Prevalence of Paediatric HIV Infection in Federal Capital Territory, Abuja

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ABSTRACT

BACKGROUND: Various studies in sub-Saharan Africa have documented high prevalence of HIV infection in children.

OBJECTIVE: To determine the prevalence and outcome of paediatric HIV/AIDS in a new Teaching Hospital in the Federal Capital Territory, Abuja, Nigeria.

METHODS: A two year retrospective review of patients attending paediatric outpatient unit of the University of Abuja Teaching Hospital, Gwagwalada, was undertaken for the above objective.

RESULTS: Out of a total of 3,669 paediatric patients seen in unit of the hospital, 437(11.9%) tested positive for HIV, 234 were males, while 203 were females (m:f=1.15:1). Children under the age of five years accounted for 81.7% of the HIV positive children, and mother-to-child transmission was the major route of transmission of HIV in 73.7% of cases. Two other common routes of transmission were the use of blood / hair dressing implements in 4.8% each, and use of non sterile needle in 3.9%. Most mothers of HIV children were either housewives (45.3%), or petty traders (10.4%), while their fathers were either civil servants (26.5%) or long distance drivers (19.7%). A mortality rate of 3.4% was recorded while 6.0% were lost to follow up.

CONCLUSION: The prevalence of HIV/AIDS in children is high in the FCT, Abuja, most of which was through mother-to-child transmission. There is an urgent need to scale up PMTCT programmes to many tertiary, secondary and primary health care facilities across the FCT, and the nation at large in view of the enormous burden of the disease in children. Safe blood for African initiative/ techniques should be extended to many health care facilities nationwide, and use of unsterile needles by patent medicine dealers to be prohibited.

KEY WORDS: prevalence, paediatric HIV/AIDS, paediatric outpatient unit.

INTRODUCTION

The global prevalence of HIV-1 has stabilized in recent time at 0.8%, with 33 million people living with HIV/AIDS, 2.7 million acquiring new infection, and 2.0 million AIDS deaths in 2007.[1] Heterosexual spread is still the main mode of transmission in sub-Saharan Africa (SSA), which remains the most heavily affected region with 67% of the global burden. Of over 2.3 million children less than 15 years infected with this virus globally, 1.9 million (82.6%) is residing in the sub-region, the pandemic which has orphaned more than 13 million children across the global has its greatest burden of over 11 million orphans also in SSA.[1-3]

HIV infection in the age group of 15-30 years is responsible for over 65 percent of all new cases of the disease in Africa.[4,5] The infection rate among young women out numbers that of their male counterparts in the ratio of 2:1.[5,6] This trend is disturbing to paediatric care givers as over 90% of HIV in children is through mother-to-child transmission (MTCT).[5,6] Today, HIV/AIDS is the fourth greatest killer disease in the world, and it is responsible for more than 7.7% of under five mortality and 19% rise in infant mortality.[6] In some parts of Africa, the disease has surpassed malaria as the leading cause of death, [7] yet for most part, paediatric HIV infection is preventable. In industrialized nations, HIV in children is now largely under control. The reverse is the case is most developing nations due to lack of access to currently available and feasible HIV preventive measures, high maternal HIV infection, high birth rate, high hetero-sexual transmission, high female to male ratio and wide spread practice of prolong breast feeding.[5,6] All these translate to high burden of paediatric HIV/AIDS in Africa.[5,6] Since the first case of AIDS was reported in Nigeria in a 13 year-old girl, the epidemic has continued to rise at an alarming rate with a slight drop 2005.[5] The sero-prevalence among pregnant women in the country increased from 1.8% in 1991 to 5.5% in 2001, then 4.4% by 2005 and 5.8% by 2007 with a slight drop recently.[5]

Abuja is the 'seat of power' in Nigeria, and one of the fastest growing cities in the country with influx of young people from different parts of the country seeking for job opportunities. It becomes very important to document the prevalence of paediatric HIV/AIDS in this fast growing Federal Capital Territory (FCT), Abuja. The data generated from study is expected to be of practical importance for comparative as well as prioritizing intervention measures for children at risk of the disease in the area.

