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Original Research Article

Clinical Profile of HIV in Pediatric Patients

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Abstract:

Background and Aim: Since the discovery of Human Immunodeficiency Virus (HIV), it has become a serious public health issue and many screening centers had been established in order to ease the counseling of people for the virus. Present study was done with following Objectives: To evaluate the various modes of clinical presentation, to evaluate the modes of transmission, to study the clinical presentation of OI's and to evaluate the association of tuberculosis in HIV and its relation with CD4.

Material and Methods: Present Prospective was conducted at the Department of Pediatrics, Tertiary care institute of India for the duration of 2 years. Children living with HIV/AIDS [CHLA] > 18 months to 12 year of age admitted and attending OPD in pediatric department of my institute. All CLHA are registered in ART centre affiliated with this institute. They are diagnosed by triple test HIV ELISA antibody, investigated, treated and followed up in ART centre as per NACO guidelines.

Results: In present study most significant route of transmission is vertical followed by blood transfusion. using clinical criteria maximum numbers of symptomatic CLHA fall in clinical stage 3 and using immunological criteria based on CD4 count maximum numbers of CLHA have either no or mild immunosuppression. Most common presentations are fever and weight loss followed by chronic cough and oral thrush and most common sign is hepatosplenomegaly and lymphedenopathy. Most common form of TB is pulmonary, followed by abdominal, lymph node a disseminated form.37.58% of CLHA suffered from TB.

Conclusion: In children most significant route is vertical transmission (nearly 90%). So the risk during pregnancy, delivery and breast feeding can be reduced to 2 % with effective measures under Prevention of Parent to Child Transmission of HIV/AIDS (PPTCT). Progression of disease is directly related to age of onset, mode of transmission and other co-morbid condition.

Keywords: AIDS, CD4 count, Children, Human Immunodeficiency Virus.

Introduction

Humanity learned of the human immunodeficiency virus two decade ago, creating a before and after in the history of medicine. HIV is not a disease, but an infection that for several years shows no sign of existence. However, once lodged inside the body it progressively damages immune system by depletion of CD4 helper T cell putting an infected person at risk of developing life threatening illnesses including unusual malignancy or opportunistic infections that may not have contracted otherwise. [1-4]

Since the discovery of Human Immunodeficiency Virus (HIV), it has become a serious public health issue and many screening centers had been established in order to ease the counseling of people for the virus. HIV infection is considered pandemic by the World Health Organisaon (WHO). From its discovery in 1981 to 2006, AIDS had reportedly killed more than 25 million people, while HIV had infected 1 about 0.6% of the world's populaon. [4,5]

Although there is still no cure for HIV, this chronic infection is manageable now with available of ART. NACO has (set protocols for ART) made it possible free since last five years to even the poorest of people living with HIV/ AIDS (PLHA). There are set protocols for managing Opportunistic infections (OI's) and advance disease. Prevention of Parent to Child Transmission of HIV/AIDS (PPTCT) has made it possible to diagnose exposed infants and children living with HIV/AIDS (CLHA) and start proper and adequate at appropriate time. Thus, CLHA with

timely and appropriate treatment can lead a normal life and reach adolescent and adulthood. [6,7]

As the epidemiological pattern of the disease unfolded it become clear that the route of transmission of this virus is through sexual contact, vertical transmission to fetus, blood and blood products.

Once infected a person will stay infected lifelong. Due to stigma attached with HIV people living with the disease, they face discrimination at various levels in society and are not able to participate in day to day activities. [8,9]

Very few studies are available for care of children living with HIV/AIDS (CLHA) at national level and most are in private sectors. My study is conducted in tertiary care public hospital with ART centre (centre of excellence) and with NACO guidelines. Study has been done to know the incidence, clinical pattern of disease; various OI's and morbidity and mortality pattern. All possible efforts are made to educate the patients and their relatives about the disease and treatment available and opportunistic infections that likely to develop during the course of illness. [10-12]

Present study was done with following Objectives

- To evaluate the various modes of clinical presentation.
- To evaluate the modes of transmission.
- To study the clinical presentation of OI's.
- To evaluate the association of tuberculosis in HIV and its relation with CD4.
- To know the clinical and immunological response of ART.
- To evaluate the various side effects and failure of ART.
- To know the morbidity and mortality pattern.

