HIV-1/2 prevalence among patients attending the Accident and Emergency Clinic in Southwest Nigeria.

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Abstract

The Human Immunodeficiency Virus (HIV) pandemic is without a doubt one of the most significant public health disasters of our day. It is a complex mashup of various epidemics that have spread inside and between different nations and areas of the world. Patients who had retroviral screening in the Accident and Emergency Department of University College Hospital, Ibadan, were included in this retrospective analysis. In total, 2,321 patients were screened over the course of a year, and 83 (3.6%) of those had positive HIV-1/2 quick diagnostic test results using the Determine HIV-1/2, Uni-Gold HIV-1/2, and Stak-pak HIV-1/2 rapid diagnostic kits. A total of 1,248 (53.8%) males and 1,073 (46.2%) females were tested; the positive values for men and women, respectively, were 42 (50.6%) and 41 (49.4%) (P = 0.921).

Keyword: HIV; AIDS; Determine HIV-1/2; UNAIDS; Sexually Transmitted Infections (STI).

1.0 Introduction

The human immunodeficiency virus is known as HIV. In 1900, it was found that the virus could transfer from non-human primates to people, but it wasn't until the 1980s that the virus gained widespread recognition. This occurred when homosexual males began exhibiting odd and persistent immunodeficiency symptoms (Gottlieb et al., 1981). Following a number of studies, this disorder was eventually identified as

"acquired immune deficiency syndrome" (AIDS), with the "human immunodeficiency virus" (HIV) being the underlying cause (Barre-Sinoussi et al., 1983; Gallo et al., 1983).

The HIV-1 pandemic is without a doubt one of the most significant public health concerns of our time. It is a complicated mashup of various epidemics that have spread across and among different nations and areas of the world. Research has broadened our knowledge of the virus's mechanisms for replication, modification, and masking in an infected person (Viviana et al., 2005).

Approximately 40.1 million (33.6–48.6 million) individuals have died of HIV since the epidemic's inception, while 84.2 million (64.0–113.0 million) have contracted the infection. There will be 38.4 million (33.9-43.8 million) HIV-positive people in the world by the end of 2021.According to estimates, 0.7% (0.6–0.8%) of adults in the world between the ages of 15 and 49 have HIV, while the severity of the epidemic continues to vary greatly between different nations and areas. Around one in every twenty-five adults (3.4%) in the WHO African Area are HIV-positive, which accounts for more than two-thirds of all HIV-positive people globally.

Nigeria is home to 9% of all HIV-positive individuals worldwide (UNAIDS, 2014a). The nation is geared to "wipe out" the virus within a few decades despite having political instability and widespread political corruption due to over 33 years of military dictatorship (Nigeria National Agency for the Control of AIDS, 2012). The nation has seen more inhabitants put on life-saving antiretroviral therapy (AART) drugs to increase the survival of HIV seropositive individuals despite advancements in institutional reforms and political commitment to combating the illness (Nigeria National Agency for the Control of AIDS, 2012).

1.0 Materials and Methods

2.1. Study area

This study focused on patients attending the accident and emergency clinic at the University College Hospital, Ibadan. Ibadan is the capital city of Oyo State, a south-western part of Nigeria. It has an average population of over 4 million and is the third-largest state in the country after Lagos and Kano. This city has a good representation of all the tribes, religions, and ethnicities of Nigeria.

2.2. Study site

Data was retrieved from records of patients being screened for HIV in accident and emergency laboratories.

2.3.1 Study Design

This is a retrospective study of patients being screened for HIV in the accident and emergency laboratory of University College Hospital, Ibadan.

2.4 Sample processing

Samples were collected by finger pricks after sterilizing the finger with a 70% alcohol swab, and a capillary tube was used to collect the blood sample for retroviral screening.

2.5 Procedure

Fifty microliters (50 ul) of whole blood were added to the sample pad (Determine HIV-1/2, Uni-Gold HIV-1/2, and Stak-pak HIV-1/2 rapid diagnostic kits). When all of the blood has been absorbed into the sample pad, one drop of chase buffer is immediately added. The result was between 15 and 60 minutes.

2.6 Statistical analysis

Using Microsoft Office Excel, the data collected from the patients' register was analyzed. The prevalence and frequency of the outcomes were presented using descriptive analysis. To find the relationship between two category variables, a student t-test was applied, and P values of 0.05 were used to determine significance.

2.0 Results

A total of 2,321 patients were tested for a period of 12 months, from July 2021 to June 2022. The number of males was 1,248 (53.8%), which is higher than the 1,073 (46.2%) females (P = 0.921). The number of positive samples was higher among males with an age range of 50–64 (33.3%) and females with an age range of 35–39 (31.7%), followed by males with an age range of 35–39 (19.0%) and females with an age range of 50–64 (17.0%). The least positive age range was 5–14 (0%) and 1–19 (0%) among males and females, respectively. The general age ranges with the most positive samples were 35–39 and 50–64, with each having 21 (25.3%) positive samples.

We recorded the highest number of samples in February with 298 (12.8%), followed by January with 292 (12.6%), and May with 266 (11.5%), while the lowest number of samples received were in September with 9 (0.4%) and August with 15 (0.6%). The month with the highest number of reported positive samples was May, with 13 (15.7%), followed by April, November, and December, with 10 (12.0%), respectively. We recorded eight (9.6%) positive patients in the months of February, June, and October. January, July, March, August, and September had 7 (8.4%), 6 (7.2%), 3 (3.6%), 0%, and 0%, respectively.

Table 1. Shows the distribution of HIV-positive samples with age ranges and gender distributions.

