Nigerian Journal of Clinical Practice
December 2007. Vol 10(4):283-286

OCULAR DISORDERS IN PATIENTS INFECTED WITH THE HUMAN IMMUNODEFICIENCY VIRUS AT THE UNIVERSITY OF BENIN TEACHING HOSPITAL, BENIN CITY, NIGERIA

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ABSTRACT

Aims: Ocular diseases occur at all stages of HIV infection. Reports have documented that the prevalence of these diseases vary from region to region. Thus the objective of this study is to determine the prevalence of these ocular disorders among people infected with HIV at the University of Benin Teaching Hospital, Benin City, Nigeria

Methods: The study was prospective in design and all patients who tested positive for HIV antibodies over a 5-year period from September 1997 to August 2002 in Dermatology and Ophthalmology Units at the University of Benin Teaching Hospital (UBTH), Benin City, Nigeria, were examined for the presence of ocular disease.

Results: Twenty-one of the 526 HIV-positive patients had ocular disease, giving a prevalence rate of 4.0%. Their mean age was 39.5 ± 10.5 years. Fourteen patients (2.7%) had Herpes zoster ophthalmicus, four (0.8%) had Squamuos cell carcinoma, two (0.4%) had Kaposi's sarcoma while one (0.2%) had Cytomegalovirus retinitis. The signs seen on ocular examination were vesicular rash (66.7%) diminished vision (57.1%) corneal ulcers (38.0%), conjunctival injection (38.0%), and eyelid nodules (28.6%), preauricular lymphadenopathy (28.6%), purulent eye discharge (19.0), conjunctival nodules (9.5%), papilledema (9.5%), ptosis (9.5%), sudden visual loss in both eyes (9.5%), pupillary dilatation (4.8%), chemosis (4.8%), uveitis (4.8%), and retinal hemorrhage (4.8%).

Conclusions: In this study the prevalence of ocular disorders was 4.0% in the 526 HIV-positive patients studied. Herpes zoster ophthalmicus was the commonest ocular disease encountered, occurring in 2.7% of the study population. This is in keeping with reports from other parts of the world. We recommend that young patients presenting with Herpes zoster ophthalmicus, conjunctival Squamuos cell carcinoma and sudden onset bilateral blindness should be screened for HIV infection.

Key words: Ocular Disorders, HIV infection, University of Benin Teaching Hospital, Benin City.(*Accepted 26 January 2007)*

INTRODUCTION

The prevalence of Human Immunodeficiency virus (HIV) infection in Nigeria is currently estimated at 5.8%.[1] Current Worldwide estimates put the number of people already infected by HIV at 36.1 million, with the majority of these people living in Sub-Saharan Africa [2, 3]. Heterosexual transmission is the main mode of spread of the virus in Saharan Africa, where high transmission rates are associated with a high prevalence of other sexually transmitted diseases and casual unprotected sex with multiple partners [1-3]. There is a wide spectrum of Ocular disorders encountered in people who are infected with HIV. These include opportunistic and non-opportunistic infections of the eyes, HIV-related retinopathy, tumors and cutaneous hypersensitivity reactions [4-6]. The prevalence of these ocular diseases seems to differ in the various regions of the World [5 - 15]. There had been reports on the ocular diseases associated with HIV in Nigeria [8, 9,15], but these were mainly case reports. Thus the objective of this study is to document the pattern and prevalence of ocular diseases in persons infected by the Human Immunodeficiency virus at the University of Benin Teaching Hospital, Benin City, Nigeria.

