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HIV seropositivity in Nigerians with lymphoproliferative malignancies

I. E. OKPALA*, W. A. SHOKUNBI, I. SALIU, D. O. AKINBOYE and E. M. ESSIEN
Department of Haematology, University College Hospital, Ibadan, Nigeria.

Summary

One hundred and four Nigerians with lymphoproliferative malignancies were tested for antibodies to human immunodeficiency virus types 1 and 2 (HIV-1 and 2). All the patients with high grade lymphomas in this series were seronegative for HIV-1 and 2. Only 1 of the 104 patients had antibody to HIV-1 and none had antibody to HIV-2. Although the single positive result would suggest a higher HIV-1 seropositivity rate among the patients compared with the general Nigerian population, it should be interpreted with caution. This preliminary data emphasizes the need for an urgent countrywide study of the problem among this category of patients in Nigeria in view of the low prevalence rate of HIV-1 and 2 in the country.

Résumé

Cent-quatre Nigerians avec des malignités lymphoproliferatifs ou etait pour des anticorps contre le HIV 1 et 2. Tous les malades avec un lymphome de grade élèves dans cette series, etait sereux negatifs pur le HIV 1 et 2. Seul un dans les ceut-quatre malades avaient des anticorps contre le HIV 1 et aucun avaient des anticorps contre la HIV 2. Même que ce solitaire resultat positif peux suggere une sereus positivites contre le HIV 1 plus élèves dans les malades contre la population Nigerian en generaleut, ce resultat doit étrè interpretés avec cautions. Ce resultat preliminaire souliguet la necessité pour une evaluation urgente et porter traver du payis, du problem dans cette categories de malade au Nigèria en vu de la predominance peux élève du HIV 1 et 2 dans ce payis.

Introduction

The initial definition of acquired immunodeficiency syndrome (AIDS) in 1981 excluded patients with primary lymphoid neoplasia because it was already known that such malignancies were associated with depressed immunity[1-6]. However, since then several workers have reported an association between lymphoproliferative malignancies and infection with the human immunodeficiency virus (HIV)[7-17]. In addition, the role of the immune system in the natural defence against the development of neoplasia has become better appreciated. The revised diagnostic criteria for AIDS which include HIV-seropositivity in patients with Non-Hodgkin's lymphoma of the small non-cleaved, immunoblastic and large cell types are consistent with the observed relationship between HIV infection and lymphoproliferative malignancies[18]. Following this revised definition, it was considered necessary to determine the prevalence of HIV infection among the patients with lymphoproliferative malignancies seen in the University College Hospital, Ibadan, Nigeria. This communication reports our findings.

Patients and methods

During the three and a half years from December, 1986 to May, 1990, 104 newly diagnosed Nigerian patients with lymphoproliferative malignancies seen in the Haematology Department, University College Hospital, Ibadan, Nigeria were admitted into the study. They included individuals with lymphoid leukaemias, lymphomas, multiple myeloma and solitary plasmacytoma. Diagnosis of the leukaemias was based on clinical features, blood and bone marrow cell counts, cytology and cytochemistry. Lymphomas were diagnosed from histology of enlarged lymph nodes or other tissues involved in the process. A diagnosis of multiple myeloma was based on a finding of at least 2 of the 3 major diagnostic criteria: bone marrow plasmocytosis > 10%, generalized osteolytic lesions on skeletal X-Ray survey and nonoclonal immunoglobulinaemia[19].

* Correspondence to: Dr I. E. Okpala, Haematology Department, University College Hospital, Ibadan, Nigeria.

Solitary plasmacytoma was diagnosed from histology of a maxillary bone tumour in one patient. Venous blood (5mls.) was collected under aseptic conditions from each patient and each sample allowed to clot at room temperature (25°C). The serum was separated by centrifugation at 1000g for 5 mins. and stored frozen at -70°C till analysed, usually within 2 weeks of collection. All the patients serum samples were tested for antibodies to HIV-1 using a commercial enzyme-linked immunosorbent assay (ELISA) kit (Wellcozyme HIV Recombinant, Lot Number K668710, Wellcome Diagnostics, Dartford, England). Any ELISA-positive sample was subjected to Western blot analysis for HIV-1 using a commercial kit (Novapath™ Immuno Assay, Batch Number 971 : 116, Bio-Rad, California, U.S.A.). The serum samples from all the patients were similarly tested for antibodies to HIV-2 with a commercial ELISA kit (Elavia, Lot Number CMB.9c.142Y, Diagnostics Pasteur, Paris, France). Any ELISA-positive sample was re-tested at the Federal Vaccine Production Laboratory, Yaba, Lagos, Nigeria, using a commercial Western blot kit for HIV-2.

