



Profile of Children Suffering from HIV/AIDS in Amritsar, Punjab- A Cross-Sectional Study

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ABSTRACT

Introduction: HIV/AIDS in paediatric age group is a major cause of childhood morbidity and mortality. Mostly infection is acquired in vitro and mother-to-child transmission remains the most significant route of transmission in children <15 years. Lack of awareness about the disease and occurrence of opportunistic infections are common hinderances in the successful management of disease.

Materials and methods: The study was conducted on less than 15 years children registered and being treated with Anti-retroviral therapy (ARV) registered with Government ART centre from 1st Jan 2016 to 31st December 2017. Socio-demographic profile, birth history, mode of transmission, side effects of anti-retroviral therapy and opportunistic infections were assessed. Data management and analysis was done by using SPSS.

Results: Of the total 46 children, 25 (54.3%) were males and 21 (45.7%) were females. Commonest mode of transmission was mother to child (91.3%). Common side-effects observed were skin rashes, nausea/vomiting, diarrhoea, fever/headache, jaundice and anaemia. Opportunistic infections observed were tuberculosis, candidiasis, recurrent diarrhoea, failure to thrive and recurrent respiratory infections.

Conclusion: On statistical analysis, it was observed that side effects were significantly higher among cases from lower middle socio-economic status ($p=0.015$) than cases from low socio-economic status.

Key words: HIV/AIDS, ARV, side effects, opportunistic infections, caregivers.

INTRODUCTION

HIV/AIDS in children is a major cause of childhood morbidity and mortality.¹ Though since the year 2000, there has been significant success in reducing the incidence of new HIV infections still AIDS-related illnesses are among the leading causes of infant mortality.² According to a report which was released by UNICEF ahead of AIDS day, an estimated 1,20,000 children and adolescents aged 0-19 were living with HIV in India in 2017, which accounts for the highest number in South Asia.³ In the year 2017, in India 22.67(10.92-40.60) thousand HIV positive women gave birth.⁴

With mandatory screening of blood products, the incidence of transfusion-associated HIV infection has decreased to a great extent but still paediatric HIV infection has become an important public health issue due to a sharp increase in infection rates among women. This holds true particularly for India where the major mode of transmission is heterosexual contact. This led to an increase in the number of children infected perinatally.⁵

The rate of perinatal transmission of HIV in India is 5.7%, with approximately 23 000 newly born HIV infected children annually (NACO Annual Report, 2013- 2014) Therefore, for the prevention

of HIV to children, successful management of the disease in pregnant women is essential.⁶

HIV infection which was once considered a fatal illness in children has now become a chronic treatable condition with the availability of antiretroviral therapy (ART). But still there are several barriers like delayed infant diagnosis, lack of appropriate paediatric formulations, lack of skilled health personnel, *etc* in the efficient management of HIV positive children. Moreover due to poorly developed immunity there is an increased frequency of malnutrition and infections that may be more severe and less responsive to treatment. We should recognise these challenges in order to provide appropriate holistic management enabling them to become productive citizens of tomorrow.⁷

OBJECTIVES

The study was conducted to assess the socio-demographic determinants of the occurrence of HIV/AIDS in children and to study the knowledge, attitude and practices of the caregivers about the disease.

MATERIALS AND METHODS

The study was a cross-sectional study conducted on all the children (<15years) registered and being treated with Anti-retroviral therapy (ARV) at the Government ART centre located at Government Medical College, Amritsar from 1st Jan 2016 to 31st December 2017. The cases < 15 years with their caregivers who gave signed written informed consent were included in the study. The critically ill patients (who needed management in Intensive care unit) or infants without caregivers were excluded from the study. So, the total 46 cases were included in the study.

A pre-tested and pre-designed proforma was administered to the subjects after taking his/ her/ caregiver's consent. Questionnaire included questions regarding socio-demographic profile, birth history, personal history, family history and past history, *etc*. Questions regarding side effects with ARV, opportunistic infections and other comorbidities were also enquired by asking about the related symptoms. Knowledge, attitude and practices towards the disease from caregivers was also evaluated.

The Socio-economic status was assessed by using Modified Udai Pareek Scale (MUP Score).⁸ This Scale comprises of thirteen criteria in rural and twelve criteria in urban set up. These criteria include caste, education, occupation of husband and wife, type of family, size of family, house ownership, household assets, type of house, number of

rooms and drinking water facility. In rural set up land holding and farm assets are included instead of house ownership. Each criterion has been assigned a specific number. Summation of these numbers is done with maximum and minimum scoring.

Data analysis was done by SPSS version 25.0. Chi-square test was applied to prove their statistical significance and p-value < 0.05 was considered to be significant.

The research proposal was approved by the college ethical committee.

RESULTS

The present study was carried out on 46 children (<15 years) registered and being treated under Government ART centre in Amritsar city.

