Clinical Manifestations of HIV Infection in Children at Enugu, Nigeria

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Summary

Three-hundred-and-fifty-eight (358) pediatric patients below 16 years of age were screened for suspected human immunodeficiency virus (HIV) infection between October 1989 and September 1996. Eighty-three (23 per cent) were confirmed positive. However, adequate clinical data were obtained retrospectively in only 63 patients. Twenty-three (37 per cent) of the patients presented with features corresponding to WHO case definition of Paediatric Acquired Immunodeficiency syndrome (AIDS) in Africa. Vertical mode of infection was documented in 13 (30 per cent) of them while 30 (68 per cent) were infected through blood transfusion. The main clinical features at presentation were generalised lymphadenopathy (59 per cent), persistent or recurrent fever (51 per cent), progressive weight loss or poor weight gain (51 per cent), chronic diarrhoea (38 per cent), various skin manifestations (37 per cent), persistent cough (32 per cent), and oral candidiasis (19 per cent). Six patients died during the initial admission, while majority were lost to follow-up.

Introduction

Infection with human immunodeficiency virus (HIV) was first reported in Nigeria in 1986.[1] Previously, the infection was reported in the United States in 1981 among homosexual men with severe and often fatal immunodeficiency associated pneumocystis carinii pneumonia and/or an aggressive form of Kaposi's sarcoma. In children, the earlier reports were in those who received blood or blood products. However, as an increasing number of women of child-bearing age became infected, greater numbers of children were infected through vertical transmission.[2]

Although various clinical aspects of pediatric HIV infection have been documented in some African countries,[3–5] in Nigeria, HIV infection in children has been reported in only a few centres.[6,7] There is, therefore scanty information on pediatric HIV/AIDS in Nigeria, although HIV infection and AIDS have assumed epidemic proportions recently.

We report here the clinical presentations of HIV infection and AIDS in children attending the University of Nigeria Teaching Hospital (UNTH) Enugu, Nigeria. Information is also presented on the modes of HIV transmission among the pediatric population in Nigeria.

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Patients and Methods

Three-hundred-and-fifty-eight consecutive patients, attending the children out patient clinic or admitted at the UNTH, who showed clinical evidence of immunodeficiency were screened for HIV infection. Out of the 83 patients who were confirmed positive for HIV infection, 63 case files were available for clinical data retrieval. The clinical data included age, sex, presenting complaints, physical findings and outcome. Effort was also made to establish source of infection by gathering information on history of transfusion, use of non-sterile skin piercing instruments, and maternal HIV status.

The criteria for inclusion of those below 18 months of age in the AIDS group were the presence of signs and symptoms as defined in the WHO clinical case definition for pediatric AIDS in Africa and whose mothers were HIV positive.

Methods

All specimens were first screened for antibodies to HIV 1 and 2 using either Wellcozyme HTLV III EIA, Wellcozyme HIV 1 + 2 from Wellcome Diagnostics, Dartford England or, more recently, Murex HIV 1 + 2 kits from Murex. Reactive specimens were further tested with Elavia II kits, Diagnostics Pasteur, Marnes-la-Coquette, France to identify those with anti-HIV 2 antibody activities. Sera found positive at this stage were confirmed by western blot assays using Bio Rad Novapath HIV 1 immunoblot for HIV 1 reactive specimens and New Lav blot II (Diagnostics Pasteur) for HIV 2 reactive sera. All reagents were used in strict

compliance with manufacturers' instructions. A sample was considered western blot positive if it showed the presence of antibodies which recognized at least two HIV envelop glycoproteins, with or without antibodies to other HIV antigens.

Results

Table 1 summarizes the age and sex distributions of the patients. The majority (65 per cent) of the patients were 4 years old or less. The male to female ratio was 1.25:1. Table 2 shows the age distribution of the subjects grouped into two: those with symptomatic HIV infection and the classical AIDS patients. The first group contains forty (64 per cent) patients confirmed positive for HIV infection, but who did not have sufficient signs and symptoms to be classified AIDS by the WHO case definition of pediatric AIDS in Africa. The second groups consisted of 23 patients (37 per cent) who were confirmed HIV positive and also satisfied the WHO clinical case definition of pediatric AIDS in Africa.

Eighteen children (45 per cent) in the asymptomatic group belonged to the age bracket 1–4 years. In the AIDS group the largest number 10 (43 per cent) were below the age of 1 year.

Table 3 relates age to possible modes of infection of the children. Two possible modes of infection could be documented in 43 (68 per cent) of the patients. Vertical transmission was probably responsible for HIV infection in 13 children because at the time of diagnosis their mothers also had HIV infection. Seven out of nine of them were below 1 year old and had full blown AIDS at initial presentation. Thirty children were documented to have received blood transfusion in hospitals where HIV screening of donor blood could not be guaranteed and were therefore presumed to have been infected through transfusion of contaminated blood. The largest number of children here belonged to the 1–4-year age group. In no child above 4 years could infection be related to vertical transmission.

