

Ocular Manifestations of HIV/AIDS patients in Gondar University Hospital, north west Ethiopia

Yared Assefa¹, Asfawessen G/Yohannes², Azanaw Melese¹

Abstract

Background: AIDS is a disease with protean clinical manifestations that leave no organ of its victim unaffected. Ocular involvement in HIV/AIDS cases occurs in about 70% of patients. However, data regarding eye manifestations in HIV/AIDS patients in Ethiopia remain scarce.

Objective: To describe the ocular manifestations of HIV/AIDS documented at Gondar University Hospital.

Methods: A cross-sectional clinical evaluation of HIV/AIDS patients at Gondar Hospital University was undertaken between Jan and June 2004.

Results: One hundred and twenty five adult patients were enrolled in the Hospital from January to June 2004. The majority were males (N=69) and the mean age was 34 (range: 16-80 years). About 90% of the patients were in clinical stages III & IV determined according to the WHO clinical staging method in resource limited areas and 60% of them had at least one ocular manifestation. The ocular manifestations noted included: retinal microvasculopathy (24%), neuro-ophthalmic disorders (9.6%), uveitis (7.4%), ophthalmic Herpes Zoster (5.6%), Molluscum contagiosum (4.8%), and Conjunctival carcinoma (4%). One patient was found to have bilateral blindness due to CMV retinitis, while unilateral blindness was observed in six patients.

Conclusion: The study demonstrates that HIV/AIDS affects the eyes of a significant proportion of patients. It is, hence, recommended that eye care should be a part of the package of medical care in the management of HIV/AIDS patients. [*Ethiop.J.Health Dev.* 2006;20(3):166-169]

Introduction

Sub-Saharan Africa is home to more than 25 million people living with HIV/AIDS (PLHA) (1). Ethiopia is one of those countries that are significantly affected by HIV in the sub-continent with 4.4% of its more than 72 million population infected with HIV (2).

HIV affects the immune system, which can either directly inflict damage on organs of the body by itself and/or make the organs vulnerable to many opportunistic pathogens and diseases. There are a wide array of diseases affecting the eyes of PLHA that can occur at any time along the natural course of the disease.

The spectrum of ocular diseases in HIV-infected patients in developing countries is different from that in developed countries (3,4,5). Most notably, while antibodies against CMV are detectable in 90% of PLHA, CMV retinitis is rare (less than 5%) in AIDS patients in developing countries (6,7). Ocular manifestations affecting only one eye like Herpes Zoster Ophthalmicus and Conjunctival squamous cell carcinoma are, however, relatively common in developing countries (8,9). The reasons for such variations in distribution are presumed to be the early and high mortality rate in PLHA in developing countries, and possibly differences in HIV subtype, race, and the influence of co-morbid diseases (3,4,10).

In countries that have limited resources, and where clinical evaluation is an indispensable tool for the initiation of

antiretroviral drugs and drugs for opportunistic infections, an evaluation of the eyes of HIV infected patients should be part of the routine medical assessment. For example, while conducting diagnosis for CMV colitis may be impossible in many settings in developing countries, the diagnosis of CMV retinitis and other infectious retinitis could be undertaken with relative ease using indirect ophthalmoscopy. The importance of fostering collaboration between physicians that provide care to HIV-infected patients and ophthalmologists has been given emphasis by many studies (11,12). The spectrum of ocular disorders in HIV-infected patients in Ethiopia is not properly described. One study reported that more than 95% of patients with Herpes Zoster Ophthalmicus were HIV positive (13). The purpose of this report is, therefore, to describe the frequency and types of ocular disorders among symptomatic HIV/AIDS infected patients in Gondar University Hospital.

Patient and Methods

Gondar University Hospital is a tertiary referral and Teaching Hospital with more than 350 beds. It has an out patient department that renders services in various disciplines to about 300-400 patients every day. The Hospital has a Voluntary Counseling and Testing clinic where both self-referred individuals and physician-referred patients are tested for HIV. From January to the end of June 2004, about 858 individuals were tested for HIV and 27.8% of them were found to be positive.

