnosis, nutritional support, immunizations both routine and special vaccines, antiretroviral therapy, prevention and management of opportunistic infections (OIs),

and last but not the least, access to appropriate counseling services. There is a need to focus on adolescents and HIV, especially with regard to primary prevention of HIV amongst teens by providing them with the life skills, family life education and right messages on prevention of HIV.

Based on HIV Sentinel Surveillance 2008-09, it is estimated that India has an adult prevalence of 0.31% with 23.9 lakh people infected with HIV, of which, 39 percent are female and 3.5% are children (NACO Annual Report, 2010-2011). In Andhra Pradesh, the Mean HIV prevalence among Antenatal clients (ANC) is >1% in six districts i.e., East Godavari, Guntur and Krishna of coastal Andhra region Kadapa, Karimnagar and Mahbub Nagar from other region. The ANC mean positivity in urban and rural areas is 1.09% and 0.70% respectively; out of overall positivity i.e., 0.77% of Andhra Pradesh (APSACS, 2010).

Hence, the present investigation was undertaken to know the socio-demographic status, family history, siblings' status and mode of transmission of HIV children who attended ART centre and VCTC (voluntary counseling and testing centre) of Govt. General Hospital located at Vijayawada of Krishna district, Andhra Pradesh.

MATERIALS AND METHODS

The present study was conducted at VCTC of Govt. General Hospital in Vijayawada, Krishna District situated in coastal Andhra Pradesh. Krishna district is located at 16°10' N latitude and 81°08' E longitude. To investigate the study, permission from Nodal Officer, Senior Pediatrician, authorities of VCTC & ART Centre, Govt. General Hospital, Vijayawada was obtained. For the study of Seroprevalence of HIV/AIDS in pediatric subjects, a total of 125 attendees of VCTC from November 2009 to April 2011 were recruited, who were suggested for regular check up either by volunteers or referred from other institutions.

Information pertaining to the attendees of VCTC was available by questionnaire method regarding variables such as age, gender, family status, siblings' status and mode of transmission. Data was collected and analyzed using statistical analysis such as Mean, percentage, Chi-square test was performed with 'MINITAB 11.12.32 Bit' and 'Microsoft Excel 2007'.

RESULTS

During the study period a total of 1836 people have attended the VCTC in which 125(6%) cases were HIV positive (Figure 1). Among 125 HIV positive children, 65 subjects (52%) were male and 60 subjects (48%) were female (Figure 2). Among HIV positive children, 3 (2%) subjects were in the age group of 1-5 years. High incidence of HIV/AIDS was found in the age group of 6 - 10 years with 73 (58%) subjects followed by 11 – 15 years with 41 (34%) subjects. And 8 (6%) subjects are in the age group of 16 – 20 years (Figure 3).

