

Wanda F. Canas-Ferreira¹, Kamal Mansinho¹, A. Santos-Pinto¹, J. Champalimaud¹, J. L. Baptista¹, S. Chamaret³, Luc Montagnier², C. Costa³, P. Mendes³, Venancio Furtado³, J. Brandao, B. Marques¹

Prevalence of antibodies to HIV-1 and HIV-2 among blood donors in Guinea-Bissau (West Africa)

¹ Institute of Hygiene and Tropical Medicine, Lisbon, Portugal

² Institut Pasteur, Paris

³ Ministry of Health, Guinea-Bissau

Screening for anti HIV-1 Ab and anti HIV-2 Ab in blood donation is not yet compulsory in many African countries, but for the prevention of AIDS transmission, attention must be paid to this important problem.

We investigated anti HIV-1 Ab and anti HIV-2 Ab by ELISA technique (ELAVIA Pasteur) in a group of 54 health paid donors, in Guinea-Bissau, 3 of whom were women. Positive specimens were confirmed by Western blot assay (LAVBLOT, Pasteur) and RIPA. 2 (3,7 %) of these 54 donors, were anti-HIV-1 positive and 14 (25,9 %) were anti HIV-2 positive. Among these positive results one was female. 6 (11.1 %) out of the 54 were doubtful because they had antibodies to internal viral proteins but not to envelope proteins. 2 (3,7 %) individuals were simultaneously HIV-1 and HIV-2 antibody positive. All the seronegative individuals were in excellent health and had no signs suggestive of HIV-associated illness when they were examined. However, in 6 (48,8 %) out of the 14 seropositive individuals and in 16.7 % of the 6 doubtful ones, we found polyadenopathies (0,05). All the males were heterosexuals and not drug addicts. 2 out of these 54 had previously received transfusions and one of these 2 showed HIV-2 antibodies. The only known risk factor found among the 54 was that of contact with female prostitutes. An intensive educational effort is indicated to further reduce the risk of transfusion-associated AIDS, in Guinea-Bissau.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 77, Abstract TH 10

Wanda F. Canas-Ferreira¹, Kamal Mansinho¹, A. Santos-Pinto¹, J. Champalimaud¹, C. Costa², J. L. Baptista Marques¹, J. L. Baptista¹, J. Brandao¹, Venancio Furtado², P. Mendes²

The epidemiology of AIDS in West Africa

¹ Institute of Hygiene and Tropical Medicine, Lisbon, Portugal

² Ministry of Health, Guinea-Bissau

Although a number of studies have already been made about the epidemiology of AIDS in Africa the subject is not yet completely clarified. What is happening in Central Africa, where HIV-1 is circulating with great aggressivity among the population of various countries, in which many people have AIDS, may not be exactly the same as what is happening in West Africa. There, other viruses perhaps with a different pathogenicity have been isolated. HIV-2 is one of these new viruses. Isolated for the first time in 1985, by the Pasteur Institute Paris, in blood from a patient from Guinea-Bissau, in hospital in Lisbon, this virus has proved to be pathogenic also, at least in some groups of patients. However, little is known yet about its epidemiology.

In 1986 and 1987 a team from the Institute of Hygiene and Tropical Medicine, Lisbon, carried out a big epidemiological survey throughout Guinea-Bissau, for the purpose of studying AIDS. Large groups of the population in general, specific groups and hospitalized patients were interviewed, examined and tested for HIV-1 and HIV-2 antibodies. Among the groups studied, was one from the Army. 236 men, 20-59 years old, were studied, by ELISA and Western blot (Pasteur), during this survey. 22 (9.25 %) were positive for HIV-1 and 2 (0.84 %) positive for HIV-2. These, were simultaneously HIV-1 and HIV-2 antibody positive. Among the various risk factors investigated the only significant one was that of frequent STD found in 16 or 22 HIV-1 and HIV-2 seropositive individuals (72.7 %).

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 78, Abstract TH.11

Wanda F. Canas-Ferreira¹, A. Santos-Pinto², A. Terrinha², Carmo Teixeira², Celestino Costa², Venancio Furtado², F. Saal³, S. Sidibé², J. Los Geld³, J. Peries³
Retrospective seroepidemiology of AIDS virus infection in Guinea-Bissau (West Africa) populations

¹ Institute of Hygiene and Tropical Medicine, Lisbon, Portugal

² Ministry of Health, Guinea-Bissau

³ Hôpital Saint Louis, Paris, France

Sera from 300 individuals, 2-60 years old, collected in different areas of Guinea-Bissau in 1980 were tested for HIV-1 and HIV-2 antibodies. Screening for HIV antibodies was performed by ELISA technique (Abbott and Pasteur), and immunofluorescence assay with confirmation of positive results by Western blot.