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¹ Department of Ophthalmology, University of Gondar, 196 Gondar, Ethiopia, E-mail: assefabi2003@yahoo.com;

²Department of Internal Medicine, University of Gondar

This study is a cross-sectional study carried out between January and June 2004. The patients selected for the study were serology-proven HIV/AIDS patients attending the ophthalmic or the Infectious Diseases (ID) unit of the Hospital and who were admitted to the medical wards. The patients enrolled in the study did not began antiretroviral therapy, but have been referred for their initial follow up to the ID clinic, and were admitted to the medical wards or were visiting the eye clinic for general medical evaluation (history, physical examination, laboratory Investigations) and administration of a questionnaire. The clinical Stage of patients was determined based on the WHO recommendation for resource limited areas (26). Patients who gave consent were examined by an ophthalmologist. Thorough examination of the eyes, including external eye inspection, ocular motility and slit lamp examination of the external eye, as well as pupils, lens and the anterior vitreous was done in all the patients. Posterior segment was evaluated by examining dilated pupils using indirect Ophthalmoscope and Volk lens. When indicated, conjunctival and lid masses were subjected to histopathological examination. Blindness was defined as visual acuity (VA) less than counting finger (CF) at three meters with the better eye. Data collection and analysis was done using standard format & EPI info version 6 respectively.

Results

A total of 125 adult serology proven HIV/AIDS patients were enrolled in the study. The mean age was 34 (+SD) with a range of 18-60 years and 69 of them were male patients. About 90% of the patients were in WHO stages 3 and 4 indicating that a very high proportion of the patients visiting the Hospital were seriously sick patients with marked immune suppression. No asymptomatic (stage I) patients were observed (Table 1).

Table 1: WHO clinical stage of 125 HIV/AIDS patients, Gondar University Hospital, Gondar, northwest Ethiopia, 2004

WHO Stage	Number of Patients (%)
II	12 (9.6)
III	32 (25.6)
IV	81 (64.8)
Total	125 (100)

Ocular involvement was documented in 75 (60%) individuals. The eye manifestations observed included Retinal Microvasculopathy (RM) in 30 (24%), Neuroophthalmic disorders in 12 (9.6%), Uveitis in 9 (7.2%), ophthalmic herpes zoster (OHZ) in seven (5.6%), Molluscum Contagiosum in six (4.8%) and Conjunctival carcinoma in five (4%) (Table 2). One patient had bilateral blindness due to cytomegalovirus (CMV) retinitis. Six patients had unilateral blindness. The most common cause of unilateral blindness was OHZ in three followed by toxo retinochoroiditis in two and anterior uveitis of unknown aetiology in one individual. Visual acuity was not

determined in three patients because they were in critical condition.

Cotton wool spots were observed in 80% of the patients with RM followed by retinal haemorrhage and perivascular sheathing in a few patients. The most common presentation of neuro-ophthalmic disorders were papilledema followed by optic atrophy and cranial nerve palsy (III & VII). Two of the patients with papilledema were found to have Cryptococcal Meningitis. Two patients had subconjunctival haemorrhage, which was related to drug (Fansidar) intake in one of them. The hemorrhage in the second patient subsided spontaneously. The commonest opportunistic disease was found to be tuberculosis (40%). One patient had extensive Kaposi sarcoma, but it did not involve the eyes.

Table 2: Ocular manifestations related to HIV/AIDS in 125 patients, Gondar University Hospital, Northwest Ethiopia, 2004

Ocular diagnosis	Number of patients (%)
Retinal Microvasculopathy (RM)	30 (24)
Neuro-ophthalmic disorders	12 (9.6)
Uveitis	9 (7.2)
Ophthalmic herpes zoster	7 (5.6)
Molluscum Contagiosum	6 (4.8)
Conjunctival carcinoma	5 (4)
Seborrheic blepharitis	3 (2.4)
Vernal conjunctivitis	1 (0.8)
Sub conjunctival haemorrhage	2 (1.6)
Total	75 (60)

Discussion

The study demonstrated that most of the HIV/AIDS patients (90%) attending this particular Hospital are at later stages of the disease or at WHO stages III and IV. About two thirds of the patients had ocular complications of HIV. This is almost similar to the frequency of ocular complications reported from a study done in Senegal (11), but was higher than previous reports from Brundi and Malawi (Table 3). The fact that more than 90% of the patients are in the later stages of the disease may partially explain for the higher occurrence of eye manifestations in this study. In this study the most common ocular manifestation observed is RM (24%). Previous cross-sectional studies from other African countries show RM to be the most common, ranging between 10% and 42% (14,15). A report from India showed RM to be found in 50% of the study subjects (16). On the other hand prospective cohort studies from developed countries showed a high prevalence of RM (70%-80%) (17). The most common presentation of RM is the cotton wool spot, which may be transient and asymptomatic, and, hence, its magnitude could be underestimated by cross-sectional studies as is the case with this study and others from other African countries.