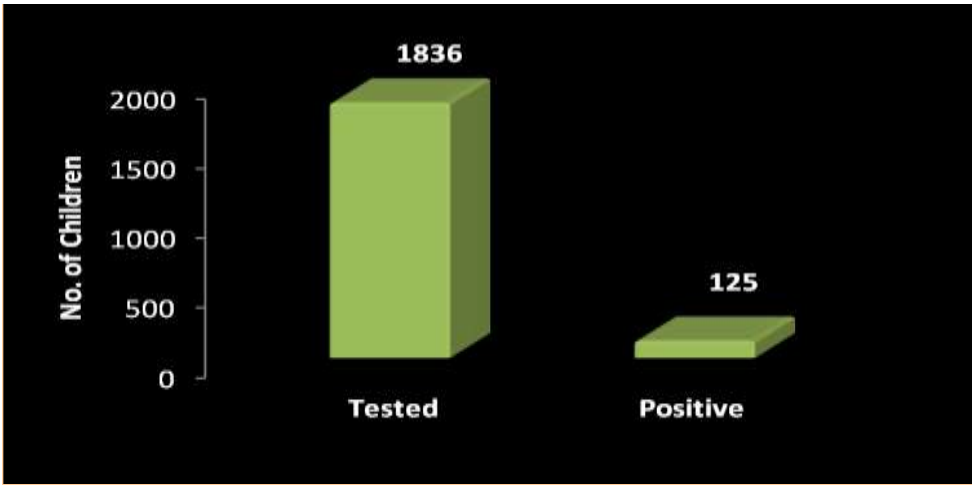

Figure 1: Estimated number of children tested and infected with HIV

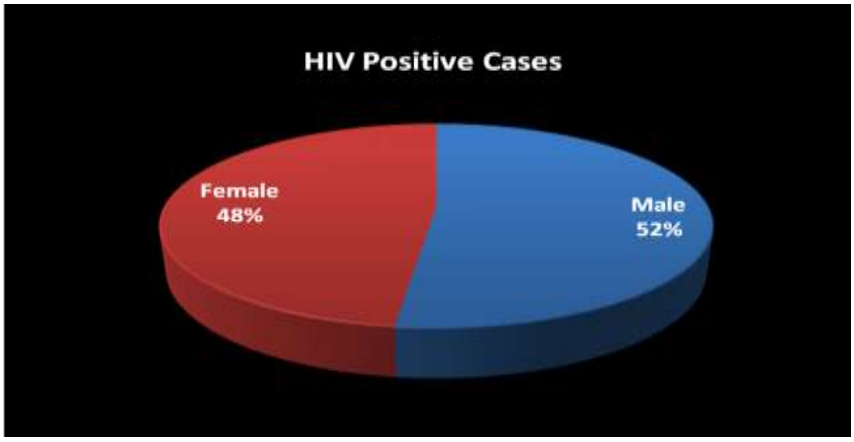

Figure 2: Gender wise distribution of HIV infected children (%)

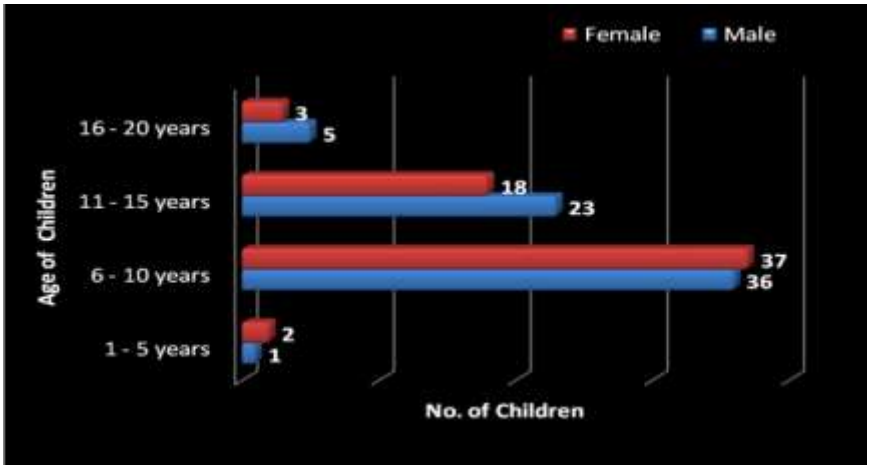

Figure 3: Age wise distribution of HIV infected children

There is no significant relationship between age and gender of HIV positive children $p > 0.05$ with $\chi^2 = 2.013$ (Table 1).

Table 1: Distribution of HIV Positivity according to Age and Gender

Age (Years)	Male No.	%	Female No.	%	Total No.	%
1 – 5	1	2	2	3	3	2
6 – 10	36	55	37	62	73	58
11 – 15	23	35	18	30	41	34
16 – 20	5	8	3	5	8	6
Total	65	100	60	100	125	100

$\chi^2 = 1.259, p > 0.05$

All HIV infected children responded to the question on the pattern of risk behavior followed. Of the total 65 male subjects, 64 (98%) male children had transmission from their mother (MTCT) and 1 (2%) male child had transmission from heterosexual partner. Among 60 female subjects, 58 (96%) children had transmission from mother during birth (MTCT), one (2%) subject had transmission through blood and one subject got infected by heterosexual partner (Table 2). Thus, out of 125 children, 122 (97%) children became HIV positive through their HIV positive mothers at the time of their births i.e., through mother to child transmission (MTCT), 2 (2%) children through heterosexual partner and one child through blood transfusion (Figure 4).