The prevalence of HIV-1 antibodies was 1 % (3/300) and HIV-2 antibodies was 2 % (6/300). 2 sera were simultaneously positive for anti HIV-1 and 2 antibodies.

Our results indicate that AIDS virus HIV-1 and 2 were already circulating in West Africa in 1980.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 79, Abstract TH 13

Phyllis J. Kanki¹, F. Barin², S. Mboup³, M. Essex¹

¹ Harvard School of Public Health, Boston, MA, USA

² CHRU Bretonneau and UER Pharmaceutical Sciences, Tours, France

³ Dakar University, Dakar, Senegal

500 serum samples from HIV-2/HTLV-4 antibody positive individuals from West Africa were evaluated for their serologic profiles to viral antigens by immunoblot and RIP-SDS/PAGE analysis. These same serum samples were also analyzed for reactivity to other strains of HIV-2 including LAV-2, SBL-6669, HTLV-4-MS and HTLV-4-ST viruses. Finally all serum samples were analyzed for cross-reactive antibodies to HIV-1 by these same techniques.

The majority of serum samples irrespective of geographic origin demonstrated a typical profile to HIV-2/HTLV-4 antigens including a high titered response to the gp120/160, gp32 (transmembrane protein), p64, p53, p55, and p24. Less frequently antibody responses were noted to the presumed 3' *orf* protein, p31, and the myristylated NH₂-terminal *gag* protein, p15. HIV-2 antibody positive samples showed similar or decreased reactivity to other strains of HIV-2 including LAV-2, SBL-6669, HTLV-4-MS and HTLV-4-ST viral antigens.

An atypical response to the HIV-2 antigens was demonstrated in individuals from two countries where significant levels of HIV-2 and HIV-1 have been noted in high risk populations. This profile demonstrated strong reactivity to the major *env* related and *gag*-related antigens of both viruses, HIV-1 and HIV-2, suggestive of dual exposure. A second atypical response was noted in a small proportion of individuals (10 %) where reactivity to the *env*-related proteins, gp120/160 and gp32, were the only antigens recognized by the serum samples. However, the cross-reactivity to the *gag* antigens of HIV-1 were more pronounced.

The cross-reactivity of HIV-2/HTLV-4 has been described and was the approach that led to the discovery of HTLV-3 and the HIV-2 groups of viruses. The *gag* and *pol* encoded antigens are the most highly related between HIV-1 and HIV-2 and bidirectional cross-reactivity is readily demonstrated by immunoblot or RIP-SDS/PAGE. The cross-reactivity between the *env* antigens of these viruses is less pronounced. By RIP-SDS/PAGE, HIV-2 positive sera will infrequently recognize the gp160 precursor of HIV-1 and vice versa. Cross-reactivity between transmembrane envelope antigens is even less frequent and unidirectional ; where occasional HIV-1 positive sera will faintly recognize the gp32 of HIV-2/HTLV-4. The high degree of cross-reactivity between these related viruses indicates that type specificity must be determined by immunoblot and/or RIP-SDS/PAGE analysis with both sets of viral

antigens.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 74, Poster TH 3

Phyllis J. Kanki¹, S. Mboup², F. Barin³, F. Denis⁴, R. Marlink¹, J. L. Romet-Lemonne¹, M. Essex¹
The biology of HIV-1 and HIV-2 in Africa

¹ Harvard School of Public Health, Boston, MA, USA

² University of Dakar, Dakar, Senegal

³ University of Tours, Tours, France

⁴ University of Limoges, Limoges, France

It is now well recognized that there exist at least two types of Human Immunodeficiency virus (HIV), including the prototype AIDS virus, HIV-1 and HIV-2 which is most closely related to Simian T-lymphotropic virus type 3 (STLV-3). HIV-1 and HIV-2 are both antigenically and genetically related, and both demonstrate similar tropism to the T4 lymphocyte. Due to extensive cross reactivity between many of the viral antigens of HIV-1 and HIV-2, confirmatory assays such as Western blot or radioimmunoprecipitation are required to distinguish these viruses.

Large scale seroepidemiologic studies have indicated significant differences between HIV-1 and HIV-2. We have surveyed over 6 000 samples from seven Central African countries and six West African countries. All serum samples were analyzed by Western blot and radioimmuno-precipitation for antibodies to HIV-1 and HIV-2/HTLV-4. Healthy control, high risk, hospitalized patients, ARC and AIDS patients were examined. HIV-1 is seen at relatively high rates in Central Africa but appears rare in most West African countries. HIV-1 seropositivity was highly correlated with AIDS or AIDS-like syndromes. In contrast, HIV-2 was seen in West Africa predominantly with infrequent association with AIDS. Further studies are necessary to clearly define the biology of these distinct virus types.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 59, Oral presentation S7.3

