

Original article:

Study of clinical profile of CD4 count and outcome in children with HIV/AIDS below 12 years

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Abstract:

Introduction: Our aim was to study clinical profile CD4 count and outcome in children with HIV/AIDS below 12 years of age and to study, in children with HIV/AIDS Clinical profile, CD4 count and Out-come.

Material and methods: The study was carried out in ART OPD and pediatric ward over one year duration. All children who were HIV reactive below 12 years were enrolled. Detail history examination and investigation done clinical profile, symptomatology, staging CD4 count and outcome studied in these cases.

Result: Males (79%) are affected more than females, while common age of presentation was 8.2yrs. Majority of patients were in WHO staging of Stage III (33.6%) and Stage IV (29.6%), most common symptom was weight loss in 50cases and commonest sign was generalized lymphadenopathy in 57 cases. Tuberculosis was the most common opportunistic infection in 18.4%. Baseline CD4 count was <15 % in 52% cases. Out of 125 cases, 75 improved, 15 deteriorated, 30 lost follow up and 5 expired .

Conclusion: In these studied patients of HIV infection males are affected more and common age of presentation was 8.2 years. Most common symptom was weight loss and tuberculosis was the most common opportunistic infection. Majority patients were in stage III and stage IV. ART has improved these patients and is the prime central management for these cases.

Keywords: HIV, Childrens < 12 years, CD4 Count, outcome

Introduction

The UNAIDS report on the global AIDS epidemic estimated that approximately 4,20,000 (3,50,000-5,40,000) new HIV infections occurred in children below 15 years of age in year 2007. 90% of them through mother to child transmission. The global impact of HIV epidemic has been so dramatic and devastating that it has been described as the "epidemic of current century"¹.

The first case of HIV infection in India was diagnosed among sex workers in Chennai, Tamil Nadu in 1986². The clinical manifestation of HIV infection in children is different from those in adults.

The immune system of young children who are infected perinatally is immature and hence dissemination throughout the various organs may occur very early³.

Antiretroviral therapy (ART) has been scaled up in Africa over the past year (UNAIDS and WHO 2003, 2007). At the end of 2007, 30% of the estimated 7 million people in need of treatment were receiving it (WHO, 2009)⁴. We have studied clinical manifestations staging and outcome of these HIV infected cases.

Material and methods

The study was carried out in ART centre and pediatric ward at Govt Medical College, Aurangabad.

Study period: January 2009 to Dec 2009.

Study design: Prospective observational study.

Sample size: All children who were HIV reactive attending ART OPD and IPD below age of 12 years.

Inclusion criteria: All children who were HIV reactive attending ART OPD and IPD below age of 12 years.

Exclusion criteria: Children above 12 years.

Method:

Written and informed consent of all parents and caretakers was taken before performing the tests and examination. All children who were thus confirmed seropositive using three rapid tests (Tridot, coombed and immunochromatography) were included in the study. A detailed history including family history, birth history and immunization history noted. A detailed physical examination was done. Investigations like hemoglobin, total WBC count, platelets count, CD4 Cell count by standard flow

cytometric method using FACS count, done. Other tests like tuberculin test, LFT, KFT, CSF exam. Blood culture was done as per the indication. All patients were treated with ART as per NACO 2006 guidelines.

All cases were followed up to 6 months and outcome was studied.

Result:

Total 125 cases of HIV/AIDS attending ART OPD or admitted in ward during study period were studied.

Out of total 125, 79 (63.2%) cases were of males and 46 (36.8%) were of females. Mean age of presentation was 8.2 years. Most common symptom was weight loss (50 cases) and most common sign detected in this case was generalized lymphadenopathy (in 57 cases) as shown in fig. 1 and Fig. 2 . According to WHO staging 33.6% were in stage III and tuberculosis was the most common opportunistic infection (18.4%). Baseline CD4 count was <15 % in 52% cases; 66.4% of children were in stavudine based regime, while 22.4% on Efavirenz regimen and 18.4% were on AKT as shown in table 4; 527 children with ARI improved & 4 expired.