Material and Methods

Present Prospective was conducted at the Department of Pediatrics, Tertiary care institute of India for the duration of 2 years.

Patient selection

Children living with HIV/AIDS [CHLA] > 18 months to 12 year of age admitted and attending OPD in pediatric department of my institute. All CLHA are registered in ART centre affiliated with this institute. They are diagnosed by triple test HIV ELISA antibody, investigated, treated and followed up in ART centre as per NACO guidelines.

Exclusion criteria

HIV exposed infant and child < 18 months whose status cannot be confirmed as HIV DNA PCR facility is not available under NACO in public health institution.

Methods

- Complete history and physical examination has been done as mentioned in proforma
- Age of diagnosis
- Family history includes parental and sibling HIV status. Testing of family members is done retrogradely in ART centre after pretest counseling. In present study of 290 patients both parents were found to be reactive in 208 cases, only mothers were reactive in 56 cases and siblings were reactive in 51 cases. There are 26 cases in which both parents were negative among which 17 children have acquired through blood transfusion and in rest 9 of cases route of transmission cannot be commented upon.
- Symptoms & OI are taken into consideration, and they are classified using clinical and immunological criteria as per WHO.
- Serial CD4 count monitoring is done every 6 monthly.
- Follow up is done every monthly in ART centre and nutritional status and development is assessed. I have also done the follow up as when the patient visits to ART centre. On each visit ruling out of TB and development of new OI is looked for.

Statistical analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2007) and then exported to data editor page of SPSS version 15 (SPSS Inc., Chicago, Illinois, USA). For all tests, confidence level and level of significance were set at 95% and 5% respectively.

Results and Discussion

Table 1: Age and Gender Distribution of Study Participants

Age	Male	Female	Total
Up To 5 Yr	056	38	94(32.4%)
>5yr	118	78	196(67.6%)
Total	174	116	290

In present study maximum number of CHLA is more than 5 year and male to female ratio is 1.5:1. In present study maximum numbers of CLHA are diagnosed in age group of 3-5 year. So mean age of presentation is between 3-5 year which is comparable to the study conducted by Ira shah et al age of presentation is 2.9-4.5 year. All CLHA when diagnosed after 7 year they were affected with OI's, failure to thrive and referred here from various other centers due to ART unaffordability.

Table 2: Mode of Transmission

Route of Transmission	No of CLHA in Present Study
Mother to Child	264
Blood/Blood Product	17
Unknown	9
Total	290

In present study most significant route of transmission is vertical followed by blood transfusion. There was a good knowledge as to the possibility of transmission of HIV through means such as blood transfusion, sexual transmission and sharing of sharp objects with others, which could have been as a result of widespread campaign about the possible means of transmission of the virus. According to Ogbuji [13] HIV could be transmitted through unprotected sexual intercourse (93.5%), blood transfusion (98.2%) and use of blade at 6. a saloon (93.5%)

In present study on presentation 71 CLHA were asymptomatic (WHO clinical stage 1] and 219 CLHA were symptomatic [WHO clinical stage 2, 3, 4] so it indicates that CLHA have already developed disease progression before they are diagnosed.

Table 3: Distribution according Based on CD4 (equal or > 5 year) on Presentation

Immunosuppression	Range of Cd4	No of CLHA
No of Immunosuppression	=500	89
Mild	350-499	67
Severe	200-349	39
Advanced	<200	23
Total		218

It has been observed that using clinical criteria maximum numbers of symptomatic CLHA fall in clinical stage 3 and using immunological criteria based on CD4 count maximum numbers of CLHA have either no or mild immunosuppression. So it concludes that CLHA having severe clinical disease can have no or mild immuno suppression or vice versa. So both CD4 and clinical staging should be done before starting ART and commenting on severity of the disease.