Phyllis J. Kanki¹, S. Mboup², F. Barin³, D. Ricard², M. Essex¹
Lack of association of tuberculosis with HIV-2 infection

¹ Harvard School Public Health, Boston, MA, USA

² University of Dakar, Dakar, Senegal

³ University of Tours, France

Numerous studies conducted in Central Africa have demonstrated a strong association between tuberculosis and HIV-1 seropositivity (40-60 %). It is thought that endemic tuberculosis and its immunosuppressive effects may predispose individuals to infection with the AIDS retrovirus. In addition, the immunosuppressive effects of HIV-1 may similarly predispose to infection with *Mycobacterium tuberculosis*. To further investigate the pathogenic potential of HIV-2 infection we studied 509 tuberculosis cases in West Africa to determine if HIV-2 infection was closely associated with tuberculosis as it is with HIV-1.

Serum samples collected between 1985-1987 were obtained from tuberculosis cases, 155 from Senegal, 40 from Ivory Coast, 150 from Guinea Bissau, 131 Guinea, and 33 from Mauritania. All samples were analyzed for antibodies to HIV-2/HTLV-4 by radioimmunoprecipitation SDS/PAGE and immunoblot analysis. In Senegalese tuberculosis cases the HIV-2 seroprevalence was 1.3 %; in Ivory Coast, 5 %; in Guinea Bissau, 12 %; Guinea, 0 % and Mauritania, 0 %. In each country the seroprevalence to HIV-2/HTLV-4 was not significantly different from the seroprevalence in healthy control adult populations in the same geographic areas. In addition, the seroprevalence for HIV-2 in healthy sexually active risk groups significantly higher than the seroprevalence in tuberculosis cases.

These results indicate that HIV-2 infection is not significantly associated with tuberculosis in the 5 West African countries studied. This demonstrates a sharp distinction from the pathobiology of HIV-1 in people further indicating need for further studies to determine the clinical significance of HIV-2 infection in people.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 110, Poster TH 76

K. Kourouma, *Souleymane Mboup*, D. Ricard, Phyllis J. Kanki, M. Diallo, J. L. Sankalé, B. Diallo, C. S. Boye, R. Marlink, M. Essex
HIV-1 and HIV-2 seroprevalence in Conakry, Guinea

¹ Conakry Hospital, Conakry, Guinea

² Hôpital Le Dantec, Dakar-Fann, Sénégal

³ Harvard School of Public Health, Boston, MA, USA

A seroepidemiological study was conducted in Guinea to evaluate the seroprevalence of HIV and related human retroviruses. 456 sera were collected from hospitalized patients in different hospitals in Conakry, from outpatients visiting STD clinics, prostitutes, blood donors and hospital workers. All serum samples were screened by Western blot and confirmed by radioimmunoprecipitation using HIV-1/HTLV-3B and HIV-2/HTLV-4 as antigenic probes. 1.3 % of sera were found to be antibody positive to HIV-2/HTLV-4 and 0.2 % of sera were anti-HIV-1 antibody positive. One case of dual reactivity to HIV-1/HTLV-3B and HIV-2/HTLV-4 envelope and gag antigens was detected.

These results confirm that Guinea like most of the West African countries is not yet highly infected by the AIDS virus HIV-1. The fact that the two HIV-1 antibody positive people are immigrants indicates that a new risk group should be considered : This might include travelers coming back from a long stay in country where HIV-1 is endemic.

Guinea has low seroprevalence of HIV-1 and HIV-2 and rapid development of prevention measures could be efficient to stop the progression of all HIV infections.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 79, 1987, Poster TH 14

G. Léonard¹, M. Mounier¹, M. Verdier¹, A. Sangaré², G. M. Gershy-Damet², S. Mboup³, D. Ricard³, E. Petat^{4,5}, P. Kocheleff⁴, F. Denis¹, *F. Barin*⁵

Reactivity to recombinant core and envelope proteins of HIV-1 of African sera with HIV-1 and/or HIV-2 specificity

¹ CHU Dupuytren, Limoges, France

² Institut Pasteur Abidjan, Côte d'Ivoire

³ Université de Dakar, Sénégal

⁴ Université de Bujumbura, Burundi

⁵ CHU Bretonneau Tours, France

The new human T-lymphotropic retrovirus HIV-2 (HTLV-IV, LAV-2) that was recently isolated from West African individuals, showed an extensive homology with the *gag* encoded antigens of HIV-1, and a weak homology with the envelope proteins of HIV-1, but an important homology with the *env* glycoproteins of the simian virus SIV (formerly STLV-III)

In this study, we used african sera of known specificity (serotyping performed by Western blotting using HTLV-III_B and HTLV-IV P289 as antigens), and studied their reactivity in an ELISA using recombinant polypeptides from *core* and *env* regions of HIV-1 (Envacore Abbott, North Chicago). 237 sera were positive for antibody (Ab) to HIV-1, 122 sera were positive for antibody to HIV-2 and 47 sera were positive for glycoproteins of both viruses. The results were expressed as a percentage of competition with a cut-off value equal to 50 %. The results are summarized in the table. Implications

for the cross-reactivities between HIV-1 and HIV-2 will be discussed.

