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HIV & EYE: A SUNDRY AFFAIR

Microbiology

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ABSTRACT

Aim: To determine the pattern of ocular manifestations of HIV/AIDS and their correlation with CD4-count in Western odisha .

Methods: A hospital based observational study was done on 28 HIV-positive patients presenting to ART center with ocular complaints. Data were collected using proper history taking, clinical examination, slit lamp examination, fundus examination, and laboratory investigations.

Results. Out of 28 patients, 16 were males and 12 were females with mean age of 42 years. HIV retinopathy was the most common HIV-associated ophthalmic lesion while anterior uveitis was the most common anterior segment finding. Posterior segment lesions showed significant association with low CD4-count of the patient. CMV retinitis, retinal detachment, chorioretinitis, and acute retinal necrosis were all seen in patients with CD4-count less than 100 cells/mm3.

Conclusions-MCMV retinitis, herpes zoster ophthalmicus, and anterior uveitis are common ocular manifestations associated with HIV infection. Low CD4-count is a risk as well as predictor for ocular manifestations.

KEYWORDS

INTRODUCTION

HIV causes a wide spectrum of diseases. Ocular involvement in AIDS is very common and includes various clinical presentations[1-7]. Among HIV-positive individuals, the lifetime cumulative risk for developing at least one abnormal ocular lesion ranges from 52% to 100% in various studies [8]. Such lesions are varied and affect almost any structure of the eye. Ocular lesions usually occur in the late phase of HIV infection but can also be the presenting manifestation of the disease. Various ocular manifestations—including cytomegalovirus (CMV) retinitis, ocular tuberculosis, and toxoplasma retinochoroiditis —are considered to be AIDS-defining conditions.

These ocular manifestations can be the presenting signs of a systemic infection in an otherwise asymptomatic HIV-positive patient. The severity of ophthalmic sequelae of HIV infection increases as immunocompetency decreases.

There is a large body of literature now which describes ocular manifestations of HIV infection/AIDS in developed countries and tremendous strides have been made to understand the disease process and its serious complications.[1-7] However, this pattern of ocular morbidity associated with HIV infection/AIDS in developed countries may not be representative of the epidemiology of the disease in the developing countries because of the real paucity of reports from these areas. There have been very few reports from India,[9,10,11] which further indicates that the epidemiology of ocular manifestations of HIV infection/AIDS in India is not well understood.

Herein we present the current pattern of ocular manifestations in retropositive patients who either presented directly or were referred from ART centre for ocular complaints.

MATERIALS AND METHODS

Study Design

The present study was a hospital based observational cross-sectional study carried out at the Department of Ophthalmology and Microbiology, VSSIMSAR, Burla over a period of 2 years

Inclusion Criteria

HIV-positive patients registered at the ART centre and referred to Ophthalmology OPD for ocular complaints were included in the study. Patients presenting to ophthalmology OPD directly who were not originally known to be HIV-positive and were subsequently tested for and diagnosed to be HIV-positive because of suspicious ocular lesions were also included.

Data Collection

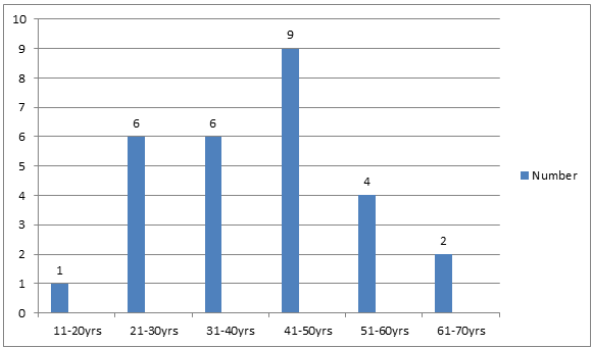
Data was collected using detailed history, clinical examination, and laboratory investigations. Distance and near vision were tested using Snellen's distance and Jaeger near vision chart, respectively. Anterior segment examination was done with the help of slit lamp biomicroscope. Fundus examination with indirect ophthalmoscopy was done in all patients. CD4-count was obtained in all cases.

Serologic tests (ELISA for IgM Abs) for Herpes Simplex Virus (HSV), Herpes Zoster Virus (HZV), Cytomegalovirus (CMV), and Toxoplasma were carried out using commercially available kits. For all patients, purified protein derivative skin test, VDRL/ TPHA, and chest X-ray were performed.

RESULTS

28 HIV-positive patients with ocular complaints were included in the study. There were 16 males and 12 females. Male-to-female ratio was 1.33 : 1. Age of the patients ranged between 18years and 65 years with a mean age of 44 years.

