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Undiagnosed HIV cases in accident and emergency unit of a tertiary health institution in south east Nigeria

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Abstract

Objective: This study aimed at investigating the cases of Undiagnosed Human Immunodeficiency Virus (HIV) amongst patients attending the Accident and Emergency (A&E) Unit of Nnamdi Azikiwe University Teaching Hospital (NAUTH) to determine the prevalence and individual awareness of their sero-status.
Method: Human Immunodeficiency Virus (HIV) 1 and 2 screening was conducted on randomly selected conscious patients (mostly trauma) presenting to the Accident & Emmergency (A&E) unit of Nnamdi Azikiwe University Teaching Hospital (NAUTH) using the STAT PAK™ (Chembio Diagnostic Systems Inc, USA) and Determine™ (Abbott Laboratories, IL, USA) kits for HIV 1 and 2, for a 6 month period, August 2008 - February 2009. Referrals were sent to the Virology Unit of the Health Institution for a further confirmation of the HIV 1 and 2 positive cases. Data accruing from the study was computed using SPSS Version 11.0. GraphPad StatMate™ 2.0 was used to calculate the Chi-square test using cross tabulations generated from SPSS.
Results: Out of a total number 1497patients that presented in Accident and Emergency during the 6 month study period, 102 patients were randomly recruited for the study. Those positive for HIV were 24 (23.5%) while 78 (76.5%) were confirmed negative. The result shows that 17 (16.7%) males were positive for HIV which is higher than females 7 (6.9%). The age group 30 – 39 years had the highest number of positive cases of HIV 8 (7.8%) followed by 40 – 49 years 7 (6.9%); 20 – 29 years 5 (4.9%); 50 – 59 years 4 (3.9%); and finally with 60> years having no identified HIV positive case.
Conclusion: Undiagnosed HIV infections constitute a significant proportion of Accident & Emergency Cases in our institution and thus a very important public health issue in Nigeria. The result of this finding has shown that a sizeable number of patients presenting in Accident & Emergency are HIV sero-positive and yet unaware of their status.

Keywords: Undiagnosed HIV/AIDS. Accident & Emergency. NAUTH

Introduction

During the past two decades, researchers have made significant progress in understanding the epidemiology of HIV/AIDS worldwide. Despite this improved understanding, the epidemic in Africa has continued to grow, with disastrous consequences (Nasidi and Harry, 2006). While awareness about HIV/AIDS has gradually increased among the Nigerian population, misconceptions about transmission are still high. Only 20 per cent of women and 28 per cent of men agree that they could buy fresh vegetables from a person living with AIDS (UNICEF, 2007). AIDS was first reported in Nigeria in 1986 and the prevalence of HIV among antenatal clinic clients was 1.8% in 1991, 4.5% in 1996, 5.8% in 2001, and 5.0% in 2003 (FMHN, 2005). The epidemic in Nigeria has since extended beyond the high-risk groups to the general population. Some parts of the country are worse affected than others, but no state or community is unaffected. The epidemic in the country can be described as heterogeneous, with various communities in different stages, some declining while others are still rising (FMHN, 2005). In the Accident and Emergency Unit, the chaotic nature of care delivery to the acutely ill patients could expose care givers and health workers to the highest risk of blood-borne diseases, not least the Human Immunodeficiency

Virus. This is all the more feasible in cases with open wounds bleeding freely from traumatic injuries which are a major public health problem. Trauma, despite being the most preventable of the major public health problems, still unfortunately, imposes a greater health burden on modern society than all the other diseases (Eyster *et al*., 1996). In children, and adults under the age of 45, injuries from trauma remain the leading cause of death each year (NCS, 1987). According to several reports from developed countries the prevalence of undiagnosed cases of HIV/AIDS under emergency care is around 25% in USA, 30% in UK, whereas in the underdeveloped areas figures have been graded as high as 90% (Archibald *et al*., 2004). Undiagnosed HIV may be a source of infection of the uninfected health personnel, thereby, posing a serious occupational hazard; in a broader note it could as well be a source of infection of the uninfected and unaffected, thereby, posing a public health problem. This study therefore, was aimed at determining the number of unknown HIV cases in- patients presenting at Nnamdi Azikiwe University Teaching Hospital Nnewi Anambra State Nigeria (NAUTH) during the period of the study to ascertain their prevalence and by extension the risk to health workers in the tertiary health institution.