<i>Sera positive for antibody to</i>	<i>NB</i>	<i>CORE ENV +</i>	<i>CORE + ENV-</i>	<i>CORE ENV +</i>	<i>CORE- ENV -</i>
HIV-1	237	223	4	9	1
HIV-2	122	68	36	9	8
HIV 1+2	47	47	0	0	0

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 73, Poster TH 2

Kamal Mansinho¹, Wanda F Canas-Ferreira¹, A. Santos-Pinto¹, J. Champalimaud¹, C. Costa², P. Mendes², Venancio Furtado², J. L. Baptista¹, J. L. Baptista Marques¹, J. Brandao¹, S. Chamaret³, Luc Montagnier³

Epidemiology of HIV-1 and HIV-2 in Guinea-Bissau (West Africa)

¹ Institute of Hygiene and Tropical Medicine, Lisbon, Portugal

² Ministry of Health, Guinea-Bissau

³ Institut Pasteur, Paris, France

Seroepidemiological analysis were carried out by us in Guinea-Bissau on heterosexual individuals working in a veterinary centre in contact with several species of animals including monkeys.

We investigated anti HIV-1 Ab and Anti HIV-2 Ab by ELISA (ELAVIA, Pasteur) technique. Positive specimens were confirmed by Western blot assay (LAV BLOT, Pasteur). Of 49 individuals, 3 (6.12 %) were positive for anti HIV-2 antibodies. Two were male and one female. None was positive for anti HIV-1. Out of three positive 2 (66.6 %) belonged to the age group 26 to 35 and the third was 49. This group was considered healthy and without known risk factors, and although it was a small group it can, with others in the same conditions which we also studied, be considered representative of the population in general.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 78, Abstract TH 12

Richard G Marlink¹, D. Ricard², J. L. Romet-Lemonne¹, P. J. Kanki¹, M. Essex¹, T. Siby², S. Mboup²

Epidemiology and clinical evaluation of prostitutes exposed to HIV-2/HTLV-4 in Senegal

¹ Harvard School of Public Health, Boston, MA, USA

² University of Dakar, Dakar, Senegal

Several outpatient clinics which serve the health care needs of prostitutes in Senegal have been surveyed over the past year. Seropositivity to the HIV-2 type retroviruses in 1986 has been shown to vary with <1 % seropositive in the northern part of the country, 7 % seropositive in the capital city of Dakar and approximately 45 % seropositive in the southern region of the country. A distinct lack of cutaneous anergy, of generalized lymphadenopathy and of systemic signs or symptoms indicative of clinically significant immune suppression has been noted as compared with seronegative prostitutes. This lack of clinical abnormalities is not seen in cross-sectional surveys in Central or East Africa involving outpatient prostitute populations seropositive for HIV-1. For the entire country, the average age of those prostitutes seropositive to HIV-2/HTLV-4 was a decade greater than those seronegative and also correlated to the estimated number of lifetime sexual contacts ($p < .01$).

In a subset of prostitutes available for further hematologic analysis in Dakar, we found significant elevations of polyclonal IgG levels ($p < .01$) and of absolute T8 lymphocyte counts ($p = .03$) in the seropositive prostitutes when compared to seronegative prostitutes or to surgical controls. Notably,

total T cell counts and absolute T4 cell counts showed an inverse correlation to age, regardless of serologic status. Multivariate analysis of absolute T4 cell counts in relation to age showed a small trend towards lower T4 counts in the seropositive prostitutes ($p = .15$). Other significant findings were elevated levels of $\beta 2$ -microglobulin and the absence of anti-lymphocyte antibodies among the seropositive prostitute group.

We conclude :

- 1) that HIV-2/HTLV-4 is a sexually transmitted virus,
- 2) that certain hematologic parameters are altered and are perhaps unique for this type of retrovirus and
- 3) that the absence of abnormal clinical findings in this cohort is distinct from similar cohorts exposed to HIV-1 and may represent a reduced pathogenicity of the HIV-2 serotypes when compared to HIV-1.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 75, Poster TH 5

Richard G Marlink¹, D. Ricard², J. L. Romet-Lemonne¹, I. Ndoye³, T. Siby², S. Mboup², Phyllis J. Kanki¹, M. Essex¹

