



A STUDY ON CLINICAL AND LABORATORY PROFILE OF HIV INFECTED CHILDREN AGED 1-12 YEARS

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**ABSTRACT**

**Objective:** To study the clinical and laboratory profile of HIV Infected children aged 1-12 years. **Method:** This is a hospital based cross sectional study done in HIV positive children attending ART centre, paediatric wards and ICU of KGH. Demographic details of enrolled children like age, sex, socioeconomic status and HIV status of parents are noted. Clinical presentation and breast-feeding details are recorded. Anthropometry is taken and detailed physical examination and relevant investigations were done to assess nutritional status and to know presence of any opportunistic infections. CD4 count is done in all children and clinical and immunological staging is done based on clinical features and CD4 count. **Results:** Study population included 90 children with HIV positive status. Mean age of presentation- 7.9 years. Most common mode of transmission is vertical transmission. Only 57% of children exclusively breast fed. Anaemia is the most common presenting complaint. CD4 count decreasing with increasing age, deteriorating nutritional status and increasing WHO clinical staging.

**KEYWORDS :**

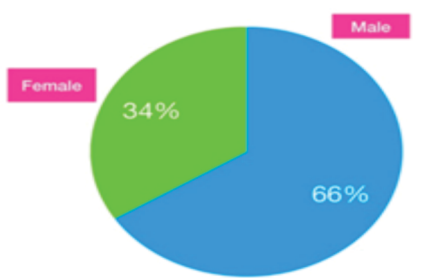
Paediatric HIV is a significant cause of childhood morbidity and mortality. Paediatric HIV contributes to 7% (2.78 million) of total HIV burden, globally. In India, 81,430 children are currently living with HIV. Children have a high rate of viral replication, high viral load and higher CD4 destruction compared to adults. Clinical presentation of most of the common paediatric infections is similar to opportunistic infections in HIV, hence a high index of suspicion is required to identify HIV in children. As PEM is common health problem in Indian children and weight loss is the earliest manifestation of HIV, all children with SAM should be screened for HIV infection. This study is taken up to evaluate the clinical profile, modes of transmission, breast feeding practices and various opportunistic infections in HIV infected children.

**Methodology:** This is a hospital based cross sectional study done in HIV positive children attending ART centre, paediatric wards and ICU of KGH. Demographic details of enrolled children like age, sex, socioeconomic status and HIV status of parents are noted. Clinical presentation and breast-feeding details are recorded. Anthropometry is taken and detailed physical examination and relevant investigations were done to assess nutritional status and to know presence of any opportunistic infections. CD4 count is done in all children and clinical and immunological staging is done based on clinical features and CD4 count.

**RESULTS:**

**Distribution according to sex:**

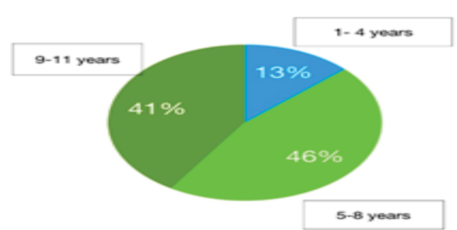
- 90 HIV positive children in the age group 1-12 years were included in the study. Of that 66 % children are Male and 34% are female.
- Male: Female - 2:1



**Distribution according to age:**

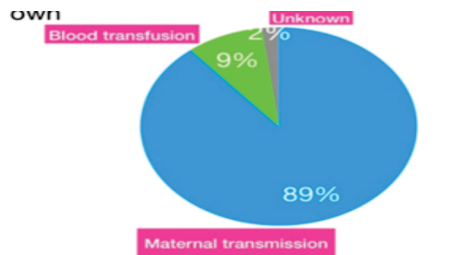
Mean age of children in this study is 7.9 years

Age	Distribution
1-4 years	13%
5-8 years	46%
9-11 years	41%



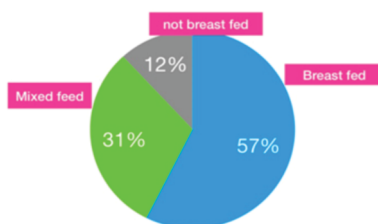
**Modes of Transmission:**

Most common mode of transmission is vertical transmission 80(89%) children. In 8(9%) children, transmission was probably due to blood transfusion . In 2(2%)child, mode of transmission is unknown



**Breast feeding status:**

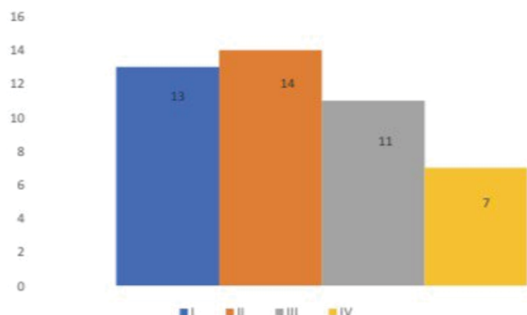
57%(62) HIV positive children are exclusively breast fed. 31%(28) were given mixed feed. 12%(10) not breast fed at all.