Age Range	Male	Female	Total
1-4	1	0	1
5-9	0	0	0
10-14	0	0	0
15-19	2	0	2
20-24	1	2	3

25-29	1	1	2
30-34	4	6	10
35-39	8	13	21
40-44	5	4	9
45-49	4	4	8
50-64	14	7	21
65+	2	4	6
Total	42	41	83

(P=0.921)

Table 2 shows a summary of sample distributions over the period of 12 months.

Gender	Male		Female		Total
Months	Posiive	Negative	Positive	Negative	
JAN	5	155	2	130	292
FEB	3	167	5	123	298
MAR	2	116	1	95	214
APR	6	124	4	120	254
MAY	5	121	8	132	266
JUNE	5	112	3	113	233
JULY	5	37	1	29	72
AUG	0	8	0	7	15
SEP	0	5	0	4	9
OCT	2	95	6	91	194
NOV	7	126	3	93	229
DEC	2	140	8	95	245
TOTAL	42	1206	41	1032	2321

(P=0.921)

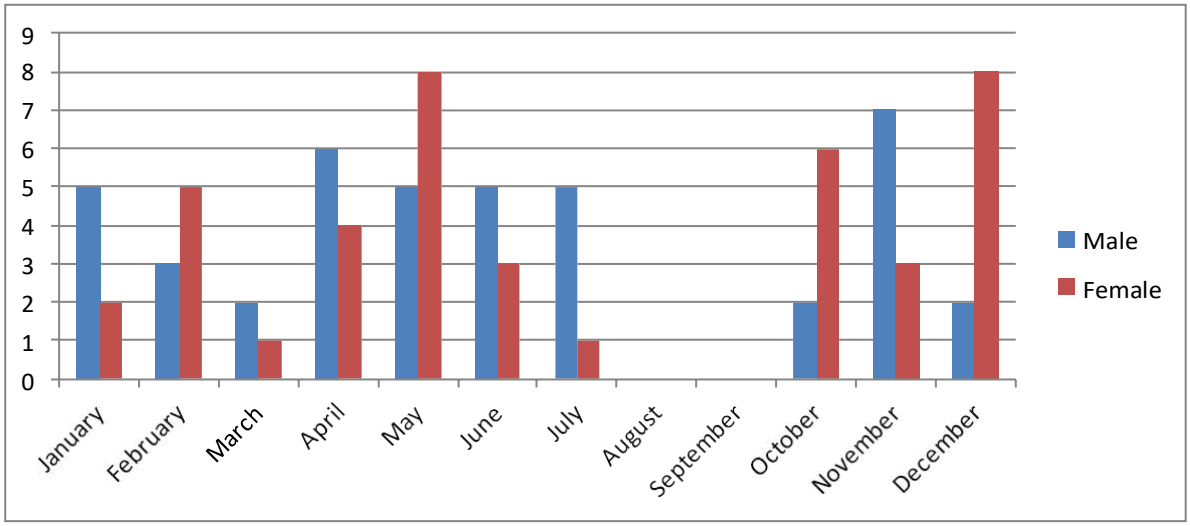

Figure 1 shows the distribution of positive samples with a monthly distribution among the genders.

3.0 Discussion

The significant advances in diagnosing, treating, evaluating, and monitoring infected patients receiving life-saving antiretroviral medication are largely attributable to HIV testing. They are useful in surveillance and outbreak responses as well as the assessment of disease burden and the identification of vulnerable groups and transmission "hot areas," allowing for planning, suitable interventions, and the allocation of resources. HIV diagnostics are essential in controlling the pandemic, and there is demand for a combination of conventional laboratory-based diagnostic tests and cutting-edge technologies, such as point-of-care (POC) testing, to improve patient management and enhance access (Bhara et al., 2019).

The patients screened in this study were accident victims or other emergency cases that were due for either surgery or other urgent medical care. They were brought in for retroviral screening before the commencement of treatment. HIV prevalence rates of 3.6% among these subjects show that the burden of HIV is still high in the general population. Many of these patients were not previously screened for the virus, which means that they might not be aware of their HIV status, thereby posing a risk to the general population. According to data made public by the Nigerian government, adults between the ages of 15 and 49 have an overall HIV prevalence of 1.4%. Also, earlier estimations showed that the country's HIV prevalence was 2.8%. According to UNAIDS and the National Agency for the Control of AIDS, Nigeria is home to 1.9 million HIV-positive individuals (NACA, 2019).

Age groups of 35–39 for women and 50–64 for men were associated with higher levels of positivity in this study, respectively. Females showed the highest percentage of positivity in the months of May and December. This might be due to an increase in patients visiting for retroviral screening at their physician's request. According to published research, men are more likely than women to experience infectious illnesses (viral, bacterial, fungal, and parasitic infections) more often and severely (Klein, 2000), while women are more likely than men to have higher prevalence of sexually transmitted infections (STIs) such as HIV and herpes simplex virus-2 (HSV-2) (Farshid et al., 2015). The above reason has been attributed to sex hormones, despite the lack of underlying mechanisms as to how these hormones predispose to or defend against an illness. Genetic linkage and association studies suggest that sex hormones may have an impact on chromosomes and particular genes (Ptak et al., 2008).

4.0 Conclusion

This study shows an HIV prevalence of 3.6% among patients brought to the Accident and Emergency Department of the University College Hospital (UCH), Ibadan. As a major city in southwest Nigeria, Ibadan provides us with a rough picture of HIV infection in the state and country at large. As a result, it is critical to increase HIV screening coverage in Nigeria. This will prevent the spread of the virus, especially among many people who are not aware of their HIV status. Also, the provision of adequate testing materials and the use of personal protective equipment (PPE) will ensure that health personnel are not unnecessarily exposed to the virus.

Conflict of interest: The authors declare no conflict of interest.

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