Age wise distribution of patients



A total of 18 patients (64.28%) had anterior segment lesions. The most common anterior segment finding was anterior uveitis and herpes zoster ophthalmicus (4 patients each, 14.28%) followed by viral keratitis(10.71%). Other lesions seen in the anterior segment were blepharitis, ocular surface squamous neoplasia (OSSN), basal cell carcinoma and chronic dacryocystitis

ADNEXAL & ANTERIOR SEGMENT LESIONS	NUMBER OF CASES Total= 18	PERCENTAGE OUT OF TOTAL
Anterior Uveitis	4	14.28%
Herpes Zoster Ophthalmicus	4	14.28%
Viral Keratitis	3	10.71%
Blepharitis	2	7.14%
OSSN	1	3.57%
Basal cell carcinoma	2	7.14%
Chronic dacryocystitis	2	7.14%

Out of 28 patients, 10 patients (35.71%) had posterior segment lesions. Opportunistic infections of the retina and choroid were the most common posterior segment finding seen in 7 patients. CMV retinitis (10.71%) was the most common opportunistic infection of the retina/choroid followed by toxoplasmosis and tuberculosis. Other lesions seen were optic neuritis, retinal vascular occlusion and acute retinal necrosis (ARN)

POSTERIOR SEGMENT LESIONS	NUMBER OF CASES (Total=10)	Percentage
CMV Retinitis	3	10.71%
Toxoplasma retinochoroiditis	2	7.14%
Tubercular chorioretinitis	2	7.14%
Optic neuritis	1	3.57%
Retinal vascular occlusion	1	3.57%
ARN	1	3.57%

The mean CD4-counts of the patients were more of those having anterior segment lesions (mean CD4-count: 315 cells/mm3) than those having posterior segment lesions (mean CD4-count: 170 cells/mm3

DISCUSSION

A total of 28 HIV-positive patients reporting ocular complaints were recruited in the study and examined. Male-to-female ratio was 1.33:1 with males comprising 57.14% of cases which is less than 61% reflected from the national statistics of HIV population[12]. Studies related to ocular manifestations of HIV carried out at various other centers like those done by Ebana Mvogo et al. and Assefa et al. also showed slight male preponderance as seen in our study[13,14].

Anterior Segment Findings

In our study, 64.28% of cases had anterior segment manifestations. Similar percentage of anterior segment involvement cases were reported by Assefa et al.[14].

Anterior uveitis (14.28%) was the most common anterior segment finding along with herpes zoster ophthalmicus viral keratitis were found in10.71% patients. This was similar to findings reported by Ndoye et al. and Ebana Mvogo et al.[13,15].

OSSN was found in 1 (3.575%) of the study patients and below the age of 50 years. HIV-induced immunosuppression resulting in reduction in the effectiveness of the immune surveillance system has already been proven to be a risk factor for squamous cell carcinoma of the conjunctiva in a case control study in Rwanda by Kestelyn et al[16]. There was not even a single case of Kaposi's sarcoma in our study as was the case in many other Indian studies. This may possibly be due to the rarity of the human herpes virus 8 in the Indian subcontinent and human herpes virus 8 has been implicated in the causation of Kaposi's sarcoma[17,18].

We also report 2 cases each of basal cell carcinoma and chronic dacryocystitis in our study population

Posterior Segment Findings

Posterior segment lesions were seen in 10 patients (35.71%). The most common posterior segment lesion was CMV Retinitis in 10.71% of patients. This finding correlates with the study by Biswas et al. (12.8%) in India but is quite less than compared to similar studies in USA (Holland et al., 53%, and Kuppermann et al., 45%) and Africa (Kestelyn et al., 30%)[19,16,20,21].

The most common ophthalmic opportunistic infection seen in the study was CMV retinitis (10.71%). This is similar to frequency of CMV retinitis reported in other studies from India like those done by Gharai et al. (20%), Pathai et al. (11.9%), and Biswas et al. (17%)[19,22,23].

However studies from Africa have reported very less frequency of CMV retinitis (around 1% or less)[14,24,15]. The low prevalence of CMV retinitis in countries of Africa as compared to America and Europe may not be a direct reflection of lower incidence but possibly reflects that the patients die from systemic opportunistic infections before their CD4-count falls low enough to allow development of CMV retinitis.

Ocular toxoplasmosis and tubercular chorioretinitis were the next most common ocular opportunistic infection and was seen in 2 patients each (7.14%). Sudharshan et al. in their study on 1000 consecutive HIV-positive patients in India found the frequency of ocular toxoplasmosis to be 4.1% which is similar to that found in our study[25].

CONCLUSIONS

Ocular manifestations in HIV/AIDS affect mainly the economically productive and socially important age group of 20 to 50 years with slight male preponderance. Adnexal and anterior segment lesions were the most common ocular lesion encountered in our study. CMV retinitis was the most common posterior sement lesion with severe degree of visual impairment and poor immune status. Anterior uveitis was the most common anterior segment manifestation. Systemic tuberculosis was the most common coexistent systemic disease in our study. The percentage of posterior segment ocular manifestations of HIV increased as the CD4-count of HIV-positive patients decreased. The severity of ocular manifestations in HIV/AIDS with respect to visual impairment was higher in patients with low CD4-counts. Hence the patients with serological diagnosis of HIV should be examined for ocular involvement and correlated to CD4-count for treatment and better visual prognosis.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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