

OCULAR MANIFESTATIONS RELATED TO HIV/ AIDS AT KIGALI UNIVERSITY TEACHING HOSPITAL

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ABSTRACT

Background: There has been a worldwide increase in the incidence of HIV infection in recent years and ocular complications occur in about 70% of AIDS patients. At Kigali University Teaching Hospital, no study has been conducted recently on HIV eye related complications. An understanding of the ophthalmic presentations of HIV/AIDS in our environment is important in the early recognition and prompt management of these disorders.

Objective: The objective of this study is to describe the ocular manifestations in HIV/ AIDS patients examined at KUTH.

Method: Retrospective study.

Setting: Kigali University Teaching Hospital.

Subjects: Records of 45 HIV/ AIDS patients with ocular related disorders seen in KUTH between January 2008 and September 2009 were reviewed from a total of 459 examined HIV/AIDS patients and 10439 ophthalmologic evaluations.

Results: The mean age was 35 years with SD of 11; female's patients were 55.6%, with a male-female ratio of 1.3. Herpes Zoster Ophthalmicus (20%) and conjunctival squamous cell carcinoma (17.8%) were the most frequent complications. The majority of patients (75.6%) were diagnosed with HIV/AIDS related ophthalmic complications before taking HAART.

Conclusion: Herpes Zoster Ophthalmicus and conjunctival squamous cell carcinoma were the leading complications. Majority of affected patients were adult females. They were diagnosed to have HIV related eye problems before they have been treated with HAART.

Key-words : Ocular complications - HIV-AIDS - KUTH - HZO - Squamous cell carcinoma - HAART

RESUME

Introduction: L'incidence de l'infection VIH a connu une augmentation importante ces dernières années; avec des complications oculaires se produisant dans environ 70% de cas. Aucune étude récente n'a été réalisée au CHUK sur les complications oculaires liées à ce syndrome. Une bonne connaissance des présentations ophtalmologiques liées au VIH/ SIDA dans notre environnement est essentiel dans le diagnostic et le traitement précoce de ces complications.

Objectif: L'objectif de cette étude est de déterminer les complications oculaires chez les patients VIH/SIDA examinés au KUTH.

Méthode: Étude rétrospective.

Sites: Centre Hospitalier et Universitaire de Kigali.

Sujets: 45 patients présentant des manifestations oculaires liées au VIH/SIDA ont été examinés dans le département d'ophtalmologie/ CHUK entre janvier 2008 et septembre 2009, sur un total de 459 patients HIV positif et 10439 consultations.

Résultats: L'âge moyen était de 35 ans avec un écart type de 11. Les patients femmes représentaient 55.6% de cas, avec un ratio homme-femme de 1.3. Le zona ophtalmique (20%) et le carcinoma squameux des conjonctives (17.8%) étaient les complications les plus fréquentes. La majorité de patients (75.6%) a été diagnostiquée avec des complications oculaires liées au VIH/ SIDA avant la prise du traitement antiretroviral.

Conclusion: Le zona ophtalmique et le carcinome squameux des conjonctives étaient les principales complications oculaires. La majorité de patient était femme et était diagnostiquée avec des manifestations oculaires liées au HIV avant qu'elles aient commencé le traitement antiretroviral.

Mots Clés: Complications oculaires - VIH-SIDA - CHUK - Zona ophtalmique - Carcinome de cellules squameux - ARV

INTRODUCTION

The Human Immunodeficiency Virus (HIV) is a retrovirus transmitted through blood or bodily secretions such as semen and it causes Acquired Immune Deficiency Syndrome by destroying CD4 T-cell [1]. This syndrome is characterized by decreased body immunity so that even microorganisms which are normally harmless can cause severe diseases. Those diseases, commonly called opportunistic diseases can involve different organs of the body including the eye [2]. The first cases of AIDS were identified in Rwanda in the year 1983 at Kigali University Teaching Hospital [3]. According to the Demographic

and Health Survey done in 2005, the prevalence of HIV/AIDS in Rwanda is of 3% at national level, 7.7% in urban settings and 2.3% in rural areas. This survey also showed that women are the most infected by HIV with the prevalence rate of 3.6% against men with 2.3%. The age group with the lowest prevalence is that aged 15-19 with the rate of 0.5%. The age group with the highest prevalence rate is that aged 40-44 with the rate of 6.6% [4]. HIV/ AIDS related ocular complications affect 70% of HIV positive patients, although the type of manifestations seen in developing countries varies in comparison to those reported in the developed world [5]. CMV retinitis has been recognized as the most common ophthalmic manifestation in the West, in AIDS patients; Herpes zoster ophthalmicus

