



Qualitative Detection of Serum Antibodies to Human Immunodeficiency Virus Amongst Patients in Biu, Borno State, Nigeria

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Abstract

Survey was conducted to establish the incidence of Human Immunodeficiency Virus (HIV) over a period of four (4) months. A total of 300 blood specimen collected from patients attending Abott Medical Centre was screened, using rapid Chromatographic immunoassay test kit. Out of the total patients screened, 56 (18.6%) were HIV positive, 38 (67.9%) were males, 18 (32.1%) were females and the highest infection (76.8%) occurred in patients between the age of 31-and 40. The age and sex of positive carriers had association with the disease occurrence. This finding confirmed endemicity of HIV and AIDS. HIV enlightenment campaigns/ advocacy, counselling, screening and testing of the public should be intensified, in addition to economic empowerment of women.

Keywords: Prevalence, Human Immunodeficiency Virus, Chromatographic immunoassay, Biu, Borno State.

Introduction

Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) are considered to be the lead cause of death in sub-Saharan Africa and the fourth killer disease globally [1]. The virus is transmitted through several routes with the spread of HIV/AIDS been attributed to poverty [2] as well as other risk factors and lifestyles which encourage the spread of the infection such as undernourishment, poor sanitation and hygiene, unsafe sexual practices, gender-based violence, alcohol and drug abuse [3]. In Nigeria, there were about 5.8 million people infected with HIV in 2003, giving a national prevalence rate of 5.8% which increased exponentially in 2005 [4]. An estimated 3.1 percent of adults aged 15 - 49 lives with HIV and AIDS, by the end of 2009, 3.3million additional

people were infected with HIV with approximately 220,000 people dying from AIDS [5]. At the end of 2010, about 40 million children were expected to be orphans globally by the pandemic [6]. Reports have shown that the devastating economic burden of this disease in conjunction with socio-cultural factors and lack of political will power on the part of government [7, 8] militate against the effective control of this scourge. However, recent reports of variation in urban and rural prevalence of HIV/AIDS [2] motivated this investigation in the study area, which sought to establish incidence of HIV carriers amongst patients attending Abott Medical Centre, Biu, one of the major health facilities in Biu Local Government Area (LGA) of Borno State, Nigeria using a qualitative antibody test kit over a 4 month survey period (March – June, 2010).

Methodology

Study Area

The study was conducted in Biu metropolis which is located on the Biu Plateau hence the name "Biu". It is located in the northeastern part of Nigeria, bounded on the west by the Gongola river valley, on the Southeast by the Hawul river valley and on the north by the Lake Chad basin. It is located in the Sahel savanna and covers 5,100sqkm. Principal ethnic group of Biu include the Baburawa, Fulanis, Hausas and other non-indigenous groups.

Sample collection

Random venous blood specimens were collected after cleaning with alcohol swabs from patients using a 5ml syringe and needle. The blood was transferred into centrifuge tubes and kept at room temperature for sera collection.

Sera

Specimens were immediately processed by separating serum from blood products using a centrifuge and only non-heamolysed blood samples were used for the screening process.

Virological Procedure

All procedure was performed in accordance with the guideline described by [9] and the safety precautions as provided by [10]. HIV screening was performed using the rapid chromatographic immunoassay for the qualitative detection of HIV antibodies (Inverness Medical, Japan) rapid test strips. About 3 drops of serum were dropped onto the specimen pad and held vertically such that the serum is allowed to move upward via capillary force and after 15minutes, results were read. Double lines were visible for positive samples (Control and Test line) while for negative samples, only single line appeared (Control line).

Data Analysis

All obtained results were recorded and analysed using descriptive statistics while Chi-square was employed to evaluate the association of carriers/reactors with the occurrence of HIV/AIDS.

Results

Results of HIV screening of patients as shown in

Table 1 indicated that of the 300 specimens collected over a period of four months, 56/300 was positive, resulting to an overall incidence rate of 18.6%. And the highest positive cases were observed in March with incidence rate of 37.5% and the least in May with 14.3% occurrence rate. Table 2 showed the distribution of HIV according to sex and age which revealed that the highest HIV cases occurred in patients within the age bracket of 20-30, 43/56 (76.8%) and the least (8.9%) in the group 41-50. Table 3 further showed the distribution of HIV with respect to marital status presenting the highest infection occurrence in patients who were polygamist (57.1%) and the least in single patients (14.3%).

Table 1: The percentage frequency of HIV infection from March - June, 2010

Months	No. Tested	No. Positive	% frequency
March	94	21	37.5
April	81	16	28.6
May	66	8	14.3
June	59	11	19.6
Total	300	56	100

Incidence rate = 18.6%

Table 2: Distribution of HIV infection in patients according to sex and age

Age-group	Males	Female	Total
20- 30	14	29	43
31-40	1	7	8
41-50	3	2	5
Total	18(32.1%)	38 (67.9%)	56 (18.6%)

Table 3: Distribution of HIV amongst patients according to marital types

Marital type	Positive carriers	Percentage frequency (%)
Singles	8	14.3
Polygamy	32	57.1
Monogamy	16	28.6
Total	56	100

Discussion

The current finding indicated an overall incidence of 18.6% and the highest infection rate of 37.5% was observed in March. This occurrence with regard to sex and age showed that women were more infected than men with occurrence ratio of 0.68 to 0.32 respectively, which showed association with the disease. While the highest infections occurred

within 20-30 age-group, this could probably be due to youthful social exuberance and cultural practices in the locality. This finding is similar to that which accounted for 56% of adult women infections reported in 2009 [11] and that which indicated most adult women aged 15 and above living with the virus [12]. Marital status also indicates most of the HIV victims were polygamist, which was similar to other reports [13, 14]. Socio-cultural and religious practices, as in the situation where men do not wish to disclose their HIV status to their spouse and/or betrothing daughter to a man with un disclosed and confirmed HIV status were likely contributory reasons to the high incidence of HIV/AIDS in women in this study. In conclusion, this study confirmed the presence of HIV/AIDS carriers in Biu, LGA. Therefore, the need for collaboration between local government authorities, community-based organisations (CBOs), traditional and religious institutions to collectively help control this scourge. This could include routine HIV screening at all health care levels, counselling, and economic empowerment of vulnerable groups, as well as public education and enlightenment campaigns to educate the masses on the disease.

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