

## HUMAN IMMUNODEFICIENCY VIRUS (HIV) SEROPOSITIVITY IN AFRICAN PATIENTS PRESENTING TO THE EYE CLINIC - A PRELIMINARY TO PREVENTION OF OCCUPATIONAL EXPOSURE

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### ABSTRACT

A seroprevalence study of Human immunodeficiency virus (HIV) infection in new patients attending the eye clinic of LAUTECH Teaching Hospital in Osogbo, Osun State, Nigeria showed that twenty-nine patients (2.7%) were positive to HIV1. No patient was positive to HIV 2. There were 21 males (72.4%) and 8 females (27.6%). The clinical diagnosis in the HIV positive patients was as shown in Table 1. Cataract was found in nine cases (31.03%), herpes zoster 4 (13.79%), glaucoma, optic atrophy (non-glaucomatous) and corneal abscess were responsible for 3 (10.35%) of cases each; presbyopia, bacterial conjunctivitis 2 (6.89%) while maculopathy, orbital cellulitis and adherent leucoma were found in 1 (3.45%) patient each. These findings suggest that, patients with ocular disorders and who are otherwise healthy looking may in fact be HIV seropositive and as such it may be necessary to observe all rules relating to HIV transmission so as to prevent occupational exposure and cross infection in our clinics and operating theatres. Necessary measures to reduce occupational HIV infection and post exposure treatment if exposure occurs are discussed.

**KEYWORDS:** Nigeria, ophthalmological disorders, occupational exposure, cross infection.

### INTRODUCTION

An estimated 42 million people worldwide are now infected with the human immunodeficiency virus (HIV), (1) the causative agent of the acquired immunodeficiency syndrome compared with 30million people that were infected in 1997(2). Ninety per cent (90%) of these live in developing countries.

Reports from the 14th International AIDS Conference (Barcelona, Spain) project that, in the absence of an expanded prevention effort, there will be 45 million new HIV infections by 2010. It is estimated that 29 million of these infections could be prevented with the expansion of existing prevention strategies (3). Ocular involvement in HIV infection has been reported in large numbers in industrialized countries with comparatively little report from developing countries where most affected people live. In the health care setting, exposures occur through needle sticks or cuts from other sharp instruments contaminated with an

infected patient's blood (percutaneous exposures) or, less frequently, after infected blood gets into a worker's open cut or a mucous membrane such as the eyes or inside the nose.

Some people with HIV remain asymptomatic and these constitute an important source of transmission of the virus (4). HIV has been isolated from the tear fluid, conjunctiva of HIV positive but asymptomatic individuals (5). There have also been reports of health care workers who seroconverted following infected blood splash onto their mucous membranes and non-intact skin (6). The conjunctiva and cornea have also been recognized as a potential route for transmission of infection in the operating room personnel (7). These findings show that there is a risk of being infected while treating an unsuspected HIV positive patient.

In a study in the Eastern part of Nigeria, 5.3% of new patients seen in the eye clinic were HIV positive (8).

This study will estimate the prevalence of HIV infection among eye patients in this area to be able to plan and provide preventive measures that will reduce cross infection within the staff and patients. It will also attempt to discuss the various measures necessary to reduce occupational HIV infection and post exposure treatment if there is exposure.

## MATERIALS AND METHOD

This was a prospective study conducted in the eye clinic of LAUTECH Teaching Hospital and a private specialist clinic in Osogbo, Osun State, Nigeria. One thousand and sixty six (1066) new patients seen between July 2004 and May 2007 were included in the study. Osun state is situated in South Western Nigeria. It is bounded on the West and North West by Oyo State, on the East by Ondo State and on the South by Ogun State. Only new patients were included in the study. They were investigated using enzyme linked immuno sorbent assay (ELISA) technique after thorough pretest counseling. They were tested for both HIV 1 and 2 using immunocomb. Those who tested positive had confirmatory test using immunocomb II HIV 1 AND 2 Comb firm. Other information obtained included the age, sex, diagnosis and whether or not the patients needed surgery. Data obtained were presented in tables.

## RESULTS

One thousand and sixty six (1066) new patients were studied. Males predominate with a male to female ratio of 1.2: 1. Their ages ranged between 6 months and 90 years with a mean age of 47.53 years.

Twenty-nine patients (2.7%) were positive to HIV1. No patient was positive to HIV 2. There were 21 males (72.4%) and 8 females (27.6%). The clinical diagnosis in the HIV positive patients was as shown in Table 1. Cataract was found in nine

cases (31.03%), herpes zoster 4 (13.79%), glaucoma, optic atrophy (non-glaucomatous) and corneal abscess were responsible for 3 (10.35%) of cases each; presbyopia, bacterial conjunctivitis 2 (6.89%) while maculopathy, orbital cellulitis and adherent leucoma were found in 1 (3.45%) patient each.