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and conjunctival squamous cell carcinoma are relatively common in developing countries [6]. An understanding of the ophthalmic presentations of HIV/AIDS in our environment is important in the early recognition and prompt management of these disorders, as well as aiding in the planning and provision of facilities for the appropriate care of affected persons [7]. The widespread use of HAART in the developed world has resulted in a sharp decline in the incidence of AIDS related ophthalmic infections such as CMV retinitis [8]. In general, CD4 count has been used to predict the onset of certain ocular infections in AIDS patients, CD4 count less than 500 cells/mm³ is associated with Kaposi sarcoma, CD4 count less than 100 cells/mm³ is associated with retinal or conjunctival microvasculopathy, varicella-zoster virus (VZV) retinitis and there is a significant incidence of CMV retinitis in patients with CD4 counts less than 50 cells/mm³; therefore, a screening program is advisable [9], [10]. The objective of this study is to describe the ocular manifestations in HIV/AIDS patients examined at KUTH.

MATERIALS AND METHODS

This was a retrospective study on records of HIV/AIDS patients examined at KUTH/ Ophthalmology Department,

from January 2008 to September 2009 and included 45 HIV (9.8%) patients with ocular related disorders from a total of 459 examined HIV/AIDS patients and 10439 ophthalmologic evaluations. Were included in this study record of patients with ocular complications related to HIV/AIDS who consulted at KUTH/ Ophthalmology Department. Records of those with other blinding diseases which can cause similar ocular complications were excluded from this study; in total 9 patients were excluded: 2 cases of toxocara, 5 advanced proliferative diabetic retinopathy, 2 age related macular degeneration. Demographic details, findings on examination, details about the ocular complication related to AIDS, CD4 count were all obtained from patient's records. All data obtained were recorded in questionnaires and analyzed using Statistical Package for the Social Sciences.

RESULTS

From a total of 459 examined HIV positive patients, 9.8% of patients showed ocular related HIV/AIDS complications. The majority of patients were in the age group of 20 to 40 years; with a pick between 30-40 years (Table 1). The mean was 35.2 and SD was 10.5. Females were more affected than males, with a ratio of 1.3.

Table 1: Distribution by age and sex

Age	Male	%	Female	%	Total	%
< 10	0	0	0	0	0	0
10- 20	1	2.2	2	4.4	3	6.6
20- 30	4	8.8	7	15.5	11	24.4
30- 40	7	15.5	11	24.4	18	40
40- 50	7	15.5	3	6.6	10	22.2
50- 60	1	2.2	1	2.2	2	4.4
>60	0	0	1	2.2	1	2.2
Total	20	44.2	25	55.3	45	100

Table 2: Distribution according to the duration of the disease

Duration of disease (years)	Number	%
<1 year	8	17.7
1- 5 years	17	37.7
6- 10 years	8	17.7
11- 15 years	1	2.2
Unknown	11	24.4
Total	45	100

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Table 3: Distribution of patients with HIV/ AIDS related ophthalmic complications according to the use of HAART

Distribution of patients with HIV/ AIDS related ophthalmic complications according to the use of HAART	Number	%
Patients diagnosed before taking HAART	34	75.6
Patients diagnosed while taking HAART	11	24.4
Total	45	100

Table 4 : Distribution according to patient's recent known CD4 counts

Recent known patient's CD4 count	Number	%
< 50/ mm ³	4	8.9
50-200/ mm ³	20	44.4
201-350/ mm ³	11	24.4
351-500/ mm ³	3	6.7
> 500/ mm ³	1	2.2
Unknown	6	13.3
Total	45	100

The majority of patients included in this study was known to be HIV positive for 1 to 5 years (Table 2). However 24.4 % of patients had unknown duration of the disease. The majority of patients (75.6%) were diagnosed with HIV/ AIDS related ophthalmic complications before they were started on HAART (Table 3). Majority (53.3%) of patients had recent known CD4 count ranging between 50-200/ mm³ (Table 4). However 13.3% of patients had no CD4 count recorded. Herpes zoster ophthalmicus and conjunctival squamous cell carcinoma were the most observed HIV related eye problems (Table 5).

DISCUSSION

HIV positive patients are prone to have a wide range of HIV related eye disorders which can lead to a large number of complications [11], [12], [13]. In our setting, about 9,8% of patients developed ocular related HIV/ AIDS complications. This is lower compared to hospital based studies reported in Burundi (19%), Malawi (20%) and Ethiopia (60%) [14]. The explanation to this low percentage may be the fact that KUTH is the main referral hospital of Rwanda, with better coverage in HIV/ AIDS medications, with reduced ocular complications related to