Initial observations on the natural history of HIV-2 infection

¹ Harvard School of Public Health, Boston, MA, USA

² University of Dakar, Dakar, Senegal

³ National Center for Sexually Transmitted Diseases, Dakar, Senegal

In February 1985, 289 prostitutes in Dakar, Senegal, provided serum samples for serologic analysis. All of these prostitutes were attending an STD clinic sponsored by the Ministry of Health in Senegal, requiring monthly visits for clinic evaluations of prostitutes. Eighteen of these prostitutes proved to be seropositive for HIV-2/HTLV-4 and have been seen by a physician on our team every 3-6 months since the initial serologic survey with detailed historical and clinical evaluation including ultrasonographic examinations. Among the seropositive individuals there have been no generalized lymphadenopathy and no signs or symptoms usually associated with immunodeficiency in African populations over the past 2.5 years of follow-up composing 42 person years of observation (PYO). Seroconversion rate for the seronegative population over this time period has been 7.6 %/100 PYO.

The lack of clinical abnormalities in the HIV-2 seropositive individuals is markedly different from other longitudinal studies in Africa following HIV-1 seropositive outpatients. HIV-1 seropositive prostitutes in Nairobi have shown rate of development of generalized lymphadenopathy to be 47 cases/100 PYO (Plummer, 1987) and HIV-1 seropositive workers in Kinshasa have shown an "ARC rate" of 20.4 cases/100 PYO (Ngaly, 1987).

Extrapolation between these HIV-1 seropositive and HIV-2 seropositive populations in Africa appear to demonstrate a marked reduction in attack rate to generalized lymphadenopathy or ARC in HIV-2 infection, if compared to HIV-1 infection. Comparisons concerning the rate of developing to AIDS or other clinical manifestations are premature in this cohort, but the lack of a widespread AIDS epidemic in areas in West Africa with a known high seropositivity to HIV-2 type viruses is unlike the pathobiology being seen with HIV-1 in Central Africa, Europe and the United States.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 73, Poster TH 1

Richard G. Marlink¹, A. Sow², D. Ricard², Phyllis J. Kanki¹, S. Mboup², J. L. Romet-Lemonne¹, M. Essex¹ *et al.*

The spectrum of AIDS-like disease in Senegal

¹ Harvard School of Public Health, Boston, MA, USA

² University of Dakar, Dakar, Senegal

We have identified 11 cases of AIDS or AIDS-like disease in Senegal over the past two years who were seropositive to an HIV-type of retrovirus. In addition, 3 cases of unexplained weight loss, chronic diarrhea or prolonged fevers were referred for serologic testing and found to be negative for exposure to HIV-1 or HIV-2 type retroviruses.

The 8 cases who were seropositive to HIV-1 and seronegative to the HIV-2 type retroviruses by Western blotting and radioimmunoprecipitation assays all had lived or traveled extensively in Central Africa or Europe. All of these cases had a rapid progression of several of the major signs and disease states defining AIDS by the modified WHO criteria.

The other 3 seropositive cases, originally from neighboring countries, were seropositive to HIV-2 type viruses by the same techniques and displayed a wide spectrum of clinical outcomes. The most severe outcome was seen in a patient with unexplained fevers, weight loss and lymphadenopathy for six months, who also had generalized pruritic dermatitis. This patient died suddenly of a rapidly progressing pneumonitis. The second case was a patient with five years of episodic diarrhea and weight loss which was unexplained after extensive study. This patient survived pulmonary tuberculosis and two episodes of Salmonella septicemia. The last case is one of chronic weight loss in a patient with lymphadenopathic and pulmonary tuberculosis. This patient has responded to therapy, rapidly regaining weight and presently off all medication.

We feel the detailed clinical and immunological analysis of these HIV-2 seropositive individuals gives us evidence that the disease manifestations which may result from HIV-2 infection may have a rapid progression, as we have seen with HIV-1 infection, or may have a prolonged, episodic clinical course and atypical clinic and immunological characteristics.

Furthermore, the 31 cases of seronegative AIDS-like diseases emphasize the difficulty in attributing "cause and effect" to the evaluation of AIDS in Africa.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, p. 106, Poster TH 67

Souleymane Mboup

Practical measures to prevent AIDS in Senegal and West Africa

Inter-universities convention to study Human viruses, Cancers and related diseases

National AIDS committee from Senegal

National center for sexually transmitted diseases, Senegal

Université de Dakar, Sénégal

Universités de Tours et de Limoges, France

Harvard University, Boston, MA, USA

Comité National de Lutte contre le Sida, Dakar, Sénégal

Within the framework of a convention between the universities of Dakar in Senegal, the universities of Tours and Limoges in France and Harvard University in the United States to study "Human viruses, cancers, and related diseases", a prevention program against AIDS has been organized. This program follows a large seroepidemiologic study concerning human retroviral infections, hepatitis B and sexually transmitted diseases in Senegal. Specific prevention measures coordinated by the national AIDS committee and the national center for sexually transmitted diseases (STD) in Senegal. These measures are focused in 2 areas :

— *AIDS as a sexually transmitted disease* :

a) High risk groups (prostitutes and STD patients). All prostitutes are required to register once a month in a STD clinic to legally practice prostitution. During this visit to the clinic they will receive specific information concerning AIDS and its prevention and receive access to condoms.

b) General public receive numerous news articles concerning AIDS and its prevention, radio live show with answers to public questions, and stickers "Prévention du Sida" are largely distributed to

remind the problem and to give a phone number to call for any information.

