Paediatric HIV/AIDS in Tertiary Health Facility: Presentation and outcome of hospitalized children in Kano, Nigeria

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SUMMARY

Background: HIV/AIDS is increasingly becoming predominant cause of childhood morbidity and mortality.

Method: A descriptive retrospective study was carried out at Aminu Kano Teaching Hospital, Kano (Northwest) Nigeria, to ascertain the presenting features, probable modes of transmission of HIV and the most prevalent infections among these patients.

Results: Forty six patients were admitted into Paediatric Ward between October 2003 to December 2006 with diagnosis of Acquired Immunodeficiency Syndrome. The mean age of the patients was 2± 1.8 year (range 2 – 144months), 35(76%) of the patents were three years and below. The male to female ratio is 1:0.8. The probable mode of infection was vertical in 91.3% and through blood transfusion in 8.7%. Symptoms at presentation were fever of more than four weeks was the most frequently occurring in 82.6% oral candidiasis (78.2%) and diarrhea for more than four weeks 60.9%. The most common signs were oral candidiasis (78.2%), pyrexia (60.9%), wasting and generalized lymphadenopathy (56%) each. Commonly diagnosed infections were oral candiasis (78.2%), pneumonia (54.3%) and tuberculosis (39.4%). Twelve (26%) patient died, 65.5% are alive and being followed up in the clinic and 8.7% discharged against medical advice. There was no gender difference in mortality. Mortality was highest among infants.

Conclusion: The high rate of vertical transmission of HIV reinforces the need for effective PMTCT interventions in reduction the incidence of HIV in children. A high index of suspicion and awareness of modes of presentation of HIV infection in children is needed for early diagnosis of those infected with HIV.

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***KEY WORDS*: Paediatrics, HIV/AIDS, Hospitalized, Children**

INTRODUCTION

HIV/AIDS is a major cause of infant and childhood mortality and morbidity in sub-Saharan African and it is a threat to recent gains in infant and child survival and health.[1] This is not an acceptable situation, considering the fact that HIV infection in children is preventable.

It is an established fact that majority of children infected with the virus are in Sub-Saharan Africa with over 90% of those infected being less than 15years old.[2,3] HIV/AIDS remains the most emerging public health problem of our time.[1] AIDS is now a pandemic inflicting an unprecedented social, economic and behavioral impact on individuals, families and communites.[3] The rising incidence of children dying from AIDS is very worrisome. More than 90% of paediatric HIV infection is vertically transmitted and 14 – 49% of babies born to HIV infected mothers acquired the infection either during pregnancy, labour or through brest-feeding.[4] Recurrent bacterial infections are quite common in children with organisms causing infections differ between developed and developing countries.[5]

This retrospective study was undertaken to determine the mode of clinical presentation, probable modes of transmission and most prevalent infections among children with HIV/AIDS admitted to Aminu Kano Teaching Hospital, Kano (Paediatric Ward).

This review will assist in identification of symptoms, signs and common infections in early diagnosis of HIV infected children. It will also help determine intervention strategies in clinical case management.

PATIENTS AND METHODS

All the records of children admitted between October 2003 to December 2006, with the diagnosis of HIV/AIDS were reviewed. The HIV screening was by rapid test screening kits (Capillus and Genie II). The confirmatory test (Western Blot or Double ELIZA test. The CD_4 lymphocyte counts were carried out with partec cyflow machine. The WHO clinical case definition for paediatric AIDS and the United States Centres for Disease Control and Prevention (CDC) immunological classificatins[5] were applied for all the patients.

The data extracted from the case notes were age, sex and parental HIV status, other information extracted were presenting symptoms, signs, associated infections, laboratory results, treatment given, duration of hospital stay and final out-come. Data was analyzed with the SPSS statistical package. P value >0.05 was regarded as statistically significant.

RESULTS

Forty six patients were admitted into the Paediatric Unit of Aminu Kano Teaching Hospital, Kano during the study period. There were 26(56.5%) males and 20(43.5%) females giving a ratio of 1:0.8. The mean age was 2±1.8years (range 2months – 12years). Twenty - nine (63%) of the patients were positive for HIV 1, 6(13%) for HIV 2, while the remaining 11(24%)

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were positive to both HIV 1 and 2. Twenty two couples were tested, 18(82%) were positive for HIV 1 and 4(18%) for HIV 1 and 2. The remaining couples's results were not available in the case notes. The mode of transmission was vertical in 42(91.3%) patients and blood transfusion in the remaining 4(8.7%) patients.