The HIV-seropositivity rate of the patients was compared with that of the general Nigerian population using the two-tailed Z- test.

Results

A total of 104 patients (70 males and 34 females) were tested. Their ages ranged from 10 months to 77 years (mean age was 32.8 yrs. standard deviation, 21 years). Children aged 16 years or below made up 30% of the patients. The numbers of patients with the different lymphoproliferative malignancies are shown in Table 1.

Antibody to HIV-1 was detected in the serum of 1 of the 104 patients, giving a seropositivity rate of 1%. The HIV-1 seropositive patient was a 65-year-old man with multiple myeloma. His serum, on Western blot test, showed antibodies to the HIV-1 membrane glycoprotein gp160, the transmembrane glycoprotein gp41, reverse transcriptase p66, endonuclease p32 and the core protein p24. The same patient was also ELISA-positive for HIV-2, but was negative on Western blot test for HIV-2. Immunoflourescence test for HIV-2 was not carried out on this sample and the HIV-2 ELISA seropositivity was regarded as a cross-reaction with his anti- HIV-1 antibodies.

Table 1: Classification of Patients with Various Lymphoproliferative Malignancies

Type of Malignancy	*No of of Patients*
Acute Lymphoblastic Leukaemia	27
Chronic Lymphocytic Leukaemia	11
Multiple Myeloma	12
Solitary Plasmacytoma	1
Hodgkin's Disease	8
Non-Hodgkin's Lymphomas (n = 45)	
High Grade: Lymphoblastic	16
Burkitt's	12
Large Cell	2
Intermediate Grade	
Follicular Centre Cell	10
Low Grade:	
Well differentiated lymphocytic	5
Miscellaneous	
Mycosis fungoides	1
Total	104

Compared with the HIV-1 seropositivity rate of 0.3% obtained among the general Nigerian population in July, 1989[20], the absolute patient seropositivity rate of 1 in 104, though statistically higher should be interpreted with caution and calls for a more comprehensive study of the problem.

Discussion

The incidence of lymphoproliferative disorders appears to be low in Nigeria which is the reason it took three and a half years to see 104 patients in a tertiary hospital with a large reference base. Acute lymphoblastic leukaemia which was the entity most frequently encountered in our patients has an incidence of 3.7/million/year[21]. This is much lower than the incidence of 34/million/year observed in the United States of America[22]. The incidence in Nigeria of multiple myeloma is not known. During the 3-year period from December, 1986 to November, 1989, 70,838 new patients were seen in our centre, of which 8 had multiple myeloma. This gives an estimated incidence for multiple myeloma of 11/100,000/yr. This hospital-based estimate is most probably higher than the true incidence in the community at large because our centre receives referrals from a wide catchment area with a population of about 40 million. In the USA where the incidence of multiple myeloma is more certain, it is 3/100,000/yr[23]. Current laboratory and clinical data for HIV prevalence also would suggest a low

overall rate of HIV-seropositivity among Nigerians[20,24]. Probably because of this reported low prevalence of both HIV infection and lymphoid neoplasia in Nigerians, only 1 HIV-infected patient was found among the 104 tested over three and half years.

As emphasized earlier, though it appears statistically significant, this result should be taken as preliminary data. It should be interpreted with caution because no seropositive patient was found among those with high grade lymphomas, especially Burkitt's tumour which is not so uncommon in this environment. A more accurate picture of the relationship between HIV infection and lymphoid malignancies in Nigeria will more likely emerge from a nationwide study. Although Burkitt's lymphoma co-existing with HIV-positivity is currently taken as diagnostic of AIDS, it is important to establish that the viral infection was acquired before the tumour developed in each patient, an exercise that is not easy. This observation is important because Burkitt's lymphoma is relatively common in this country where some hospitals are still unable to screen blood for HIV before transfusion.

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