— *AIDS as blood transmitted disease* :

a) Blood bank screening has been organized for immediate ELISA screening and confirmation by Western blot

b) Educational material is provided to the health care workers concerning the sterilization of needles and syringes.

Other more specific aspects of the Senegaleses measures will be discussed. Examples of educational and health care related material will be displayed beyond the poster.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 137, Abstract F 34

Souleymane Mboup¹, Phyllis J. Kanki², F. Barin³, I. Ndoye, F. Denis⁴, D. Counillon¹, D. Ricard¹, C. S. Boye¹, A. Gaye¹, J. L. Sankalé¹, J. L. Romet-Lemonne², R.. Marlink², A. Sow¹, M. Essex²
HIV and related viruses in Senegal

¹ Hôpital Le Dantec, Dakar-Fann, Sénégal

² Harvard School of Public Health, Boston, MA, USA

³ Hôpital Bretonneau Tours, France

⁴ Hôpital Dupuytren, Limoges, France

After the recent discovery of HIV-2/HTLV-4 human retroviruses in Senegal and West Africa, epidemiological studies have been performed on selected populations in different regions of Senegal. Individuals have been classified in three groups : a) High risk group including prostitutes and sexually transmitted disease patients ; b) Hospitalized patients and c) Healthy adults as control population.

HIV antibody screening were performed by ELISA (Abbott laboratories) and rescreened by Western blot or radioimmunoprecipitation/ SDS-Page using HIV-1/HTLV-3B HTLV-3B and HIV-2/HTLV-4 as viral antigen.

Results shows fluctuation in seroprevalence for HIV-2/HTLV-4 type of viruses from 0.1 to 45 % depending upon the region of the country and upon the population under, study. The HIV-1 seroprevalence however, was constantly low (0.1 %).

In contrast with what has been described for HIV-1 infection, we did not observe a strong correlation between AIDS-like syndromes and high seroprevalence for HIV-2/HTLV-4 in Senegal. We also observed a very low seroprevalence of HIV-2 in hospitalized patients (0.1 %) in an area where prevalence is 40 % in high risk groups.

In conclusion : 1) The two types of human retroviruses are present in Senegal with a low seroprevalence for the HIV-1 and a geographically variable seroprevalence for the HIV-2 type. 2) The pathogenicity of HIV-2 as compared to HIV-1 seems to differ, with HIV-1 being more pathogenic than HIV-2.

Further prospective studies are required to provide more information on the pathogenicity of HIV-2 type of viruses.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 51, Oral presentation Abstract S4.6

Souleymane Mboup¹, D. Ricard¹, Phyllis J. Kanki², Y. Kane³, L. O. Salem³, M. Mbaye³, A. Gaye¹, J. L. Sankalé¹, L. Sangaré¹
HIV seroprevalence in Nouakchott (Islamic Republic of Mauritania)

¹ Hôpital Le Dantec, Dakar-Fann, Sénégal

² Harvard School of Public Health Boston, MA, USA

³ Sabah Hospital, Nouakchott, Mauritania

At Sabah Hospital in Nouakchott, Mauritania, 356 serum samples were tested for HIV by ELISA (Abbott) and confirmed by Western blot using HIV-1 and HIV-2/HTLV-4 as viral antigens. Sera were drawn from tuberculosis and STD patients. Hospital workers sera were used as controls. All serum samples have also been tested for syphilis by microagglutination and HBsAg by ELISA to check for any correlation with retroviral infection.

The seroprevalence of retroviral infections in this area is quite low (0.6 %), in the same range of what has been reported in Europe among the general population. Twenty one percent of sera was HBs Ag positive which is comparable with the HBs seroprevalence in neighboring countries.