The mean duration of symptoms was 2.5months (range 4days – 5years). The longest duration of symptoms was in a twelve year old girl who was positive to both HIV 1 and 2, she had blood transfusion in a private hospital in a rural community about six years ago prior to onset of symptoms.

Table 1 and 2 shows the presenting symptoms and signs. Cough of more than 6weeks and fever of more than 4weeks were the predominant symptoms seen, each accounting for 38(82.6%) of the reported complaints. Recurrent diarrhea was seen in 28(61%) of cases while weight loss was documented in 26(61%) of cases while weight loss was documented in 26(55.6%) of cases. Recurrent skin rashes were seen in 12(26.1%) of the patients. There were other less common symptoms which include parotid swelling, body swelling and jaundice.

Thirty – eight (82.6%) of the patients were malnourished. Seven (18.4%) of the malnourished were underweight, 15(39.4%) of the malnourished were underweight, 15(39.4%) had marasmus, 9(23.7%) had marasmic kwashiorkor while 7(18.4%) had kwashiorkor. The opportunistic infections that were seen in theses patients were mostly due to tuberculosis and candidiasis. Oral candidiasis was the predominant infections in 36(78.2%) cases. Pneumonia was diagnosed in 25(54.3%) patients; 4(16%) had lobar pneumonia while 21(84%) had bronchopneumonia. The four patients with lobar pneumonia had appropriate weight for age and responded to penicillin and gentamycin. It is important to note that lung puncture for interstitial pneumonitis was not done. Fifteen patients (39.4%) were diagnosed to have tuberculosis; seven of them had disseminated tuberculosis. The diagnosis of tuberculosis was based on lack of BCG vaccination or induration of BCG, contact with tuberculosis patients, clinical and radiological evidence suggestive of pulmonary tuberculosis, and failure to respond to conventional antibiotics given in the appropriate dosages.

Twelve (26%) patients had chronic suppurative otitis media. The isolates from all these patients yielded gram negative organisms except in two cases, there were additional isolates of *Staphylococcus aureus*. Septicaemia was diagnosed in 22(47.8%) of the patients.

The blood culture result yielded Klebsiella[10], E. Coli[7]. Pseudomonas[3] and Salmonella typhi[2].There were also non-infectious co-existing conditions which included anaemia and nont-Hodgkin lymphoma in a 14year old boy. The haematocrit ranged from $0.15^{L}/_{L} - 0.34^{L}/_{L}$, mean of $0.25^{L}/_{L}$. Thirteen percent of patients had severe anaemia with haematocrit range of $0.15^{L}/_{L}$ $0.17^{L}/_{L}$, they were all transfused with blood (packed cells). The CD_4 counts on admission of patients range from 32 – 2,347 lymphocytes/µl. Majority of the patients (32(69.5%) presented into WHO stage 3 diseases, 10(21.7%) in stage 2 while 4(8.7%) in 22days with a range of 5days to 3 months.

The out come was cataloged into 'alive and being followed up' (65.2%), parents opt for traditional medication and signed against medical advice (8.7%) and 26% died. All the children who died were on WHO stage 3. Death was from pneumonia and diarrhoeal disease. All the children who died had severe weight loss, and 84% had generalized lymphadenopathy. Fifty percent presented with diarrhea and oral thrush. There was no gender difference in mortality (p=0.9417). The mortality was highest among infants (p=0.5202).

Table i: Symptoms in 46 children with HIV/AIDS admitted into Paediatric Ward.

Symptoms	No. (%)
Fever	38(82.6)
Cough	38(82.6)
Mouthrash (oral candidiasis)	36(78.2)
Diarrhea	28(60.9)
Weight loss	16(56.5)
Breathlessness	18(39.1)
Recurrent ear discharge	12(26.1)
Delayed milestones	7(15.2)
Body swelling	6(13)
Parotid swelling	4(8.7)
Jaundice	2(4.3)

Table ii: Clinical signs in 46 patients with HIV/AIDS

Signs	No. (%)
Oral candidiasis	36(78.2)
Pyrexia	26(56.5)
Wasting	26(56.5)
Lymphadenopathy	26(54.3)
Crepitations/consolidation	25(54.5)
Hepato splenomegally	19(41.3)
Tachypnoea	16(34.8)
Oedema	15(32.6)
Finger clubbing	4(8.7)

DISCUSSION

In this study, there was an almost equal affectation of male and female children in this study. The same was observed by workers in Jos (North – Central Nigeria).[6] In Ife (Southwest Nigeria),[7] there were more females than males. While in India[8] there was a male preponderance.