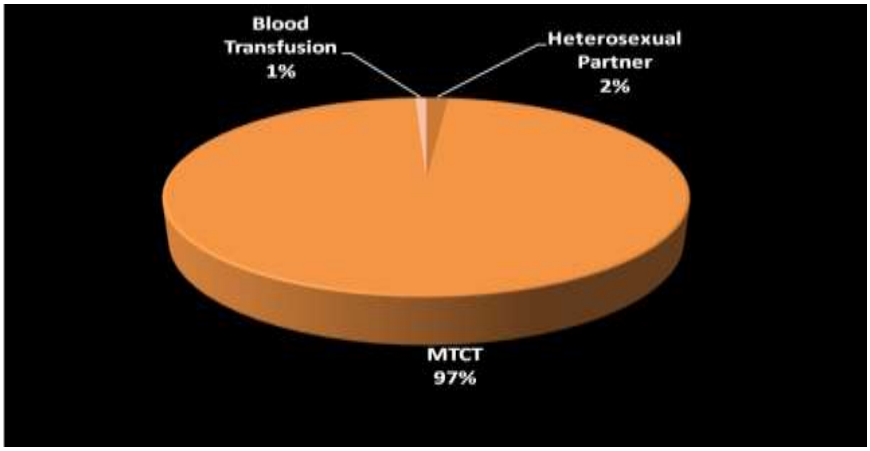

Figure 4: Estimated % of HIV infected children showing mode of transmission

Table 2: Distribution of the factors influencing modes of transmission of HIV

Factor	HIV Positive Children					
	Male		Female		Total	
	No.	%	No.	%	No.	%
Heterosexual Partner	1	2	1	2	2	2
MTCT	64	98	58	96	122	**97**
Blood Transfusion	0	0	1	2	1	1
Total	65	100	60	100	125	100

In the present study 92% of the children had HIV positive parents who were already died. 2% of the children have HIV positive parents who are still living. 2% of the children had HIV negative parents who are alive. 2% children have, father HIV positive died and mother HIV positive still living and rest of the 2% children have father HIV negative alive and mother positive alive (Table 3).

Table 3: Family History of HIV Positive Children

Parental HIV Status	Male		Female		Total	
	No.	%	No.	%	No.	%
Both Parents +ve Died	59	90	57	95	116	**92**
Both Parents +ve Alive	2	3	0	0	2	2
Both Parents – ve Alive	1	2	2	3	3	2
Father +ve Died Mother +ve Alive	1	2	1	2	2	2
Father – ve Alive Mother +ve Alive	2	3	0	0	2	2
Total	65	100	60	100	125	100
Siblings' HIV Status	**Male**		**Female**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Unknown	61	94	41	68	98	82
Having HIV +ve siblings	2	3	16	27	17	**14**
Having HIV –ve siblings	2	3	3	5	5	4
Total	65	100	60	100	125	100

In the present study, for 82% children, siblings' HIV status is not known because children who got infected with HIV became orphans. For 14% of the children, siblings HIV status is positive but siblings HIV status is negative for 4% of the subjects (Table 3). The pediatric subjects with HIV positive siblings unable to digest their sibling's death during the course of time and depressed occasionally.

DISCUSSION

The present investigation reveals the incidence of HIV as 6% among 1836 children visiting VCTC, Govt. General Hospital, Vijayawada, Krishna district, Andhra Pradesh during 2009-2011. More than two decades, since the discovery of the human immunodeficiency virus (HIV), the etiological agent of AIDS continues to expand its extent of incidence. As per the previous studies, the total number of people living with HIV in India is very high as much as 2.5 millions, including an estimated 0.09 million HIV patients (Kumarasamy *et al.,* 2003). But in a study of HIV–related disease in 4480 hospitalized children Abidjan, Cote d'Ivoire, HIV Seroprevalence was 8.2% (Vetter *et al.,* 1996). Thus the prevalence of HIV in paediatric population decreased over the period of time.