In conclusion, Mauritania is not yet an endemic zone for the AIDS virus infection, and it is in the national interest to undertake rapidly an efficient prevention program to avoid the spread of HIV.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 74, Poster TH 4

F. Mowovondi¹, Souleymane Mboup², Phyllis J. Kanki³, J. L. Sankalé², A. Gaye², C. S. Boye², L. Sangaré², M. Essex³

Human retroviruses related to HIV in Cameroon, Central Africa

¹ Yaounde Hospital, Yaounde, Cameroon

² Hôpital Le Dantec, Dakar-Fann, Sénégal

³ Harvard School of Public Health, Boston, MA, USA

596 serum samples were collected in Cameroon from 4 different cities : Foumban, Yaounde, Ebolowa, Bertoua in 1986 in order to screen for antibodies to HIV types of viruses. The population under study was grouped as follows : prostitutes and STD patients from Yaounde, Bertoua, and Ebolowa hospitals and prisons as risk group (N = 242), hospitalized patients as a separate group (N = 204), pregnant women and healthy adults as control (N = 150). Sex and age distribution in the total population was 344 males (57.7 %), 252 females (42.3 %) with a mean age of 26.8 years for males and 23.7 years for females. The blood screening was performed by ELISA (Abbott) and then by Western blot or radioimmunoprecipitation using HIV-1 and HIV-2/HTLV-4 as antigenic probes. Also syphilis antibody and HBs antigen have been screened on the same population to see any correlation between these infections.

None of the tested serum samples were positive for any HIV-1 or HIV-2/HTLV-4 antibodies, which represents a rare situation in Africa. However, the seroprevalence for HBsAg was 13.7 % and 8.2 % for syphilis which is very similar to what has been described in neighboring countries.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 83, Poster TH 21

Dominique Ricard¹, S. Mboup¹, Phyllis J. Kanki², A. C. Venancio³, D. J. Mendes³, C. S. Boye¹
Prevalence of HIV-1 and related human retroviruses in Guinea-Bissau, West Africa

¹ Hôpital Le Dantec, Dakar-Fann, Sénégal

² Harvard School of Public Health, Boston, MA, USA

³ Bissau Hospital, Bissau, Guinea-Bissau

In November 1986, 463 sera were collected in Bissau, the capital of Guinea-Bissau. All sera were tested by Western blot on HIV-1 and HIV-2/HTLV-4 viral antigens. Only HIV-2/HTLV-4 antibodies have been detected in this screening. The prevalence of the virus varies as follows : 64 % (25/39) in the risk group, 9 % (14/151) in the control group, and 13.5 % (37/273) in hospitalized patients. The seroprevalence for HIV-2/HTLV-4 is significantly higher in the risk population than in the control group ($\chi^2 = 57$, $p < 0.01$) but there is no difference between the control and the disease groups ($\chi^2 = 1.64$). An atypical antibody profile to HIV-2/HTLV-4 antigens was observed in 9 serum samples,

5 from the disease group and 4 from prostitutes. These serum samples contained only antibodies to gp 160/120 and gp 32 but not to *gag* and *pol* antigens of HIV-2/HTLV-4. This atypical serological profile could be related to the existence of another human retrovirus of the HIV-2 type. Isolation of a virus from these individuals is in process.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 76, Poster TH 8.

Ricard Dominique ¹, S. Mboup ¹, A. N. Ndoye ¹, Phyllis J. Kanki ², M. Mounier ³, C. S. Boye ¹
Prevalence of HIV-1 and HIV-2/HTLV-4 in the South of Senegal, in Casamance

¹ Hôpital Le Dantec, Dakar-Fann Sénégal

² Harvard School of Public Health, Boston, USA

³ Hôpital Dupuytren, Limoges, France

Sera from 505 individuals were collected in 1986 in Casamance, a southern region of Senegal sharing a border with Guinea-Bissao. All sera were tested by Western blot using HIV-1 and HIV-2/HTLV-4 viruses as antigenic probes. The results shows that only HIV-2/HTLV-4 is present in this region of Senegal and the prevalence varies as follows :

48 % (33/68) in the prostitute population, 3 % (9/280) in the control population, and 0 % (0/157) in patients hospitalized for infectious diseases, cancer, and tuberculosis. The very high prevalence of HIV-2/HTLV-4 in the high risk population, and the presence of the same type of virus in the general population contrast with its absence in the hospitalized patients. This suggests a difference in pathogenicity between HIV-1 and HIV-2 types of viruses. In comparison with what has been reported in Central Africa regarding the spread of HIV-1, we can conclude that it is very likely that HIV-2/HTLV-4 has been present in this population for more than 5 years and that it is less pathogenic than HIV-1, which is compatible with our 2.5 years of clinical and biological follow up of the HIV-2/HTLV-4 infected people in Dakar.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, Naples, p. 76, Poster TH 7

L. Sangaré ¹, S. Mboup ², Phyllis J. Kanki ³, H. Tiendrebeogo ¹, R. Soudré ¹, C. S. Boye ², A. Gaye ², D. Ricard ², F. Denis ⁴

HIV and related human retroviruses seroprevalence in Ouagadougou, Burkina-Faso

¹ Ouagadougou, Burkina-Faso

² Hôpital Le Dantec, Dakar-Fann, Sénégal

³ Harvard School of Public Health, Boston, MA, USA

⁴ Hôpital Dupuytren, Limoges, France

779 sera from hospitalized patients in Yalgado hospital, prostitutes, pregnant women, STD patients and prisoners were tested for the presence of antibody to HIV-1 and HIV-2/HTLV-4 by Western blot and radioimmunoprecipitation. Hepatitis B surface antigen detection (Abbott ELISA) and syphilis serology were performed on the same serum samples.