Prolonged fever, cough, diarrhea weight loss and oral candidiasis were the commonest presenting symptoms. Wasting, generalized lymphadenopathy and pyrexia were the predominant signs in children with HIV/AIDS in this our study. These findings are similar to reports from Calabar,[9] (south-south) Jos,[6] (north central) and Ile-Ife[7] in south west. The three symptoms; Weight loss, chronic diarrhea and prolonged fever are the major criteria for clinical diagnosis of paediatric AIDS in Africa as proposed by WHO.[10]

There was high prevalence of protein-energy malnutrition in the present study is not surprising as previous reports have documented such findings in Nigeria and some parts of Africa.[11,12] There are contributory factors to the development of malnutrition; they are chronic diarrhea, reduced oral intake, and

malabsorption resulting from infection or non specific causes.[11] The predominant mode of transmission of HIV in these groups of patients was vertical in 91% and 8.7% through blood transfusion. This is similar to studies in Ife[7] (Southwest Nigeria), and Jos[6] (North Nigeria), elsewhere in India[8,13,14] and Barbados.[15] However Emodi and Okafo in a review in Enugu[16] (Southeast Nigeria), found blood transfusion a major route of infection in children. Blood transfusion was second to vertical transmission in our study. All the four children (8.7%) that were transfused, had the blood from paid donors, this is similar to the findings of Adjuyigbe et al.[7] However, Ugochukwu[17] in her study in sougheast Nigeria found out that the high proportion of blood transfused to the children were donated by their fathers and given unscreened.

Infection was documented in 38(82.6%) of the children in this study. The most common infections observed were oral candidiasis and pneumonia. The high prevalence of infection among these patients has similarly been reported by Ugorchukwu[17] and Adejuyigbe et al.[7] Oral candidiasis occurred in 36(78.2%) of the patients. Pneumonia occurred in 25(54.3%) patients, the ability of the 4(16%) to localize the infection could probably be due to the disease being in its early stage. Encapsulated oraganisms are the common aetiologic agents such as *Streptoccoccus pneumoniae* however as the disease progresses, gram negative agents like Klebsiella assume importance.[5] This statement is true as the four patients with lobar pneumonia responded to penicillin treatment.

Tuberclosis was diagnosed in 15(39.4%), 7(46.7%) of them had disseminated tuberculosis. This finding is not surprising in view of the higher risk of tuberclosis in patients with HIV/AIDS. A high index of suspicion is necessary in view of the difficulty in making the diagnosis of tuberclosis in children. Most of the time, it is difficult in making a definitive diagnosis and atimes therapeutic trial of anti-tuberculosis drugs may be the last resort. Failure to respond to anti TB does not exclude TB because of the poor immunologic status of these patients and the fact that infection with anti TB resistant organisms.[18] Lung aspirate or biopsy was not done to exclude lymphoid interstial pneumonitis and pneumocystis jiroveci. Lymphoid interstitial pneumonitis and pneumocystis jiroveci diseases are not rare in the Sub-Saharan Africa, it is not been actively looked for in our region.

The clinical and radiological features of LIP may be the same as pulmonary tuberculosis. There is therefore a need for studies of lymphoid interstitial pneumonitis in our region so as ascertain the rarity or otherwise of this condition. All cases of chronic otitis media had positive isolates in this study, with 82% of the isolates being gram-negative organisms like Pseudomonas, Klebsiella, Proteus this is similar to the agents isolated in normal children with chronic otitis media.[15]

Gram negative organisms were isolated on blood culture. This is similar to findings by Angyo et al[20] and ugochukwu[17] but differs from reports from USA and Europe where Streptococcus pneumoniea, Salmonella enteriditis were common isolates from cultures.[21] The organisms documented in these present study are similar to those found in children with severe protein energy malnutrition.[22] There is a defective immunity in these group of patients. Severe protein energy malnutrition would further worsen the immune status of the patients with HIV/AIDS.

The mortality rate of 26% is similar to other studies elsewhere.[13-15,17] In a review by Akpede et al[22] the mortality was 58.4%. The difference may be due to availability of antiretroviral drugs which was provided free by Presidential Emergency programme for HIV/AIDS Releif (PEPFAR). There was also high mortality among infants in this review which was corroborated in North Eastern Nigeria.[23] and in Barbados[15] This is as a result of an immature immune response to HIV mounted by infants in comparison to older children and the stage of the disease.

The high rate of vertical transmission of HIV reinforces the need for effective PMTCT interventions in reducing the incidence of HIV in children. A high index of suspicion and awareness of modes of presentation of HIV in children is needed for early diagnosis of those infected with the virus.

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