Materials and methods

Study Centre

The study was undertaken in the Accident and Emergency Unit of Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi Anambra State, Southeast Nigeria. Nnewi is the second largest town in Anambra State in South East Nigeria and is a local government on its own. Anambra State with 21 local government areas has a total population of 4,182,032 (males 2,174,641; females 2,007,391) according to 2006 census. Together, Nnewi and its satellite towns have a population of about 2.5 million (2005 estimates), with Nnewi itself having an estimated population of 204,252 (2007 estimates) (The World Gazetteer, 2007). Nnewi is located on the world map on latitude 6°,1^{1} , 0”(6 degrees, 1 minute, 0 seconds North), and longitude 6°, 55^{1}, 0” (6 degrees, 55 minute, 0 seconds East). The Teaching hospital is the only tertiary health institution in Anambra State including Nnewi community and its environs.

The Subjects

The subjects were patients presenting to the Accident and Emergency (A & E) Unit of NAUTH which is the only section of the hospital that is on-duty round the clock attending to patients even when other units are off duty. The study enrolled 102 randomly selected conscious patients who gave their consent. On collection of blood samples for routine hematological profiling of patients presenting in the Unit, efforts were made to determine the awareness of the patient on his/her HIV status (verbally) and each of the patients selected was cross-checked from the HIV/AIDS registry to ascertain any previous sero-status testing. This was done to rule out double-sampling of HIV positive patients in the study and confirm previously undiagnosed cases. The study was carried out between August 2008 and February 2009, a period of 6 months.

Inclusion Criteria

Those included in the study are conscious trauma and non trauma patients presenting in Accident and Emergency Unit who gave their consent and apparently unaware of their HIV status.

Exclusion Criteria

Those excluded in the study were unconscious trauma and non trauma patients who could not give their consent and those who already know their HIV status.

Confidentiality & Ethical issues

The Health Institution’s (NAUTH) policy states that the hematological profile of all patients presenting at the A&E unit should be determined since there is a possible chance of receiving blood transfusion. The approval was gotten in a letter before commencement of the study. This survey used unlinked anonymous testing for HIV. Prior to sending the specimen for HIV screening, the container was labeled with a survey ID number that did not identify the patient. The anonymity of the patient was maintained as different personnel were involved in performing the hematological profiling and HIV screening test.

HIV Screening Test

Two-step algorithm was used in performing the HIV screening test. Determine™ (Abbott Laboratories, IL, USA) HIV reagent was used to screen all specimens. Non-reactive samples were reported as HIV negative. Reactive samples were confirmed using STAT PAK™ 1 and 2 test kit (Chembio Diagnostic Systems Inc, USA) and Specimens in STAT PAK™ tests were reported as positive for HIV 1, HIV2 or for both. Specimens positive in Determine™ test and negative in STAT PAK™ were reported as discordant. The true sero-status of each of these samples was determined using Enzyme Linked Immonosorbent Assay (ELISA) and Polymerase Chain Reaction (PCR) at the Virology Department of NAUTH.

Statistical Analysis

Data accruing from the study were analyzed using SPSS Version 11.0, and GraphPad StatMate™ 2.0 was used to calculate the *Chi-square* test using cross tabulations generated from Statistical Package for Social Sciences (SPSS).

Results

Of the total number of 102 patients recruited for the study out of a total number of 1497 patients that presented at A/E during the 6 month period**,** 59 (57.8%) were males while 43 (42.2%) were females (Table 1).

