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Adherence status of HIV infected children at ART centre of South India

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ABSTRACT

Background: Adherence to antiretroviral therapy (ART) is a principal determinant of virologic suppression. A variety of factors: including formulation of medicine, dose frequencing, drug toxicities, child's age, as well as psychosocial, behavioral, and sociodemographic characteristics of children and caregivers have been associated with nonadherence. Still no consistent predictors of either good or poor adherence in children have been consistently identified.

Methods: Data was collected from the ART Centre. Record based data from the year 2008 to 2018 April of pediatric age group i.e. from 0-18 years. All the cases registered at the center whose data were available were included for the study. Adherence was assessed calculating the average monthly consumption of ARV assessed by pill count as per NACO guidelines.

Results: At the ART Centre, 139 (73.5%) were on treatment i.e. 75.7% of boys registered and 70.9% of registered girls. Average monthly adherence and treatment interruptions among the 73 children alive on ART, majority i.e. 90.4% were on good adherence with 8.2% on less than 80% adherence.

Conclusions: Overall a good adherence indicates efficient functioning of the programme and determined efforts from the ART Centre.

Keywords: Adherence, ART, Children, South India

INTRODUCTION

HIV/AIDS not only affects children personally but also affects their families and parental care. The total number of people living with HIV (PLHIV) in India was estimated at 21.17 (17.11 lakhs-26.49 lakhs) in 2015 compared with 22.26 lakhs (18.00 lakhs to 27.85 lakhs in 2007). Children (<15 years) account for 6.54%, while females contributed around two fifth (40.5%) of total HIV infections (NACO 2016-17 report). More than 90% of the HIV infections in children are the result of maternal-to-child transmission (MTCT). The MTCT rate ranges from 20% to 45% in the developing world. In India during 2016-17, out of the annual target 140 lakhs, 76.2 lakhs of pregnant women tested for HIV AIDS 5233

were HIV positive as new cases and out of which 4935 (94.3%) initiated lifelong ART, the known HIV positive pregnant women availed ICTC service during this period is 1,172. During 2016-17 (till September 2016), 53721 HIV exposed live birth were reported out of which 4,651 (86.7%) received ARV drug.²

Adherence to antiretroviral therapy (ART) is a principal determinant of virologic suppression. Suboptimal adherence may include missed/late doses, treatment interruptions as well as sub-therapeutic dosing. Poor adherence will result in sub-therapeutic plasma antiretroviral (ARV) drug concentrations, leading to drug resistance and possible cross-resistance to other drugs in the same class. A variety of factors: including

formulation of medicine, dose frequencing, drug toxicities, child's age, as well as psychosocial, behavioral, and sociodemographic characteristics of children and caregivers have been associated with nonadherence. Still no consistent predictors of either good or poor adherence in children have been consistently identified.⁵⁻⁷

While adherence problems in children and families are often multifaceted, the overriding issue is that children are dependent on caregivers for their medications. The psychosocial issues surrounding HIV/AIDS that affect the family/caretakers will have an impact on the child's care including how the child's ART is managed.

The goal of 'zero new HIV infections, zero discrimination and zero AIDS-related deaths' made on Worlds AIDS day in 2010 to be more realistic if the barriers to prevention, treatment and care for HIV women and children are managed well. It is the need of the hour to know Adherence to ART of HIV infected children. Hence, this study was planned at an ART center in Karnataka.

METHODS

Data was collected from the ART Centre of South Kannada District. Record based data from the year 2008 to 2018 April of pediatric age group i.e. from 0-18 years was considered for the study. Age, status of the case and treatment related variables were obtained from the centre. The period of study was two months (April and May 2018).

All the cases registered at the centre whose data were available were included for the study. Data analysis done in the form of tables and percentages. Data operator's help was taken for assessing the records of ART. Only those case records of children who were alive at present were considered for analysis.

Adherence was assessed calculating the average monthly consumption of ARV assessed by pill count as per NACO guidelines.

RESULTS

Total number of children (0-18 years) registered at the ART centre during 2008-18 was 189 among which 54.5% were boys and 45.5% were girls (Table 1). At the ART centre, 139 (73.5%) were on treatment i.e. 75.7% of boys registered and 70.9% of registered girls. Among the 189 registered cases majority i.e. 31.7% belonged to age group between 0-5 years (Table 2).