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PATIENTS AND METHODS

All patients presenting to the Dermatology/Infectious diseases and Ophthalmology Units at the University

of Benin Teaching Hospital (UBTH), Benin City from September 1997 to August 2002, who were positive for HIV antibodies were recruited into the prospective study. These patients presented to the hospital first either at the Ophthalmology (because of Eye disease) or Dermatology clinics (because of skin rash on the face) and were subsequently managed jointly by both units.Each study subject was interviewed after consent was obtained from them to get details of the clinical history, epidemiological data and social history. A thorough physical examination including examination of the eyes by an ophthalmologist was conducted. Those with Ocular symptoms and signs were further examined by special tests. Examination of the Eyes included tests for visual acuity for near and distant vision, slit-lamp biomicroscopy, direct and binocular indirect ophthalmoscopy and intraocular pressure measured with Goldman applanation Tonometer attached to the slit-lamp. Fluorescein angiography and fundal photography were not done because these facilities were not available at our center. The screening for HIV antibodies was done using Wellcozyme Kits (Wellcome Laboratory, Dartford, England) and Rapid assay Kits- Immunocomb HIV 1 & 2 Bispot (PBS Organics, Cedes, France). Confirmation was by using the double test algorithm.

RESULTS

A total of 526 patients who tested positive for HIV antibodies were seen during the 6-year study period. Twenty-one of these patents had ocular diseases giving prevalence rate of 4.0 percent (4.0%). The mean age of patients with ocular disease is 39.5 ± 10.5 years. There were 10 male (47.6%) and 11 female (52.4%) patients giving a male to female sex ratio of 1 to 1.1 (Table 1)

The ocular diseases encountered in these patients includes fourteen patients (2.7%) with Herpes Zoster ophthalmicus, four (0.8%) with Squamuos cell carcinoma two (0.4%) with Kaposi's sarcoma involving the eyelids and conjunctiva and one patient (0.2%) with cytomegalovirus induced Retinitis (Table 2)The presenting symptoms in these patients were vesicular rash (66.7%), ocular pruritus (66.7%), headache (66.7%), hemi-facial pain (57.1%), deteriorating vision (57.7%) redness of Eye (38.0%), nodular lesions in the eyelids and eyes (28.6%). Other symptoms encountered were excessive tearing (28.6%), weakness (23.8%), fever (19.0%), insomnia (19.0%) and total loss of vision (9.5%). (Table 3)

The signs encountered in them during physical examination were vesicular rash (66.7%), various degrees of visual impairment visual acuity of between 6/18 and 6/60, (57.1%), corneal ulcer (38.0%), corneal edema (38.0%) conjunctival injection (38.0%) eyelid nodules (28.6%) lymphadenopathy (28.6%) purulent eye discharge (19.0%), conjunctival nodules (9.5%), papilledema (9.5%) ptosis (9.5%), complete visual loss i.e no light perception (9.5%) pupillary dilatation (4.0%), chemosis (4.8%), uveitis (4.0%) and retinal hemorrhages (4.8%). (Table 4) of the 2 patients who had complete visual loss (no light perception). One had Cytomegalovirus retinitis and the other had peforated herpetic corneal ulcer.

Table 1: **Age and Sex Distribution of Patients with ocular disease**

Age Range (Years)	Gender		Total (%)
	Male	Female	
20 29	1	3	4(19.0)
30 40	2	3	6(28.6)
40 49	3	2	6 (28.6)
50 59	4	3	5(23.8)
TOTAL	**10(47.6)**	**11(52.4)**	**21(100.0)**

Table 2: **Ocular Disorders in HIV Disease in Benin City, Nigeria**

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Diseases	Frequency *(n=526)	%
Herpes Zoster Ophthalmicus	14	2.7%
Squamous Cell Carcinoma	4	0.8%
Kaposi's Sarcoma	2	0.4%
**CMV Retinitis	1	0.2%
TOTAL	**21**	**(4.0%)**

* n = 526; Total number of Patients examined
** Cytomegalovirus (CMV) induced retinitis

Table 3: **Symptoms in Patients with ocular disease**

Symptom	Frequency *(n=21)	%
Vesicular Rash	14	66.7
Ocular pruritus	14	66.7
Headache	14	66.7
Hemifacial pain	12	57.1
Deteriorating vision	12	57.1
Redness of Eye	8	38.0
Nodular Lesions in Eyes/Eyelids	6	28.6
Excessive Tearing	6	28.6
Weakness	5	23.8
Fever	4	19.0
Insomnia	4	19.0
Complete visual loss (No light perception)	2	9.5