Table-1- Distribution of cases according to their socio-demographic profile

Socio-demographic profile	Case (%)
Age (years)	
0-5	20(43.5)
6-10	13(28.3)
11-15	13(28.3)
Sex	
Male	25(54.3)
Female	21(45.7)
Religion	
Hindu	13(28.3)
Sikh	33(71.7)
Caste	
Upper caste	14(30.4)
Lower caste	32(69.6)
Educational status*	
Illiterate	27(58.7)
Upto primary	19(41.3)
Staying with	
Own family	45(97.8)
In a centre but contact with family	0(0)
In a centre but no contact with family	1(2.2)
Caregiver	
Parents	39(84.8)
Relatives	7(15.2)
Educational status of the caregiver	
Illiterate	25(54.3)
Upto primary	18(39.1)
Upto secondary	3(6.5)
Occupation of the caregiver	
Working	22(47.8)
Non-working	24(52.2)
Family	
Joint	17(37)
Nuclear	29(63)
Socio-economic status	
Upper middle	3(6.3)
Lower middle	29(63)
Low	14(30.4)

*No case in the upto middle and high school category.

Table 2: Distribution of cases according to their birth history and mode of transmission

Birth History	No. (%)
Infant Feeding	
Breast feeding	22 (47.8)
Replacement feeding	2 (4.3)
Mixed	22 (47.8)
Milestones as per age	
Yes	45 (97.8)
No	1 (2.2)
Immunization	
Completed till date	34 (73.9)
Not completed	12 (26.1)
Mode of transmission	
Mother to child	42 (91.3)
Probable unsafe injection	3 (6.5)
Blood transfusion	1 (2.2)

Table 3a-Distribution of cases showing the effect of socio-economic status on the occurrence of side-effects

Side Effects	Socio-economic Status [^]		Total
	Lower middle	Low	
	(n=29)* (%)	(n=14)* (%)	
Skin rash	24 (75)	8 (25)	32
Nausea/vomiting	11 (55)	9 (45)	20
Diarrhoea	1 (100)	0 (0)	1
Fever/headache	15 (100)	0 (0)	15
Jaundice	2 (100)	0 (0)	2
Anaemia	30 (88.2)	4 (11.8)	34

*Total exceeds N due to multiple response

[^] Upper middle socio-economic status not included as there were only 3 cases in this category

Significance $\chi^2=14.150$ df = 5, p = 0.015

Table 3b-Distribution of cases showing the effect of socio-economic status on the occurrence of opportunistic infections

Opportunistic Infections	Socioeconomic Status		Total
	Lower middle	Low	
	(n=29)* (%)	(n=14)* (%)	
Tuberculosis	4 (80)	1 (20)	5
Candidiasis	11 (68.7)	5 (31.3)	16
Recurrent diarrhoea	15 (65.2)	8 (34.8)	23
Failure to thrive	20 (66.7)	10 (33.3)	30
Recurrent respiratory Infections	16 (64.0)	9 (36.0)	25

*Total exceeds N due to multiple response

[^] Upper middle socio-economic status not included as there were only 3 cases in this category

Significance: $\chi^2=0.533$ df = 4, p = 0.970

The sociodemographic profile, side effects with ARV and opportunistic infections were ascertained. The total sample consisted of 25 (54.3%) males and 21 (45.7%) females. Table-1 shows the socio-demographic profile of cases under study. Out of total 46 cases, 43.5% belonged to the age group of 0-5 years, 28.3% each were in the age group of 6-10 years and 11-15 years. 54.3% were males and 45.7% were females. 71.7% belonged to

Sikh religion and 69.6% were from lower caste. 58.7% were illiterate. 97.8% were living with their own family and 2.2% had no contact with family. In 84.8% cases caregivers were parents and in 15.2% were under care of their relatives. 54.3% caregivers were illiterate and 52.2% were non-working. 63% cases belonged to nuclear families. It is evident from the above table that 63% cases were from lower middle and 30.4% were from low socio-economic status. Only 6.3% were in upper middle socio-economic status and no case was from high socio-economic status.

Perusal of table 2 shows that 47.8% cases were breast fed, 47.8% received mixed feeding and only 4.3% received replacement feeding. 97.8% of cases achieved milestones as per their age. 73.9% cases were immunized till date and in 26.1% cases immunization was not completed. It was observed that in 91.3% cases, risk factor for HIV was mother to child transmission, in 6.5% cases it was probable unsafe injection and in 2.2% it was blood transfusion.

Table 3a shows that side effects like skin rash (75%), nausea/vomiting (55%), diarrhoea (100%), fever/headache (100%), jaundice (100%) and anaemia (88.2%) were higher in the cases who belonged to lower middle class as compared to those in low class. The results were found to be significant ($p=0.015$).

Table3b reveals that tuberculosis was seen in 80% cases with lower middle socio-economic status and 20% in low class. Similarly, candidiasis was seen in 68.7% cases from lower middle and 31.3% cases from low class. Other opportunistic infections like recurrent diarrhoea (65.2%), failure to thrive (66.7%) and recurrent respiratory infections (64%) were also more seen in cases who belonged to lower middle class but the results were not found to be statistically significant.