In our study, out of 125 (6%) HIV infected children, males were 52% and females were 48% which correlates with the work of Anita Shet *et al.* (2009) i.e., males were 57% and females were 43% out of 248 children aged between 1 to 12 years. And in our study majority (58%) of the children with HIV belong to 6-10 years i.e., school aged children.

Mother to child transmission (MTCT) of HIV is a field of health care that dramatically demonstrates the inequality between the global north and the global south. The best available official data indicate that "more than 90% of children living with HIV acquired the virus during pregnancy, birth or breastfeeding forms of HIV transmission that can be prevented (UNAIDS, 2009). Perinatal transmission is the most common mode of acquiring HIV in the population and is responsible for about 67% to 87% of HIV infection. The clinical features of HIV infection in children are different from those in adults (d'Arminio Monfote *et al.,* 1992). Similarly in the present study, the children aged between 2 – 20 years are infected perinatally i. e., 97% through mother to child transmission (MTCT). This is supported by the study of Jackson *et al.* (2009) that the epidemiology and the burden of disease vary greatly across regions and nearly 90% of the almost half a million children who yearly become infected with HIV through their mothers live in sub-Saharan Africa. Also supported by the studies reported by Adejuiyigbe *et al.* (2003) and Oniyangi *et al.* (2006) that MTCT accounting for 93.3% of infection and indicates the need to intensify efforts to get MTCT service to the large numbers of Nigerian women needing it. Transmission via blood transfusion and possible sexual route was also observed in the present study with 1% and 2% respectively. Similarly very low percentage of transmission through blood transfusion and sexual route was observed in the studies made by Emodi and Okafor (1998); Adejuiyigbe *et al.* (2003); Oniyangi *et al.* (2006) and Ugochukwu (2006). Thus our study revealed that MTCT preventive measures were not used in majority of cases during pregnancy.

With the current knowledge and technology most cases of postnatal MTCT are preventable through antiretroviral drugs and modifications in infant feeding practices. During the last decade an increasing number of HIV-infected women gained access to antiretroviral treatment or prophylaxis effectively reducing transmission during pregnancy and birth (UNAIDS, 2009), but the transmission of HIV through breastfeeding has remained a challenge in contexts where breastfeeding is normative and vital to infant survival. Breast feeding transmission has in fact come to contribute to an increasing part of the total MTCT in the region (Jackson *et al.,* 2009).

According to the present study 92% children have become orphans by losing both of the parents who are HIV positives. This is supported by the study of Shelton (1999) that, an estimated 80,000 to 125,000 American children and youth will lose their mothers to AIDS by the end of century, and worldwide, 40 million children will be orphaned by the next 10 years.

In the present study, for many children (82%), siblings' HIV status is not known because children who got infected with HIV became orphans. For few of the children (14%), siblings HIV status is positive but siblings HIV status is negative for 4% of the subjects. The pediatric subjects with HIV positive siblings unable to digest their sibling's death during the course of time and depressed occasionally. It is also observed that the social, psychological and legal implications for the children who survive are immense. Many of their parents are likely to have had a series of preexisting and longstanding stressors such as poverty, substance abuse, and violence; so these children suffer not only from widespread anxieties about future loses. They wonder who will care for them if all family members die and about their own health.

However, it is the pervasive threat of death and fear of being left alone that constitutes chronic trauma for child survivors of HIV infection (Mendelsohn, 1997).

Conclusion

Our study highlight the incidence of HIV through MTCT, hence emphasis the need to continually expand efforts to prevent MTCT of HIV, early diagnosis of infection and improved care of pediatric patients. The Government should inculcate the righteous decision to access the testing of every pregnant woman and make her to take the drugs that can prevent mother to child transmission, if she is HIV Positive.

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