**TABLE 1: HIV Positive Cases By Diagnosis**

Diagnosis	no of cases	%
Cataract	9.00	31.03
Herpes zoster	4.00	13.79
Glaucoma	3.00	10.35
Maculopathy	1.00	3.45
Non-glaucomatous		
Optic atrophy	3.00	10.35
Orbital cellulites	1.00	3.45
Corneal abscess	3.00	10.35
Adherent leucoma	1.00	3.45
Presbyopia	2.00	6.89
Bacterial conjunctivitis	2.00	6.89
Total	29.00	100.00

## DISCUSSION

According to the World Health Organization, the estimated total number of HIV-positive people worldwide has increased from 39.4 million in 2004 to 40.3 million and by the end of year 2005, there were between 1.7M to 4.2M Nigerians living with HIV/AIDS.

Reports from the 14th International AIDS Conference (Barcelona, Spain) project that, in the absence of an expanded prevention effort, there will be 45 million new HIV infections by 2010. It is estimated that 29 million of these infections could be prevented with the expansion of existing prevention strategies (3).

This study shows that patients with eye disorders may have been infected with HIV as twenty nine (2.7%) out of 1066 new patients who attended the eye clinic for one thing or the other were HIV

positive. This is lower than what was obtained in the eastern part of this country (8) and a previous study in this hospital (9) possibly due to the larger population in this study (1066) compared with 76 and 241 in those studies. Several workers who studied non-ophthalmic patients had prevalence rates of 5.4% in sexually transmitted disease and antenatal clinic attendees in Oyo State (10), and 2.4% in tuberculous patients in Lagos (11).

Male to female ratio in HIV positive patients was 1.2: 1. This contrasts with Nwosu's (8) study in which all HIV positive patients were males. The ages ranged between 20 and 61 years. 13 (44.8%) patients were aged 20-40 years. This supports previous findings in Western Nigeria (10) where the highest prevalence for HIV was found between 20 –39years. The 4 patients that had herpes zoster ophthalmicus were HIV positive and they were aged 22 and 43 years. This further confirms previous reports that Herpes zoster ophthalmicus in apparently healthy young adults is a marker of HIV in Africa (12).

Nine patients (37%) were cataract surgical patients and 3 patients had glaucoma. This is in contrast to the study in the Eastern part of Nigeria<sup>8</sup> where all the surgical patients were HIV negative.

It is therefore necessary that ophthalmic workers must observe all the rules for preventing HIV transmission during routine patient examination and surgical operations (5, 13). As a matter of fact, it may be necessary to screen routinely all patients going for surgery for HIV.

Young adults with Herpes zoster infection must be assumed positive to HIV until proven otherwise and rules for preventing HIV transmission to staff and other patients must be observed.

The increasing number of HIV positive people who are asymptomatic in this environment also calls for high index of suspicion and so appropriate steps

need be taken to avoid cross infection in clinical practice.

### **PREVENTIVE STRATEGIES**

All healthcare personnel should assume that blood and other body fluids (such as tears especially when contaminated with discharges or blood) from all patients are potentially infectious. They should therefore follow infection control precautions at all times. These precautions include:

1. The routine use of barriers (such as gloves and/or goggles) when anticipating contact with blood or body fluids
2. Washing hands and other skin surfaces immediately after contact with blood or body fluids, and
3. The careful handling and disposing of sharp instruments during and after use. There are safety devices which, if used properly may reduce the risk of exposure to HIV. Many percutaneous injuries are related to sharps disposal. Strategies for safer disposal, including safer design of disposal containers and placement of containers, are being developed.

Using universal precautions, along with personal protective equipment, engineering controls and other work practice controls, reduces employee exposure to blood borne pathogens. However, personal protective equipment may provide a barrier to protect skin and mucous membranes from contact with blood and other potentially infectious material, but most of them such as gloves can easily be penetrated by needles. There is therefore the need to prevent needle stick injuries. These are caused by unsafe needle devices rather than careless use by health care workers.<sup>14</sup> Safer needle devices that incorporate engineering controls have been shown to significantly reduce the incidence of accidental needle stick injuries and exposure to potentially fatal blood borne illnesses. The term, "safer needle device," is broad and

includes many different types of devices such as those that have a protective shield over the needle, self re-sheathing needles, blunted surgical needles) and those that do not use needles at all. The common feature of effective safer needle devices is that they reduce the risk of needle stick injuries for health care workers before, during, or after use through built-in safety features. Although all major medical device manufacturers market devices with safety features, no standard criteria exist for evaluating the safety claims of these features. Employers implementing needle stick prevention programs should evaluate the effectiveness of various devices in their specific settings. Also, the introduction of new devices must be accompanied by intensive staff education and training.

Despite precautions and safety devices, occupational exposures to HIV will continue to occur. Planning for such incidents and knowing how to treat exposed healthcare workers are paramount.

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