TABLE 1
Sex and age distribution of patients

Age (years)	Male	Female	Total
Less than 1	6	10	16
1–4	18	7	25
5–9	3	5	8
10–14	5	2	7
More than 14	3	4	7
Total	35	28	63

TABLE 2
Ages of patients with AIDS and symptomatic HIV infection

Age (years)	Symptomatic HIV infection	Acquired immunodeficiency syndrome	Total
Less than 1	6	10	16
1–4	18	7	25
5–9	6	2	8
10–14	5	2	7
More than 14	5	2	7
Total	40	23	63

TABLE 3
Sources of HIV infection

Age (years)	Maternal	History of blood transfusion	Not available
Less than 1	9	1	6
1–4	4	13	8
5–9		6	2
10–14		6	1
More than 14		4	3
Total	13	30	20

Table 4 shows the major signs and symptoms at the initial presentation of the patients. The patients are grouped into two: those who satisfy the WHO clinical case definition for pediatric AIDS in Africa and those who do not and are classified as symptomatic HIV infection.

Two children presented with localized lymphadenopathy of the groin and inguinal region, respectively. In only one child was chronic parotitis noted. There was no significant difference in the number of children with or without AIDS in the incidence of generalized lymphadenopathy. The number of children with AIDS who presented with chronic diarrhoea, skin manifestations, cough, oral candidiasis, hepatosplenomegaly, and night sweats was more than twice those in the symptomatic group with the same symptoms. It is significant that all the patients with night sweats had AIDS, although this symptom is not included in the WHO case definition of pediatric AIDS in Africa.

Of the two AIDS patients with tuberculosis, one had miliary tuberculosis and the other had tuberculous adenitis.

Delayed attainment of normal milestones was the commonest form of neurological abnormality. There was, however, no evidence of loss of previously acquired milestones. Bilateral upper pyramidal signs were also noted in 33 per cent of the patients with neurological symptoms.

More than half of AIDS patients with protein energy malnutrition were underweight or marasmic. There was only one case each of kwashiokor and marasmic kwashiokor.

Five patients died during their first admission while the sixth died during her second admission. The majority

TABLE 4
Signs and symptoms associated with HIV infection

Sign/symptoms	Symptomatic HIV infection	AIDS	Total	Percentage of patients
Generalized lymphadenopathy	19	18	37	58.73%
Progressive weight loss	12	20	32	50.79%
Persistent fever	12	20	32	50.79%
Chronic diarrhoea	7	17	24	38.09%
Skin manifestations	7	16	23	36.51%
Cough	6	14	20	31.75%
Protein energy malnutrition	5	10	15	23.81%
Oral candidiasis	3	9	12	19.04%
Hepatosplenomegaly	3	9	12	19.04%
Neurological manifestations	4	2	6	9.52%
Night sweats	—	4	4	6.35%
Tuberculosis	1	2	3	4.61%

of the patients have been lost to follow-up. Only two patients are still being seen in the out-patients; both have AIDS.

Discussion

The sex distribution of patients in this study does not differ considerably from results in other reported series.[5] The greater number of patients below 4 years reflect the influence of maternal infection plus the increased morbidity of under-fives in this environment resulting in greater need for blood transfusion. It is interesting to note that, for those children 4 years or below where the likely source of infection could be ascertained, there was almost equal incidence of vertical transmission, as well as history of blood transfusion.

The clinical features seen in these patients are similar to those reported from other developing and developed nations.[2,8,9] In this study all the maternally-infected children were symptomatic before 2 years of age which differs from the Miami prospective study,[2] but corresponded to the study in Calabar.[6] In developing countries common childhood problems such as malnutrition, tuberculosis, diarrhoea, and vomiting, non-specific skin infections, and generalized lymphadenopathy have clinical features similar to HIV/AIDS; thus, a high index of suspicion is necessary to make a correct diagnosis. It is therefore necessary to evaluate in our environment, the usefulness of measurement of serum IgG, A, and M concentrations in the diagnosis of HIV infection. Raised values were found by the European collaborative study group to occur between 20 and 90 times more often in children infected perinatally.[8] Also, in cases where there is a history of blood transfusion with a suspect or unknown donor, it is advisable to screen the child for HIV, in the presence of any of the above clinical findings.

Generalized lymphadenopathy found in more than 50 per cent of patients with HIV infection in the present study has been classified as a minor finding in the WHO classification for pediatric AIDS in Africa. In the study in Calabar[6] it was present in all the patients and also in another study in Kinshasa,[4] it was one of the main clinical features. The inclusion of this physical feature as minor finding in the diagnosis of childhood AIDS in Africa needs to be re-assessed considering its prevalence in these studies. Neurological manifestations said to be common in paediatric AIDS[2,9,10] was seen in very few patients in our series. The reason could be that this being a retrospective study subtle neurologic signs might have been missed in the absence of detailed neurological examinations. The delayed attainment of normal milestones reported here is in keeping with findings from other series.[2] It is significant that the four patients with night sweats had full blown AIDS. This, therefore, may be considered a classifying symptom for AIDS in developing countries.

Majority of the patients were lost to follow-up, this might have been because, after being counselled, the parents see no point in continuing with medical care of the terminally ill child. Also, those whose parents or mothers were infected might not have the emotional or physical ability to continue coming to the hospital. A good number of such patients would probably have died at home.

Finally, this report highlights the urgent need for education of health personnel on the need to ensure adequate screening of blood used in transfusion. Where possible, alternatives to blood transfusion should be employed since adequate screening may not prevent transmission from a donor in the 'window' period.[11] Establishment of the National Blood Transfusion service on a country-wide basis would drastically reduce HIV transmission through blood and blood products not only in the child, but also in the mother, some of whom were infected through blood transfusion.

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