Among the 139 started on ART at the Centre, 73 (52.5%) of them were alive on ART, 17 (12.2%) were reported dead, 38 of then took transfer to other ART Centre The average monthly adherence and treatment interruptions among the 73 children alive on ART, majority i.e. 90.4%

(boys more than girls) were on good adherence with 8.2% on less than 80% adherence. (Table 3).

Table 1: Cases registered at the ART centre.

Year	Registered		Treatment			
	M	F	Total	M	F	Total
2008	13	13	26	11	10	21
2009	20	15	35	14	11	25
2010	16	16	32	11	11	22
2011	19	11	30	15	10	25
2012	6	9	15	6	6	12
2013	13	7	20	9	4	13
2014	5	6	11	5	3	8
2015	3	2	5	1	0	1
2016	4	6	10	3	5	8
2017	4	0	4	3	0	3
2018	0	1	1	0	1	1
Total	103	86	189	78	61	139

M: Males; F: Female

Table 2: Age wise distribution of cases registered at ART centre.

Age	Male	Female	Total	Percentage (%)
0-5	31	29	60	31.7
5-10	27	29	56	29.6
10-15	35	18	53	28.1
>15	10	10	20	10.6
Total	103	86	189	100

Table 3: Distribution of cases with respect to their adherence status to ART.

Adherence to ART	Male	Female	Total (%)
Good (>95%)	35	31	66(90.4)
Average (80-95%)	1	0	1 (1.3)
Poor (<80%)	3	3	6 (8.2%)
Total	39	34	73

Table 4: Cases at ART centre with respect to parent's status.

Parents death	Boys	Girls	Total
Single parent	35	26	61
Both parent	11	11	22
Total	46	37	83

It was found that 83(43.9%) of registered children had at least one or both parents dead i.e. 73.4% with at least one parent dead and 26.6% of cases had lost both their parents as per the records. Of them 44.6% were girls and 55.4% were boys (Table 4).

DISCUSSION

HIV infection in children is worldwide public health challenge disproportionately affecting children in the poorest parts of the world.⁸ In the present study the enrollment for boy to girl ratio was 1.2:1. A study conducted in Nepal (child discussion) had enrolled ratio of boys to girl as 2.5:1. Majority i.e. 31.7% belonged to age group between 0-5 years, this also shares similarities with the other studies done in India and Nepal by Madhivan et al, Gomber et al and Poudel et al.⁹⁻¹¹

The desired adherence level of >95% assessed by pill count was achieved in more than 90% of children in this study, similar results were seen in a study conducted by Anju S et al and Mehta K et al i.e. 95.3% and 90.9% respectively. 12,13 Adherence is a complex health behavior that is influenced by the drug regimen, patient and family factors, and patient-provider relationship. 14,15

The limited availability of once-daily and single-tablet regimens and palatable formulations for infants and young children is especially problematic. ¹⁶ Still achieving such a level of adherence shows the effective implementation of Programme. The lowest ART treatment adherence rate was reported by Sharma et al with 59% adherence over 16 months. ¹⁷ The low ART adherence as reported in this study can be explained by two factors as this study enrolled only injecting drug users and used the self-reported assessment to measure for ART adherence. There are key issues that make ART in children different from that in adults. These include diagnosis of HIV infection in infants, pharmacokinetics, viral load levels, psychological issues, developmental issues.

We found in the present study that almost 44% of the children living with AIDS had at least one parent dead. This is a very big social problem adding on to already infected HIV in the child. The orphaned children have been reported of fighting frequently, stealing, often accused of cheating, and more quickly lost their temper. A study done by Doku PN found that they were more likely to engage in violent behaviors and develop antisocial attitudes. There comes the problems of economic hardship, support for access to education, and other basic services for the HIV-affected children.

Although current regimens have substantially, and dramatically decreased AIDS related opportunistic infections and deaths, retention in care with lifelong adherence is imperative to achieve and maintain viral suppression as well as prevent drug resistance. Intensive follow-up is required, particularly during the first few months after therapy is initiated.

If there are concerns about adherence, patients should be contacted/seen frequently as weekly, or even more often, during the first month of treatment so as to assess adherence and determine the need for strategies to improve and support adherence. Provide ongoing support, encouragement, and understanding of the difficulties associated with maintaining adherence to daily medication regimens

CONCLUSION

Overall a good adherence indicates efficient functioning of the programme and determined efforts from the ART Centre.

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