It is evident from the table 4 that 67.4% caregivers had heard about the disease. The source of hearing was other people (48.4%), television/radio (29%), newspaper (16.1%) and book (6.5%) respectively. According to 43.5% caregivers the mode of spread of disease was mentioned as via blood while 23.9% said it is mother to child. 87% said that the disease is not curable. 87% caregivers tried to hide the disease from others and the reason was social withdrawal in all these cases.

DISCUSSION

Table 1 shows the socio-demographic profile of the cases. Regarding age and sex distribution of the study, we found that 54.5% cases were under 5 years and male to female ratio was 1.19:1.

Table 4-Distribution of cases according to the knowledge, attitude and practices of the caregivers

KAP about HIV/AIDS	Cases (%)
Heard about the disease	
Yes	31 (67.4)
No	15 (32.6)
Source of hearing (N=31)	
Newspaper	5 (16.1)
Television/Radio	9 (29)
Book	2 (6.5)
Other people	15 (48.4)
Mode of spread of disease	
Blood	20 (43.5)
Mother to child	11 (23.9)
Needle	9 (19.6)
Sex	6 (13)
Is the disease curable	
Yes	4 (8.7)
No	40 (87)
Don't know	2 (4.3)
Hiding the disease	
Yes	40 (87)
No	6 (13)
Reason for hiding the disease (N=40)	
Social withdrawal	40 (100)
Others	

Similar findings were observed by Guha P *et al* in Kolkata showing more no. of cases in under 5 age group with male to female ratio of 1.15:1.⁹ Most of the cases were Sikhs (71.7%) and belonged to lower caste. This may be because ours is a Sikh predominant area with lower caste people usually coming to government centre. Most of the children were staying with their own family (97.8%) and caregivers were parents (84.8%). Similar findings were observed in a study at Karnataka by ShreedharaAvabratha A *et al* that most of the children were taken care of by their parents.¹⁰ We found that 54.5% of the caregivers were illiterate and 52.2% were non-working. A Binagwahoet *al* in their study at Rwanda also found that 43% of the caregivers were unemployed.¹¹ Most of the children belonged to lower middle class (63%) and low class (30.4%). Similarly, Thakor N *et al* in their study in Ahmedabad showed that majority of children belonged to social class 4¹² and Bhattacharya M *et al* showed that majority of the patients belonged to upper lower socio-economic status.¹³ As far as birth history is concerned, 47.8% received breast feeding and 47.8% were on mixed feeding. 97.8% achieved milestones according to their age and 73.9% were immunized till date.

It was evident from our study that most common route of transmission for HIV in children is mother to child as seen in 91.3% cases (Fig1). Our findings were consistent with the findings of Guha P *et al* and Lodha R *et al* which showed that mother-to-child transmission occurred in 73.7% and 74.3% of

cases respectively and was the major route of transmission of HIV.^{9,14} Other less common routes were unsafe injections and blood transfusion.

Table 3a shows that commonly observed side effects of anti-retroviral therapy (ART) were skin rashes, nausea/vomiting, diarrhoea, fever with headache, jaundice and anaemia. Similar side effects were observed with ART by Kumar *et al* in their patients in Mysore.¹⁵ Side effects were more seen in the cases from lower middle class as compared to cases from low class and the results were found to be significant. This could be due to the reason that more cases were from lower middle class. Cases from upper middle class were not included in the analysis as there were only 3 cases and no case belonged to high class.

In the present study, the commonly observed opportunistic infections were tuberculosis, candidiasis, recurrent diarrhoea, failure to thrive and recurrent respiratory infections. Similar findings were seen in the study by Ramaswamy S *et al* on the clinical profile of paediatric HIV infection in Tamil Nadu which showed that the respiratory, central nervous and haematological systems were most commonly involved organs systems.¹⁶ Another study by Prathasarathy P *et al* in New Delhi observed that common opportunistic infections in children were tuberculosis, diarrhoea, recurrent bacterial infections and oral thrush.¹⁷

Present study showed that 65.2% of the caregivers had heard about the disease and the source of hearing was from other people followed by radio/television and newspaper. According to 43.5% of caregivers the mode of spread of disease was blood followed by mother to child transmission. 87% said that the disease is not curable. 87% of caregivers hid the disease from others and the reason was social withdrawal in all of them. In one of the slightly similar study done in Andhra Pradesh, where the findings were quite different showed that 11.8% had not heard about the disease compared to 32.6% in the present study. The mode of spread was unsafe sex followed by blood transfusion, sharing needles and breast feeding. 7.8% said that such patients should be isolated from the family and society.¹⁸ Limitation of the study was the small sample size and irregular clinic attendance by patients which may have contributed to under-recognition of side effects and opportunistic infections.

CONCLUSION

From the observations it was concluded that, mother to child transmission is the most commonest mode of acquiring HIV infection in children. Hence, appropriate ART to mother and baby dur-

ing peripartum period, elective LSCS and proper milk substitution will definitely help in reducing mother to child transmission. Intensified screening of HIV infection in asymptomatic children by high suspicion will help in diagnosing HIV at the earliest, and thus they can be subjected to early management like chemoprophylaxis, immunization, management of opportunistic infection, nutritional support and anti-retro viral (ARV) therapy and follow up periodically.

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