SUBJECTS AND METHODS

This study was carried at the University of Abuja

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Teaching Hospital (UATH), Gwagwalada (G/lada). G/lada is one of the area council in the FCT, Abuja. The review was carried out after the establishment of President's Emergency Plan for AIDS Relief (PEPFAR) programme in the hospital. PEPFAR is a special programme on HIV/AIDS sponsored by the government of the United States of America in collaboration with Federal Government of Nigeria to provide free medical services to HIV/AIDS victims. The hospital is one of the first six centers in the country to benefit from such programme, it is a tertiary health institution sub serving many neighbouring states in the country including Nassarawa, Niger, Kogi, Benue, parts of Kaduna state and the FCT. Children with HIV/AIDS benefit from the programme, and such children are seen in the paediatric outpatient specialist treatment clinic (POSTC), an arm of paediatric outpatient unit (POPU) of the hospital. POPD of UATH is made up of General Paediatric Outpatient and POSTC for HIV/AIDS patients. The General Outpatient has two sub-units, (1& 2). Sub unit 1 is runned by resident doctors and house officers in paediatric outpatient posting. They oversee the day to day running of all out patient paediatric medical cases in the hospital. The sub-unit 2 is a sub specialty clinic for consultants/ and their resident doctors in the various sub specialties in the department. They attend to all referred paediatric cases in their various sub specialties that needed specialist attention, and their follow up cases. Referred cases were from General Paediatric Outpatients sub unit I, from other hospitals within and outside Federal Capital Territory (FCT), Abuja, and within the hospital. POSTC oversees only children with HIV infections. The POPD is open to patients from 7:30am to 4:00pm from Mondays to Fridays. Inclusion criteria were all paediatric patients who visited the clinic for first time for treatment in both clinics, those excluded were all follow-up cases, and HIV exposed un-infected infants.

Case records of all children less than 15 years seen from January 2005 to December 2006 in POPU, and those of all HIV positive children attending POSTC in the health institution were retrieved and relevant information collected. Information collected included: the age, sex of the patients, the possible mode of HIV transmission to the child, the occupation of the parents, as well as the HIV status of the parents. Diagnosis of HIV infection in children less than 18 months was confirmed with DNA PCR test after 6 weeks of age. For older children, the diagnosis was made using double rapid antibody test (STAT PAK by *chembio diagnostic system INC* New York, and *Determine* by Abbot Laboratories Japan).

Ethical clearance was obtained from the Ethics Committee of the hospital before commencement of the study, and data analysis computed with SPSS program version 13.5 which produced frequency distributions, percentages, mean and standard deviations.

RESULTS

A total of 3,669 paediatric patients were seen in POPU of UATH during the two-year review period. Four hundred and thirty seven (11.9%) of these, comprising 234 males and 203 females (m:f=1.15:1), tested positive for HIV infection.

Table I shows the age distribution of the children with HIV infection. Most (81.7%) were aged below five years, with 29.5% being those less than one year. The least percentage (6.4%) positivity was in the age group 5-10 years. The most probable route of HIV infection was shown in table II. MTCT was the most frequent mode of transmission and was documented in 73.7%. Probable transmission through blood transfusion, and use of non-disinfected hairdressing implements such as clippers, shaving blades and scissors was also recorded in 4.8% each, while in 3.9% of cases, transmission was most probable due to use of non-sterile/reused needles. Sexual abuse/activities constituted the mode in 3.4%, while the source was unidentified in 6.4%.

Table III shows the occupation of parents of HIV positive children. In the table, 143 (45.3%) of 316 positive mothers were housewives, 38 (12.0%) were self employed, 46 (14.6%) were traders including 33 (10.4%) who were petty traders, 32 (10.1%) were civil servants, while 31 (9.8%) were students. The occupation in which the parents were least engaged was farming, being practiced by 1.5% of the fathers, and 0.9% of the mothers. Thirty five (26.5%) of 132 positive fathers were civil servants, 26 (19.7%) were long distant drivers, 9 (6.8%) were short distance drivers, 24 (18.2%) were self employed, while 19 (14.4%) were workers in private establishments. Seven fathers and four mothers had incomplete records and were excluded from analysis. Three pairs of twins were positive during the two years review period, while four of the mothers were single mothers. In Table III also, 316 (73.5%) of 430 mothers of positive children were themselves positive for HIV infection, 101 (23.5%) tested negative, while 13 (3.0%) were not tested, including six mothers who refused to be tested. On the other hand, 132 (30.9%) of 427 fathers of positive children tested positive, 46 (10.8%) were negative, and 249 (58.3%) including 72 who refused to be tested were not available for testing. Of the 427 fathers of positive children, only 178 (41.7%) agreed to be tested, 249 (58.35) were not tested, and 179/249 (71.1%) of fathers not available for testing mentioned busy schedule as their main reason for not carrying out the test. Thus, a greater proportion of mothers (417/430 or 97.0%) than fathers (178/427 or 41.7%) of HIV positive children agreed to be tested for HIV infection, $p< 0.05$.