Table 4: Clinical Symptoms and Signs among Study Participants

Symptoms	No of CLHA
Fever	186
Weight Loss	191
Diarrhoea	72
Chronic Cough	176
Candidiasis	87
Pruritus & Skin Lesion	42
Otitis Mesia/ Sinusitis	14
Mumps	2
Lymphedenopathy	106
Hepatosplenomegal	139
Gailure To Thrive	131

In present study most common presentations are fever and weight loss followed by chronic cough and oral thrush and most common sign is hepatosplenomegaly and lymphedenopathy which is comparable to other studies. [14-17] most common form of TB is pulmonary, followed by abdominal, lymph node a disseminated form.37.58% of CLHA suffered from TB which is comparable to Ira and Ramesh et al study.

Table 5: Relation of TB with CD4

CD4 Count	No of CLHA TB Infection
Up to 50	14
51-200	15
201-350	8
351-500	15
501-650	17
651-800	8
801-950	13
951-1100	9
>1100	10

In present study there are 52 CLHA suffering from TB have CD4 count less than 500 and 57 CLHA have counts more than 500. So at low CD4 counts it is an OI and high CD4 count it is more of a co infection. At low CD4 TB has severe dissemination and drug resistant. Over the spectrum of CD4 number of CLHA are more or less same. In present study 79 % of CLHA are anemic and out of them 6 % are severely anemic requiring B.T. According to NFHS data anemia is prevalent in 80 % of children. So it is an incidental finding in CLHA which is most likely due to nutritional cause.

In present study the most common opportunistic infections are bacterial pneumonia and oral candidiasis which comparable to other studies. [18-20]

Table 6: Distribution according to ART use

	No of CLHA	%
Pre Art	173	59.65%
On Art	117	40.35%
Total	290	

Nearly half of the CLHA are on ART in present study as per NACÓ recommendation. As ART is available free of cost at ART centre in Civil Hospital so there are higher numbers of CLHA on ART. In present study there is good response to ART among CLHA, as 72% CLHA have increase in CD4 count after they put on ART. Few who were in stage 4 had a deteriorating course so timely intervention is must to prevent morbidity and mortality.

More than 95 % of drug adherence rate has been seen in 97 CLHAS and 20 CLHA are lost to follow up. So in these 20 CLHA we are not able to decide drug adherence. Rate is more than 95% because in majority of CLHA their caregivers are their own parents, availability of paediatric formulation in fixed dose combinations which has eased their schedule and counseling which is done at every visit.

In present study large numbers of CLHA on ART are also on concomitant AKT so most common side effect seen was altered lab values of LFT probably due to drug interaction and combined hepatotoxicity. One patient has developed hepatitis probably due to NVP, later substituted to EFV based regimen. During study period 6% patients died and 11% CLHA are transferred out to link centers.

Conclusion

In children most significant route is vertical transmission (nearly 90%). So the risk during pregnancy, delivery and breast feeding can be reduced to 2 % with effective measures under Prevention of Parent to Child Transmission of HIV/AIDS (PPTCT). Progression of disease is directly related to age of onset, mode of transmission and other co-morbid condition. Most common presentation in CLHA is affection with TB and failure to thrive. The common symptoms are fever, cough and diarrhea. It appears that TB is more of a co-infection as it has occurred throughout the range of CD4 level. The common opportunistic infection in children is oral candidiasis and bacterial pneumonia.

With Introduction of HAART, the overall life expectancy has greatly improved as HIV related morbidity and mortality continues to decline. Due to stringent follow up and counseling at our institute there good drug adherence in majority of CLHA. Study has also found improvement in form of increase in weight and reduced frequency of OI's leading to reduced hospitalization.

Proper PPTCT and antenatal surveillance is highly effective in prevention of disease if we are able to detect child bearing age women. So we may be able to put PPTCT in best use and reduce the risk of transmission to children and bring about reduction in population of CLHA.

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