*Total number of patients with ocular disease

Table 4: **Signs in Patients with Ocular**

Sign	Frequency *(n=21)	%
Vesicular rash	14	66.7
Incomplete visual loss	12	57.1
Corneal ulcer	8	38.0
Corneal edema	8	38.0
Conjunctival injection	8	38.0
Eyelid nodules	6	28.6
Lymphadenopathy	6	28.6
Purulent discharge	4	19.0
Conjunctival nodules	2	9.5
Papilledema	2	9.5
Ptosis	2	9.5
Complete visual loss (No light perception	2	9.5
Pupillary dilatation	1	4.8
Uveitis	1	4.8
Chemosis	1	4.8
Retinal Haemorrhage	1	4.8

Total number of patients with ocular disease = 21
Note: Many patients had more than one ocular problem.

DISCUSSION

Ocular diseases occur at all stages of HIV infection[5,6, 11-13]. In this series the prevalence of ocular disorders was 4.0% in the 526 HIV-positive patients studied. Herpes Zoster ophthalmicus was the commonest ocular disease encountered, occurring in 2.7% of the study population. This is in keeping with reports from other parts of the world prevalence Of Herpes Zoster ophthalmicus in HIV infected people had been reported to be up to 10% [5, 11-13]. The disease tends to run a more severe course in these patients with corneal involvement severe scarring of the Eyelids and post herpetic Neuralgia [11, 12]. Herpes Zoster is a non-opportunistic infection and can occur at any stage of HIV infection, sometimes its occurrence is the first indication of the presence of HIV infection. This is in keeping with two previous reports from Nigeria [8, 9] on HIV infection and Herpes zoster ophthalmicus. Herpes Zoster ophthalmicus in the young is a marker for HIV infection in Africa with a high positive predictive value [13], our findings in this study are in agreement with this statement because most of our patients were young with a mean age of 39.5 ± 10.5 years.In this series, Herpes simplex virus keratitis was not a major problem among our patients seropositive for HIV, which is in agreement with findings from elsewhere [14] and in Nigeria [15]. Unlike the findings of Akinsola et al [15] from Lagos, Nigeria, who did not record any case of Squamous cell carcinoma of the conjunctiva in their 12-month study, four (0.8%) of our patients had Squamous cell carcinoma of the conjunctiva. These patients were all under 40 years of age and had very aggressive disease. Squamous cell carcinoma of the conjunctiva is the most common malignant conjunctival neoplasm in patients infected by HIV [16]. As clinicians become more aware of this relationship; we believe more cases would be identified. Traditionally, the risk factors for Squamous cell carcinoma of the conjunctiva include excessive exposure to ultraviolet light [17, 18] exposure to petroleum products, heavy cigarette smoking, light hair and ocular pigmentation, [18, 19] family origin in the British Isles, Austria or Switzerland, [19] and Human papilloma virus (HPV) infection. [20,21]. In addition to these, Human Immunodeficiency viral infection has become an important risk factor for Squamous cell carcinoma of the conjunctiva especially when it occurs in the younger age group.

In this study we found only one case (0.2%) of cytomegalovirus (CMV) induced retinitis. This is in keeping with reports from other studies that the frequency of cytomegalovirus (CMV) induced retinitis seems to be much lower in Sub- Saharan Africa[6,7] than in Europe or North America. The shorter life expectancy of patients infected with HIV in developing countries probably reduces the period of profound immunodeficiency during which patients are likely to develop cytomegalovirus (CMV) induced retinitis.

RECOMMENDATIONS

In view of the results obtained in this study we recommend that young patients presenting with Herpes zoster ophthalmicus, conjunctival Squamous cell carcinoma and sudden onset bilateral blindness should be screened for HIV infection, because these might be markers to the presence of HIV infection. This will allow for early detection and commencement of treatment before severe immunodeficiency develops.

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