Table 1 showing demographic characteristics of study population.

SR.NO.	Variables	Results
1.	Sex :- Male	79.(63.2%)
	Female	46 (36.8%)
2.	Age at Presentation	Male 8.3 ± 2.85 Female 8.2 ± 2.85
3.	Mode of Transmission	Vertical – 120 (96%) Blood Products – 3 (2.4%)
4.	WHO Staging	Stage 1 – 21 (16.8%) Stage 2-25 (20%) Stage 3-42 (33.6%) Stage 4-37 (29.6%)

5.	Opportunistic	
	Infection with	Shown in table 2
	HIV / AIDS	
6.	CD4 count	Shown in Table 3
7.	STUDY OUTCOME	
	Improved	75
	Deteriorated	30
	Loss of Follow up	30
	Expired	5 (4 of bronchopneumonia and 1 of sepsis)

Table no. 2 Opportunistic Infection with Children with HIV/AIDS

Infection	ART (N-125) Cases (%)
Tuberculosis	13 (18.4%)
Candidacies.	17 (13.6%)
Skin infection	17(13%)
Herpes Zoster	10(8%)
Pyoderma	5(4%)
Herpes Simplex	2(1.6%)
Diarrhoea	15 (12%)
Pneumonia.	04(3.2%)
Otitis Media	17(13.6%)
Sepsis	01(0.8%)
HIV Encephalopathy	01 (0.8%)

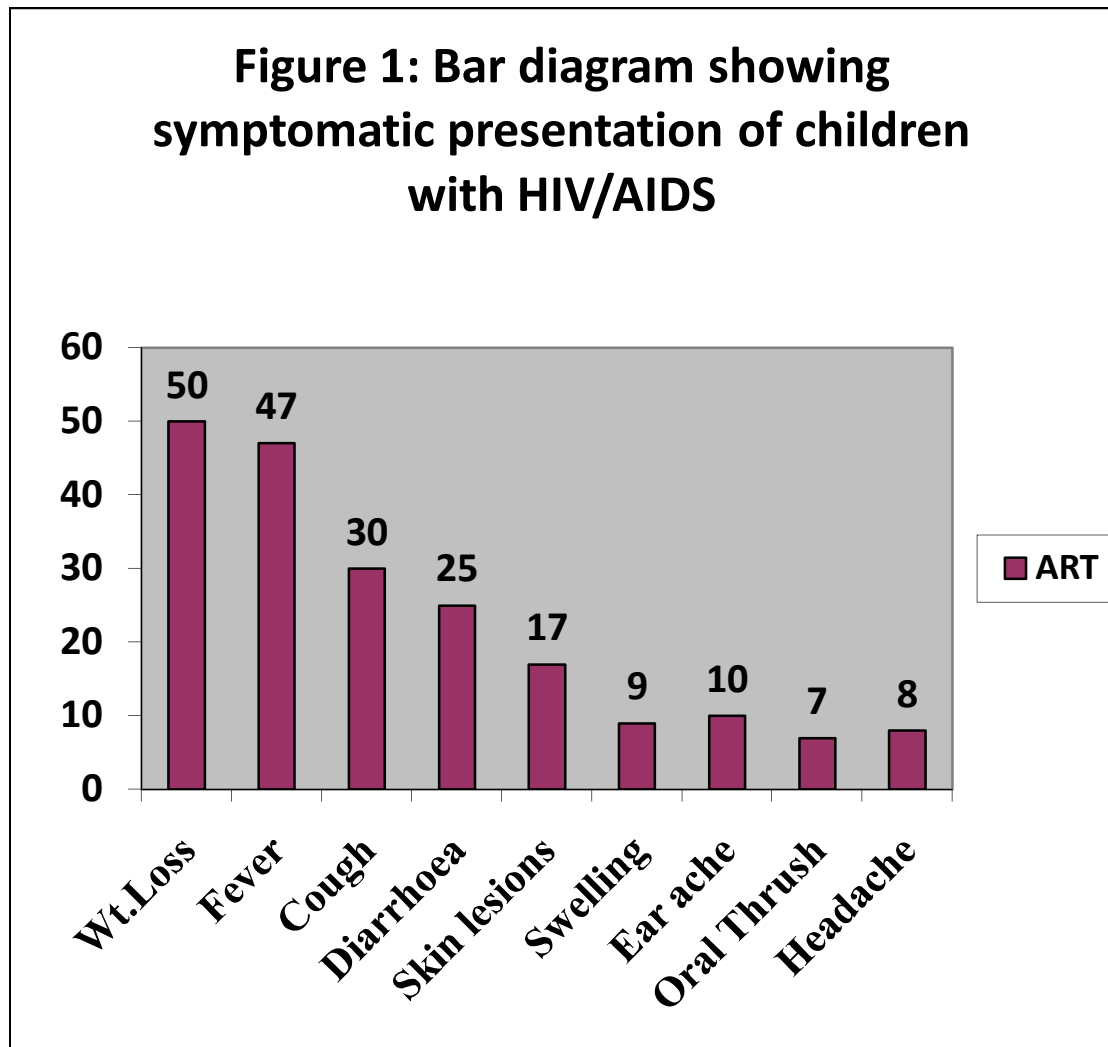
Tuberculosis was the most common opportunistic infection in and ART group