**Clinical Features:**

Anaemia is the most common clinical feature, followed by fever and weight loss. Anaemia 77%, Fever 71%, Weight loss 67%, Cough 55%, Chronic diarrhoea 38%, Lymphadenopathy 22%, Hepatomegaly 22%, CNS 15%

**WHO Clinical Stages:**



**Opportunistic Infections:**

Pulmonary TB was the most common opportunistic infection followed by extra pulmonary Tb and Candidiasis.

OPPORTUNISTIC INFECTIONS	NUMBER	PERCENTAGE
Pulmonary TB	6	13%
Extrapulmonary TB	5	11.10%
Candidiasis	6	13%
Herpes Zoster	3	6.67%
skin manifestations	1	2.22%
Recurrent bacterial pneumonia	1	2.22%
No Opportunistic infections	23	51.11%
Pneumocystiscarinii Pneumonia	0	

**Nutritional Status Age wise:**

Age	Total	Wasting	Stunting	Wasting + Stunting	Normal
1-4	12	2(16%)	0	2(16%)	8(68%)
5-8	42	4(9%)	8(18%)	10(23%)	20(47%)
9-12	36	12(33%)	8(22%)	10(27%)	6(18%)

**Age and CD4 count:**

As age increases, CD4 count is decreasing

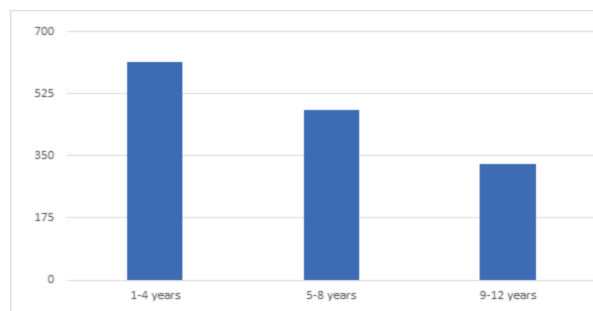
Mean CD4 counts:

1 to 4 years: 615 +/- 282

5 to 8 years: 480 +/- 256

9 to 11 years: 327 +/- 218

P value 0.03



**Children with opportunistic infections:**

Mean CD4 count in children with opportunistic infection is significantly low compared to children without opportunistic infections

	Number	Mean CD4 count
Children with opportunistic infection	46	309.55
Children without opportunistic infection	44	560.22

P value 0.001, which is statistically significant.

**Various opportunistic infections and CD counts:**

Table 9: Mean CD4 count in various opportunistic infections

Opportunistic Infection	Number	Mean CD4 count ± SD
Pulmonary TB	6	308.5±150
Extra pulmonary TB	5	228±177
Candidiasis	6	343±340
Herpes Zoster	3	444.67±141
Molluscum Contagiosum	1	172
Pneumocystis carinii Pneumonia	0	0
Recurrent bacterial pneumonia	1	255

**WHO Clinical Stage and CD4 Count:**

As clinical stage increases, CD4 count is decreasing.

WHO clinical staging	Number	Mean CD4 count
1	26	709.23
2	28	369.35
3	22	368.18
4	14	188.28

**Nutritional status of children and CD4 count:**

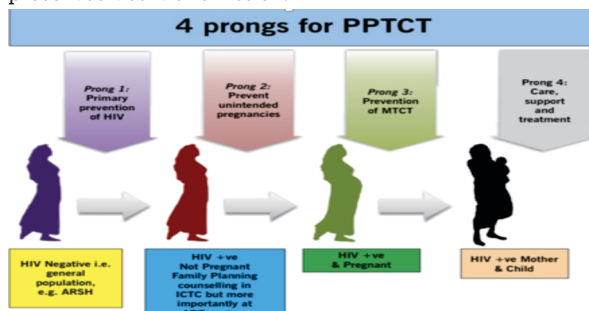
CD4 count in children with no malnutrition is higher than children with wasting and stunting.

WHO classification	Number	Mean CD4 count
Normal	32	640
Wasting	18	494
Stunting	18	282
Wasting + Stunting	22	223

**CONCLUSIONS:**

90 HIV positive children in the age group of 1 to 12 years are included in this study. Male to female ratio is 2:1. This may show more healthcare seeking behaviour for male children. The mean age of HIV positive children is 7.9 years. The most common mode of transmission is vertical [89%]. Screening of target couple by HIV testing and counselling (before pregnancy). Prevention of unintended pregnancies, early initiation of life long ART to all HIV positive women irrespective of clinical and immunological staging and nevirapine prophylaxis for new born of HIV positive mothers, can reduce vertical transmission from 40% to <5%.

National PPTCT programme recognises 4 prongs approach to prevent vertical transmission.



Among 90 children, 57% are exclusively breast fed. Current guidelines recommend that all babies of HIV positive mothers must be exclusively breast fed for 6 months and to continue breast feeding along with complementary feeding up to 1 year age.

37% were given mixed feeding. Even though it was said that mixed feeding is associated with increased rate of HIV transmission, current guidelines recommend mixed feeding superior to no breast feeding at all in reducing mortality in children < 1 year, provided the mother is on triple drug ART.

Anaemia is most common clinical feature, followed by fever

and weight loss. In present study, malnutrition both acute and chronic were common in older age group.

CD4 count was lower in older children especially in malnourished children. Nutritional counselling and providing RUTF at ART centre to improve nutritional status of HIV positive children can help in delaying immunological deterioration.

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