Those positive for HIV were 24(23.5%), while 78 (76.5%) were confirmed negative (Table 1). The age group 30-39 years was the highest number of patient in the study 43 (42.2%), and also recorded the highest prevalence of HIV positive patients 8 (7.8%); followed by 40 – 49 years 7 (6.9%); 20 – 29 years 5

Table 1. Sex, sero-status and age distribution of the sample population

Category	Frequency	Relative Frequency
Sex		
Male	59	57.8%
Female	43	42.2%
Total	102	100.0%
HIV Status		
Negative	78	76.5%
Positive	24	23.5%
Age Group		
20-29	15	14.7%
30-39	43	42.2%
40-49	23	22.5%
50-59	17	16.7%
60>	4	3.9%

Table 2. Sero-status of the sample population with respect to sex and age group

Sex	HIV Status		Total (%)
	Negative (%)	Positive (%)	
Male	42 (41.2)	17 (16.7)	59 (57.8)
Female	36 (35.3)	7 (6.9)	43 (42.2)
Total	78 (76.5)	24 (23.5)	102 (100.0)
Age group (yrs)			
20 -29	10 (9.8)	5 (4.9)	15 (14.7)
30 – 39	35 (34.3)	8 (7.8)	43 (42.2)
40 – 49	16 (15.7)	7 (6.7)	23 (22.5)
50 – 59	13 (12.7)	4 (3.9)	17 (16.7)
60 >	4 (3.9)	0 (0.0)	4 (3.9)
Total	78 (76.5)	24 (23.5)	102 (100.0)

(4.9%); 50 – 59 years 4 (3.9%); and finally with 60> years having no identified HIV positive case. (Table 2). More males 17(16.7%) were positive for HIV than females 7 (6.9%) which was significantly higher ($p < 0.05$). (Table 2).

Discussion

Research to identify the proportion of HIV positive persons unaware of their infection is presently increasing. This has been found to provide access to voluntary HIV counseling and testing (VCT), which is a critical component of the WHO's 3 by 5 initiative (providing antiretroviral therapy to 3 million HIV positive people in the developing world by 2005) (Archibald *et al*., 2004). The study determined a sizeable prevalence of HIV sero-positivity 24 (23.5%) among the patients that presented at the Accident and Emergency unit of NAUTH. This is relatively close to the prevalence as was found by Archibald *et al*., (2004) in the developed countries (25% in USA, 30% in UK), though he found about 90% prevalence in several sub-Saharan African countries. The reduced prevalence rate in this study as compared with that of Archibald *et al*., (2004) in sub-Saharan African countries could be as a result of increased HIV awareness programmes in the country, along with voluntary counseling and testing (VCT) and a host of other relevant available interventions like antiretroviral therapy (ART). The age group 30-39 years 43 (42.7%) was more predisposed to trauma as was identified in this study and reported by several previous studies including Emejulu and Malmo (2008). Eight (7.8%) of the trauma patients within this age group (30-39 yrs) were HIV positive followed by 7 (6.7%) within the ages 40-49 years, and the difference is not statistically significant (p>0.05). This shows that all the age groups are prone to undiagnosed HIV/AIDS and could endanger the uninfected and unaffected care giver, thus making a case for the disclosure of the status of the patient to the care giver, in order to reduce the chance of getting infected. Sex prevalence of HIV positive persons were higher in males 17 (16.7%) than in females 7 (6.9%) and this was found to be statistically significant ($p < 0.05$). It is generally known that females are more prone to HIV/AIDS than males (UNAIDS, 2009; AEGiS-AFP News, 2005) but this may be from the biological point of view. More males were sampled in this study than females, resulting to a higher prevalence of HIV positive patients. Invariably males are more prone to outdoor works than females, which is corollary to the higher number of occupational hazards.

Conclusion

Undiagnosed HIV infections remain a significant public health issue in Nigeria. The findings from this study have revealed that a sizeable number of trauma patients are HIV sero-positive. This preliminary study has elucidated that many emergency cases are unaware of their status even though NAUTH serves as a referral centre for the south eastern Nigeria, and thus emphasizes the need for more study. Therefore, more efforts are needed in our Emergency Units to identify all cases of HIV/AIDS so as to rule out occurrences of undiagnosed/ misdiagnosed HIV/AIDS. Promoting HIV awareness programmes in the country, VCT and the administration of antiretroviral therapy (ART) should be intensified and encouraged especially by the religious groups and Faith Based Organizations (FBO) due to the role of religion in our environment is peculiar to our existence; and the fact that nothing happens /occurs for no reason which is a common belief in South Eastern Nigeria.

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