Table IV represents the outcome of 437 patients seen at the POSTC over a two year review period. Eighty four percent of the patients were alive and on first line medication, 73 (16.7%) of whom were transferred to other special treatment centers on request, less than two

percent were started on second line drugs, while 27 (5.9%) were lost to follow up. Fourteen (3.2%) were being monitored for commencement on ART when CD4 cell count declines according to their age, 14 (3.2%) died, while 5 (1.1%) patients discontinued ART.

Table 1: Age Distribution of the Children with HIV Infection.

Age (Years)	No of Cases	Percentage of Total
0.1 - <1	129	29.5
1 - <3	145	33.2
3 - < 5	83	19.0
5 - 15	80	18 .3
Total	437	100

Table IV: Outcome of 437 HIV Children.

Variables	Total No	Percentages
Alive and on 1st line drug	369	84.4
,, ,, ,, 2nd line drug	8	1.8
On monitoring	14	3.2
Lost to follow up	26	6.0
Discontinue ART	5	1.2
Dead	15	3.4
Total	437	100.0

ART anti-retroviral therapy

Table 11: Probable Source of Paediatric HIV Infection.

Age(Years)	Through MTCT (%)	Through Blood Transfusion (%)	Through tattooing and ear piercing (%)	Sexual abuse or sex related (%)	Through Barbing (%)	Through non sterile needle (%)	Unidentified source (%)	Total
0.1 <1	121(37.6)	1(4.8)	0(0.0)	0(0.0)	2(9.5)	0(0.0)	5(17.9)	129(29.5)
1 - < 3	124(38.5)	6(28.6)	1(7.7)	0(0.0)	6(28.6)	2(11.8)	6(21.4)	145(33.2)
3 - < 5	67(20.8)	8(38.1)	2(15.4)	0(0.0)	2(9.5)	3(17.6)	1(3.6)	83(19.0)
5 - 15	10(3.1)	6(28.6)	10(76.9)	15(100)	11(52.4)	12(70.6)	16(57.1)	80(18.3)
Total	322 (73.7%)	21 (4.8%)	13 (3.0%)	15 (3.4%)	21 (4.8%)	17 (3.9%)	28 (6.4%)	437 (100%)

Table 111: Occupation of Parents of HIV Positive Children

Occupation	Mothers		Fathers	
	No (%) With +ve Children N = 430	No (%) +ve For HIV N = 316	No (%) With +ve Children N = 427	No (%) +Ve For HIV N= 132
Unemployed	-	-	12 (2.8)	3 (2.3)
Housewife	192 (44.7)	143 (45.3)	-	-
Self-employed	49 (11.4)	38 (12.0)	97 (22.7)	24 (18.2)
Private employed	25 (5.8)	20 (6.3)	48 (11.2)	19 (14.4)
Civil servant	54 (12.6)	35 (11.1)	101 (23.7)	35 (26.5)
Trading	53 (12.3)	46 (14.6)	51 (11.9)	9 (6.8)
Long Distance Drivers	-	-	49 (11.5)	26 (19.7)
Short Distance Drivers	-	-	26 (6.1)	9 (6.8)
Farmers	17 (4.0)	3 (0.9)	28 (6.6)	2 (1.5)
Students	40 (9.3)	31 (9.8)	15 (3.5)	5 (3.9)
Total	430 (100)	316 (100)	427 (100)	132 (100)

DISCUSSION

The high prevalence of paediatric HIV/AIDS (11.9%) from this study indicates that HIV is a major problem in this environment. This might be an underestimation of the scope of the problem considering that many of these children with HIV/AIDS might have died without reaching a health facility and the diagnosis might have been missed. The prevalence rate of 11.9% was higher than the 5.7% earlier reported by Oniyangi et al [8] and much higher than 1.5% reported by Angyo et al [9] from Jos. It is however similar to the 13.7% reported by Ojukwu et al 2003 [10] from Abakiliki. The differences in the prevalence rate may lie in the nature of the city of Abuja, and the free HIV medical services offered in our institution. Abuja, the capital of Nigeria, is one of the fastest growing cities in the country which has experienced a lot of influx of young people seeking employment. HIV infection is predominantly a disease of sexually active young individuals who have the highest burden of this disease[5,6] and can transfer this virus to their children. In addition to high influx of young people into the city, the free medical HIV services at the institution might also be a contributing factor in that it may have encourage a lot of positive individuals, from far and near, to avail themselves of the free treatment offered in the institution, and this might have resulted in the high turnover of infected individuals in the hospital.

The age distribution of the children in this study does not differ much from other studies in the country,[9-13] and elsewhere in Africa.[14,15] According to reports from other studies [6,15] over half of these children manifest the features of the disease by the age of three years. In the present study, 30% of HIV/AIDS children were aged less than one year, and 81.7% were under five years. Tindyewa et al [6] also noted that 25-30% of the perinatally acquired HIV infection in children will manifest or succumb to the disease before their first birthday. All these reflect the magnitude and influence of maternal HIV infection in their children, and a shorter incubation period of this infection in children when compared to adults.