NA: Not Available

Table 3: Ocular manifestations of HIV/AIDS patients in Ethiopia and Other African Countries

Manifestation	Ethiopia (N=125)	Burundi (5) (n=154)	Malawi (15) (n=99)
Frequency of ocular manifestation	60%	19%	20%
Retinal Microvasculopathy	24%	16%	17%
Herpes zoster Ophthalmicus	5.6%	1%	NA
Anterior Uveitis	7.2%	4%	2%
CMV retinitis	<1%	1%	1%
Neuro-ophthalmic disorders	9.6%	NA	NA
Conjunctival carcinoma	4%	NA	NA

Neuro-ophthalmic disorders were observed in nearly 10% of the patients in this study and the most common presentation was papilledema followed by optic atrophy & cranial nerve (CN III & VI) palsy. This is in agreement with rates reported elsewhere (3). Two patients with papilledema had proven cryptococcal meningitis & visual acuity was not determined due their critical condition.

The most likely causes of uveitis were determined clinically. Three of the patients were presumed to be due to Toxioplasmosis, while the cause of uveitis was not established in the remaining six patients.

The possibility of syphilis was considered less likely because RPR was found to be negative in all the patients with uveitis. Tuberculosis was the most common systemic opportunistic disease in the study subjects though no evidence of ocular tuberculosis was noted in any of the patients with tuberculosis. Ruling out uveitis due to tuberculosis with a greater degree of certainty is difficult. Reports from other studies showed diagnostic challenges and underreporting regarding ocular involvement by tuberculosis and syphilis (18,19). OHZ was observed in 5.6% of the patients & was found to be the major cause of unilateral blindness in this study. This finding reflects the severity and magnitude of ocular involvement in HIV/AIDS, which is similar to previous reports (8,20). OHZ is an early marker for the presence of HIV infection. In this study, it was also found to be an important cause of unilateral blindness due to severe involvement of the eyes, late presentation of patients and failure of early referral of patients to ophthalmologists by primary health care professionals.

MC was observed in 4.8% of the patients, which is similar to that reported by Tchachler E & colleagues (21).

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Conjunctival carcinoma was found in four of the study patients among which, three were below the age of 40yrs. This problem is reported to show a four to ten fold increase according to different experiences and about 80% patients with these lesions were found to be sero-positive for HIV (22,23). Therefore, any unusual conjunctival mass in HIV infected patients should be biopsed and subjected to histopathologic examination. The other malignancy involving the eye i.e. Kaposi's sarcoma was found in 20% of the patients with systemic Kaposi's sarcoma, but there

was no ocular involvement in our patients (24). Subconjunctival haemorrhage was observed in two patients. In one of the patients the haemorrhage was drug induced (Fansidar) pancytopenia and the problem gradually disappeared when the patient stopped taking the drug. The haemorrhage in the second patient subsided spontaneously and this may be attributed to some other spontaneous causes.

Blindness was present in only one patient due to CMV retinitis, which is comparable to reports from other African countries (Table 3). This is paradox to the very high rate of exposure to CMV indicated by the presence of antibodies against CMV in more than 90% of adults (5,7). In the pre-HAART era, the prevalence of CMV retinitis in developed world was 30-40% (3). This remarkable difference might be explained by the high and early mortality in African patients and, more over, many patients in Africa spend the last days of their lives at home when they are critically ill (4,5). It is also possible that HIV subtype, racial variation and co-morbid illnesses could contribute to the rarity of CMV retinitis in developing countries (10). Being a cross sectional study, this study has taken into account the few number of blind HIV/AIDS patients and may not be representing the majority that spend the last days of their lives at home and in darkness. For logistic reasons dry eye syndrome and CD4 level in relation to ocular involvement were not evaluated. Despite the shortcomings, the importance of thorough eye evaluation in resource limited areas has been shown to be helpful in the diagnosis of systemic illnesses with diagnostic challenges. In conclusion, this study has shown the involvement of the eye in HIV/AIDS to be significant. Additionally, it has also shown its impact on eye care and the importance of eye care in HIV/AIDS patients. This study recommends further studies to be conducted as the pattern of ocular manifestations may show changes due to the recent introduction of antiretroviral therapy (ART) in

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