The results showed a seroprevalence of 11.7 % for HIV-1 or HIV-2. HIV-1 antibodies are present in 3.1 % of the serum samples and HIV-2 antibodies in 7.7 %, mainly in prostitutes and patients with sexually transmitted diseases (STD). 0.9 % of prostitutes showed reactivity to both HIV-1 and HIV-2 . The HBs Ag has been detected in 18.2 % of sera and syphilis in 6.2 %.

These results indicate that health authorities should initiate a prevention plan against AIDS in Burkina-Faso as soon as possible.

IIème Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 81, Poster TH 18

A. Santos-Pinto¹, Wanda F. Canas-Ferreira¹, J. Champalimaud¹, Kamal Mansinho¹, C. Costa², P. Mendes², V. Furtado², S. Chamaret³, L. Montagnier³, J. Marques¹, J. L. Baptista, J. Brandao¹
Prevalence of antibodies to HIV-1 and HIV-2 among a Hospital worker population in Guinea-Bissau (West Africa)

¹ Institute of Hygiene and Tropical Medicine, Lisbon, Portugal

² Ministry of Health, Guinea-Bissau

³ Institut Pasteur, Paris, France

The existence of AIDS in African patients was confirmed in Europe in 1981 and in Africa in 1983. However, since 1979 Egas Moniz Hospital in Lisbon has been receiving patients from Guinea-Bissau, with a clinical profile of unexplained chronic diarrhoea, fever, accentuated loss of weight and sometimes neurologic involvement for which no infectious agents were found of the type usually responsible for such situations, nor causes of any other nature. These patients were found infected with HIV-2 (Clavel *et al.*, *Science* July 1986). For this reason a wide surveillance study was carried out in Guinea-Bissau in 1986 and 1987. We collected sera from 275 people working at Ministry of Health, (95 male and 181 female). HIV-1 and HIV-2 seroincidence was determined. Sera were tested for antibodies to HIV-1 and HIV-2 by ELISA and by Western blot and Ripa analysis. 36 (19.88 %) out of 181 women were HIV-2 antibody positive and 3 (1.65 %) were HIV-1 antibody positive. 11 (11.57 %) out of 95 men were HIV-2 antibody positive and none was HIV-1 antibody positive. Out of the 6 professional groups studied there was significant association between seropositivity and work category in only three groups : obstetric staff with blood contact 20/48, 41.66 % ; pediatric staff 10/36, 27.78 % ; surgical staff 8/57, 14.04 %.

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 77, Abstract TH 9

I. Sow¹, S. Lu², A. M. Coll¹, A. Sow¹, Phyllis J. Kanki², M. Prince-David¹, Souleymane Mboup¹, J. L. Romet-Lemonne²
HIV-1 and HIV-2 seroprevalence in an hospital worker population, Dakar, Senegal

¹ Hôpital Le Dantec and Hôpital Fann, Dakar-Fann, Sénégal

² Harvard School of Public Health, Boston, MA, USA

Sera from 779 individuals were collected from April to June 1986 from hospital workers in Dakar Senegal. Sera were tested for antibody to HIV by commercially available ELISA (Du Pont HTLV-III ELISA). All positive and borderline sera were subsequently tested by immunoblot using HIV-1/HTLV-3B and HIV-2/HTLV-4 as viral antigens.

The results indicate that both types of human retroviruses HIV-1 and HIV-2 are also present in this population with an approximately identical seroprevalence (< 0.5 %). These results differ from what has been described for Dakar prostitutes (N = 318. 7.5 % HIV-2 positive and 0.3 % HIV-1) and for 151 non AIDS hospitalized patients from the same hospital (0.6 % HIV-2 positive and 0 % HIV-1) during 1986. The 5 AIDS cases reported in December 1986 (Pr A. Sow) were all 5 HIV-1 antibodies positive and coming from HIV-1 endemic area.

Results will be displayed regarding age distribution, country of origin and the time spent in the Dakar hospital. A second blood and test are in process and seroincidence data will be discussed. This study in comparison with similar population studies performed in central Africa should give us information on the spread and pathogenicity of these two human retroviruses

II^{ème} Conférence Internationale sur le Sida et les cancers associés en Afrique, Naples, 1987, p. 75, Poster TH 6