

Original Research Article

Prevalence of Human T-Lymphotropic Virus I & II among Patients Visiting Bowen University Clinic in Nigeria

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ABSTRACT

Background: Human T lymphocyte virus type 1 is the causative agent of adult T-cell leukemia/lymphoma.

Objectives: To determine the prevalence of HTLV infections amongst people attending Bowen teaching Hospital, Iwo, South west of Nigeria

Methods: A total of 185 blood samples were collected into EDTA bottle, Plasma was collected from the whole blood and screened for HTLV I and II antibodies using Wantai anti-HTLV I/II diagnostic ELISA assay.

Results: Out of 185 sera screened, HTLV I/II antibodies were detected in 5 samples using ELISA. The prevalence rate was 2.7% (5/185). None of the patients had been previously transfused with blood. Age group of 42-55 had the highest number of prevalence. Antibodies to HTLV were more common in males 5% (4/80) compared to female who had 1% (1/105).

Conclusion: The seroprevalence of HTLV is low among patients. Screening of blood samples should be encouraged to control the spread of the virus.

Key words: HTLV I and II, Prevalence, ELISA.

INTRODUCTION

Human T lymphotropic virus type I (HTLV-I) is the causative agent of adult T cell leukemia/lymphoma (ATL), but only a small proportion of HTLV-I carriers develop this disease. [1-4] Human T-cell lymphotropic virus type 1 (HTLV-I) is prevalent mostly in Japan, Africa, the Caribbean Islands, and South America. [5,6] Infections of HTLV-I and HTLV-II are life-long with asymptomatic carrier state. [7] Over 20 million persons are infected with HTLV-I and HTLV-II globally with

varying levels of seroprevalence reported in almost every region of the world [8] The transmission routes include sexual intercourse, blood transfusion, tissue transplantation and prolonged breastfeeding. [9-12] The prevalence of contamination of the blood with HTLV-I has been reported to be 0.3% in United States of America and 0.7% in Brazil by Abbaszadegan, et al. [13] HTLV-1 transmission by transfusion of cellular blood components has also been reported, requiring testing of blood products in

blood banks in high prevalence regions. In Nigeria, transmission of HTLV infection to transfused recipients and in patients with leukaemia/lymphoma are well documented [14-19] this study was designed to determine the prevalence of HTLV infection amongst people that received care from Bowen University Clinic, Iwo, Nigeria.

MATERIALS AND METHODS

A total number of one hundred and eighty five blood samples were used for this research work. Blood samples were collected from people who came for medical check-up. Each blood sample was collected into Ethylene Diamine Tetra-acetic Acid (EDTA as an anticoagulant) bottle. The blood samples were spun using a centrifuge to separate the plasma from the whole blood, after which the plasma were collected using pasteur pipettes and then dispensed into corresponding labelled plain bottles.

All patients, after informed consent, were screened for HTLV- I and II antibodies by ELISA assay (Wantai anti-HTLV-I/II Diagnostic, China) as described by the manufacturer. This ELISA kit according to the manufacturer is for screening of blood donors and also as an aid for the diagnosis of clinical conditions related to infection with HTLV-I and/or HTLV-II.

RESULTS

Out of the one hundred and eighty five (185) samples collected, only 5(2.7%) samples were positive for HTLV-I&II while the 180(97.3%) were negative.

Table 1: Prevalence of HTLV 1 and 2 in patients tested by age

Age groups (years)	No tested positive	No tested negative
14-27	3(2.3%)	125(97.7%)
28-41	1(3.0%)	32(97.0%)
42-55	1(5.6%)	17(94.4%)
56-69	0(0.0%)	6(100.0%)
Total	5(2.7%)	180(97.3%)

Table 2: Prevalence of HTLV based on gender

Gender	No tested positive	No tested negative
Females	1(1.0%)	104(99.0%)
Males	4(5.0%)	76(95.0%)
Total	5(2.7%)	180(97.3%)

Table 3: Prevalence of HTLV-1&2 in patients by Occupation

Occupation	No tested positive	No tested negative
Students	3(2.7%)	107(97.3%)
Artisans	0(0%)	12(100%)
Civil Servants	0(0%)	8(100%)
Professionals	0(0%)	33(100%)
Drivers	1(12.5%)	7(87.5%)
Traders	1(6.7%)	14(93.3%)
Total	5(2.7%)	180(97.3%)

DISCUSSION

The HTLV ELISA kit is one-step incubation, antigen a sandwich enzyme immunoassay (ELISA) method, which uses polystyrene microwell strips pre-coated with recombinant HTLV antigens expressed in *E. coli*. Patient's plasma sample was incubated in the microwells together with second recombinant HTLV antigens conjugated to horseradish peroxidase (HRP-Conjugate). Its sensitivity and specificity is 99.99 and 100% and which is used for routine screening of blood donors for HTLV antibodies. The present study demonstrated that HTLV I and II seroprevalence rate was 2.7%. In this study, the result showed that 5% of males who participated in this study had antibodies to HTLV-I&II while 0.95% of females who participated in this study tested positive, this prevalence rate is one of the lowest percentages that have ever recorded in Nigeria. Higher prevalence of HTLV I&II recorded in this study among male could be responsible for the maintenance and transmission of the virus in the population, this group of people can also serve as reservoirs of HTLV-I&II in Nigeria. In contrary to our prevalence rate of 2.7%, Forbi and Odetunde (2007) result reported that 22.9% of community sex workers (CSWs) and 16.70% of pregnant women were positive which is one the highest percentages prevalence of HTLV I&II seropositive that as ever been recorded in Nigeria.

The highest prevalence of HTLV I&II infections in this study was found among the age ranged 42 – 55 years which accounted for 5.6%, Higher seroprevalence of HTLV-1 was observed among the married than the singles due to the fact that the married could be likely engaged more in sexual activities than the singles and which could put them at higher risk of the infection. Therefore more attention should be given to the routine screening of HTLV-I&II in Nigeria is this can make the greatest contribution to reducing the risk of this virus and alter its course in humans. Currently, there are no vaccines available for the prevention of HTLV I and II infection. Screening should be encouraged which will allow an individual to know his or her status; this can be helpful and can substantially reduce the rate of spread of the virus.

CONCLUSION

The seroprevalence of HTLV is low among patients.

Limitations: The assay used was not designed to differentiate between HTLV-I and II infection but it was highly specific and sensitive to detect infection in the same micro ELISA well. Despite this limitation, HTLV ELISA has been known to be very sensitive, specific and highly reproducible.

Competing interests: The authors have no competing interests to declare.

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