HIV/ ADS. The retrospective nature of this study and the fact that many HIV patients are being treated in HIV clinics or in internal medicine department could be other tentative explanations to this low percentage. The majority of patients were aged between 25-45 years with a mean of 35.2 years and 55.6% of them were female with a ratio of 1.3. This result could be explained by the fact that in Rwanda, adult patients are the more affected by HIV, the same for women who are also more affected than male [4]. The majority of patients (75.6%) were diagnosed to have HIV related eye problems before they have been treated with HAART. This is similar to many studies performed in developing countries [7,8,9]. Even though KUTH is considered as well covered in HAART, it is obvious that many patients are still diagnosed HIV positive while they are consulting already for HIV related eye complications. The availability of HAART is very important but not enough alone for reduction of HIV/ AIDS related ocular complications. There is an urgent need of improving strategies on education of our communities about this condition. Herpes zoster ophthalmicus was described as the most common ocular manifestation related to HIV with 22.2%. The majority of cases seen in this study presented with HZO without knowing that there were HIV positive. Herpes zoster ophthalmicus is a recognised complication

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Table 5 : Distribution according to HIV/ AIDS related eye disorders

HIV/ AIDS related eye disorder	Number	%
Herpes Zoster Ophthalmicus	9	20%
Conjunctival squamous cell carcinoma	8	17.8%
CMV retinitis	6	13.3%
Uveitis	6	13.3%
Blepharitis	3	6.7%
HIV retinopathy	4	8.8%
Molluscum contagiosum	1	2.2%
Toxoplasmosis	1	2.2%
Others	7	15.5%
Total	45	100 %

in both the early and the late stages of HIV infection. It is caused by reactivation of varicella zoster infection and is commonly associated with a keratitis or an anterior uveitis. Diagnosis in all cases was clinical and included hemifacial maculo-papulo-vesicular skin rash with ptosis, conjunctivitis, episcleritis, scleritis, uveitis, kerato-uveitis, corneal ulceration, corneal perforation, phthisis bulbi. 2 patients developed corneal perforation, which sealed 2 weeks later. Although HZO has been described as the leading ocular manifestations in developing countries [1], [7]; some studies performed in Asia and Africa showed low prevalence of HZO [10] [15]. This could be due to the fact that developing countries with medium income have good coverage in HIV/ AIDS medications and low percentage of ocular manifestations related to HIV/ AIDS. Conjunctival squamous cell carcinoma was the second leading ocular manifestation related to HIV/AIDS with 17.8%. Several studies describe an aggressive form of squamous cell carcinoma in HIV/ AIDS patients [11], [12]. This study revealed 3 HIV patients who were diagnosed with ocular squamous cell carcinoma as the reason for the first consultation, and 2 of them ended up by having total exenteration. Several studies in developing countries have described squamous cell carcinoma as one of the most common ocular manifestation related to HIV/ AIDS [9], [15]. However, this is in disagreement with many studies from India which report such manifestation to be rare [16], [17], [18]. CMV retinitis tends to occur in advanced HIV infections, usually once the CD4 count is below 50 cells/ μ l. In our setting, CMV retinitis was found with 13.3%. CMV retinitis seems to have been less prevalent in developing than in industrialized countries, at least prior to the advent of HAART. This lower prevalence is probably not a result of lower incidence, but is due to the very short survival time of patients in these regions once they develop CMV retinitis, because of lack of enough HAART [13], [14], [19]. The combination of HAART and effective anti-CMV drugs has markedly improved the

visual prognosis for patients with CMV retinitis and has dramatically reduced the risk of developing bilateral blinding disease in the industrialized world. The protective effect of HAART on ocular related complications has been described as a result of the reconstitution of T-lymphocytes responses to a variety of pathogens, including HIV, following HAART [6]. However, HAART has shown paradoxical inflammatory complications attributed to the immune reconstitution. This study documented 3 patients with immune recovery uveitis; this is in agreement with many studies which report this manifestation to be rare [14], [15].

CONCLUSION

This study described Herpes zoster ophthalmicus and conjunctival squamous cell carcinoma as the most frequent HIV related ocular disorders. Majority of affected patients were female adults. The majority of patients were diagnosed to have HIV related eye problems before they have been treated with HAART.

This gives the opportunity to suggest that every HIV positive patient must be followed by an ophthalmologist for early diagnosis and management of HIV/AIDS related ocular disorders. In settings with limited number of ophthalmologists, medical personal should be taught to recognize, appropriately treat or refer ocular complications of HIV/ AIDS. There is a need to provide free and highly subsidized HAART drugs to HIV positive persons to lengthen life span, improve quality of life and reduce blindness and visual/ other impairment. A prospective study must be performed so that complete data can be obtained.

The study had limitations due to loss of records and missing information in the records. Some of the limitations of the study include the inability to address the cause-effect relationship, as it was not a prospective study, and the lack of a control group for comparison. The other limitation could

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be the under reporting issue because of many HIV patients being treated in the Internal Medicine Department/ KUTH or in HIV clinics of the Ministry of Health.

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