Although MTCT of HIV infection has been identified as the commonest route of the disease in children, accounting for over 85% of paediatric HIV/AIDS, [5-7] there seems to be a variation in MTCT route of HIV infection in Nigeria. For example, MTCT was responsible for 73.7% of HIV infection in the present study, a situation similar to 67.7% from Abakiliki[10] and 69.6% from Jos, [9] but differs significantly from the reported 30.0% from Enugu.[12] The study from Enugu was undertaken when HIV screening of donor blood was not widely available. In addition to the difference in the study periods, the present study used age appropriate HIV DNA PCR test for diagnosis of HIV in young children.

The present study recorded the probable transmission through infected blood in 4.8% of cases. This was much less than figures from other areas in the country, such as 30.0% in Enugu,[12] 12.9% in Abakiliki,[10] and 8.9% in Jos.[9] It was however, similar to the 4.6% earlier reported from Abuja by Oniyangi et al.[8] The lower transmission rate of HIV infection by blood transfusion recorded in this study might probably be due to the scrupulous screening of donors' blood, using techniques that largely addressed the window of HIV infection before transfusion in our health institution. This technique utilized in "Safe Blood for Africa" which uses all inclusive testing algorithms that detect both antibodies and HIV viral DNA in the donors' blood before transfusion.[16]

Use of unsterile needles for intramuscular injection is a common practice among the patent medicine dealers across the country. This is particularly prevalent in rural, semi-rural, and urban slums where majority of the populace resides and patronize these informal health care providers for their health needs. The transmission of HIV infection in children via this route was observed to have occurred in 3.9% of the children in this study, and was noticed to be high.

Sex abuse is prevalent in our environment even though most times, it is hardly ever reported. Hawking by underage girls is also the order of the day among the low income families. The girls may be sexually abused by men who are HIV infected. Sexual abuse was responsible for 3.4% of transmission of HIV infection in the present study. That the mode of transmission was unknown in 6.4% of cases in the present study is in line with another study in the country which reported a rate of 17.4% for such uncertain transmission mode.[9]

It is interesting to note that 45.3% of mothers of positive children in this study were house wives. Angyo et al [9] reported 60.9% of housewives being mothers of positive children in their Jos study. One wonders whether the low earning potentials of these mothers may be a contributing factor to their higher HIV trend. The findings from this report that farmers were the least affected parents of positive children may also suggest that HIV may be more of a disease of urban than rural dwellers in this environment since most farmers resides in rural areas. For the fathers of positive children, HIV infection was commoner among civil servants and long distance drivers. This group of workers (long distance drivers), because of their long stay away from their partners, tend to patronize commercial sex workers who are reported to harbours this virus in 35-75% of cases.[17] More aggressive measures are required to reduce the spread of HIV among long distance drivers especially through wide promotion of the use of condom. The high prevalence among civil servants in this study also points to the fact that this group of workers may be at risk. The

study also shows that 23.5% of mothers of positive children were negative for HIV infection, and emphasizes the possibility of other modes of transmission of HIV in children apart from MTCT. Interventions aimed at reducing HIV infection in children should also address other means of acquiring this disease.

The mortality rate of 3.4% observed in the present study was keeping with 4.7% from Nnewi,[18] another center where free ART is offered to patients. In addition to free ART, free laboratory /supporting services and potent antibiotic, antifungal, antiviral and anti-TB drugs were also freely available to the patients in this study,. This was in contrast to high mortality in areas with little or no availability of free ART treatment.[19,20] While Uganda[20] and Abakiliki[10] studies reported 23.5% and 38.7% mortality, Ile-Ife[13] observed 46.3% and Shagamu[21] noted 33% mortality. This high mortality where in centers were free ART were not available to patients, this brought to focus the havoc HIV/AIDS is wreaking among African population with non-availability of these drugs. The 6.0% lost to follow up calls for more involvement of community based volunteers/workers to help in tracking down patients or establishment of more paediatric HIV/AIDS services at the primary health care level to easy follow up exercises.

CONCLUSION

The prevalence of HIV/AIDS in children is high in the FCT, Abuja, most of which was through mother-to-child transmission. There is an urgent need to scale up PMTCT programmes to many tertiary, secondary and primary health care facilities across the FCT, and the nation at large in view of the enormous burden of this disease in children. Safe blood for African initiative/ techniques should be extended to many health care facilities nationwide, and use of unsterile needles by patent medicine dealers to be prohibited.

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