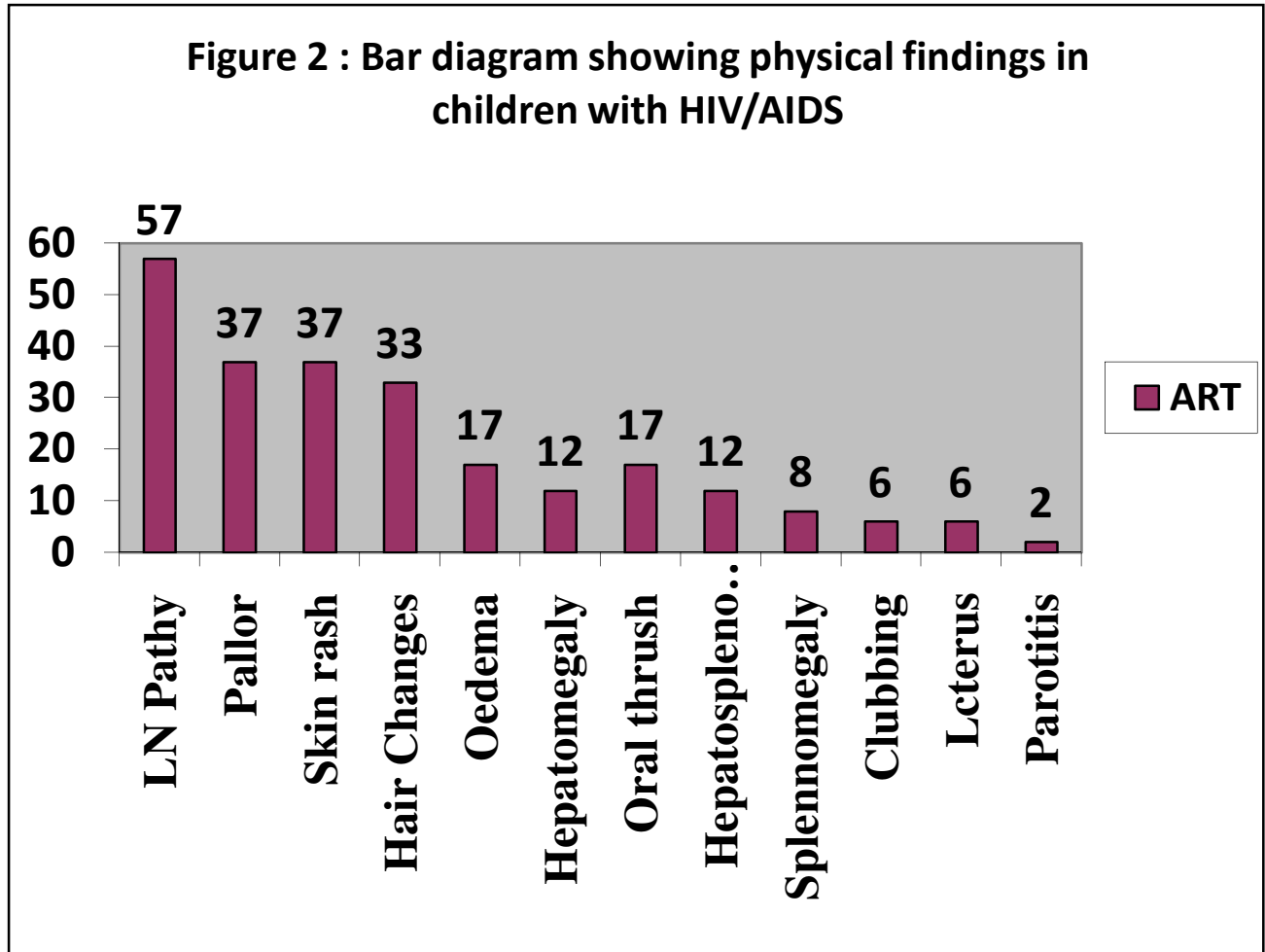
Table no. 3 baselines: ART

Age Group	CD4 < 15%	CD4 15-20%	CD4 20-25%	CD4 >25%	CD4 COUNT
0-1 (00)	-	-	-	-	-
1-3 (04)	02	-	02	-	779.5 ± 302
3-5 (22)	04	15	03	-	479.1 ± 302
>5 (99)	60	18	21	-	410.1 ± 302
n = 125	66 (52%)	33 (26%)	26 (20%)	-	436.88 ± 302***

(*p=<0.05(0.0001)

There was significant difference in CD4 count at baseline in group 52% has CD4 count < 15% in ART group.





Discussion:

The present study is carried out in ART centre and in dept. of pediatrics to study clinical profile. CD4 count, and out-come of HIV patients below 12 years . In present study mean age of mean age of presentation was 8.2 year which was similar to other various studies^{5, 6, 7}. The commonest mode of transmission to children was vertical transmission similar to other studies^{5, 8} vertical transmission was the commonest and breast feeding is the least common mode⁹.

The most common symptom was weight loss due to anorexia, diarrhoea, malabsorption and repeated infection^{8,10}. In other studies, most common

presenting symptom were URIT, Fever, cough and skin rash^{11,12,13}

lymphadenopathy and hepatosplenomegaly and pallor are common signs as a pan of diffuse infiltrative process^{5,8,14}.

Majority of patients were in WHO clinical staging of III and IV similar to other studies^{5,15}. Tubercuosis was found to be commonest opportunistic infection similar to other studies^{2,6,11,16,17} HIV associated tuberculosis is important not only because of its frequency but because of its dissemination and multidrug resistant strains . Early diagnosis and treatment of tuberculosis also show control of HIV infection¹⁶.

CD4 T lymphocyte is the immune system cells that HIV infects and destroys and CD4 count roughly reflects the state of immune system. CD4 percentage declined with progression in WHO clinical stages. There was statistically significant difference at Baseline and 6 months CD4 counts in ART patients showing improvements in immune status¹⁸. But we

could not do follow up of all these cases as 35 cases lost their follow up. Mortality was noted in 5 cases. However studies^{4,15} found high mortality rate may be due to patients in Pre ART group . 75 cases improved in out study on ART. Thus by improving coverage, care,, proper investigation and treatment of these case we can improve the survival and reduces mortality .

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