A CLINICAL STUDY OF OCULAR COMPLICATIONS OF HIV

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ABSTRACT

BACKGROUND

HIV infection can manifest in a variety of ways in and around the eyes and these manifestations vary according to HIV disease severity. The ophthalmologist has an important role in the diagnosis and management of ocular complications of HIV. The eye is the most common organ affected due to HIV. Ocular involvement in HIV is about 50-70%. Ocular lesions are varied and affect almost all structures of the eye.

The aim of the study is to study the ocular complications in HIV patients attending at Government General Hospital, Kakinada, from January 2014 to August 2016.

MATERIALS AND METHODS

This is a longitudinal study included 200 cases with ocular complications admitted in ophthalmic wards of Government General Hospital, Kakinada, and referrals from STD, TB and other departments during the period of January 2014 to August 2016.

RESULTS

The observations from the study were analysed and compared with the existing literature.

CONCLUSION

HIV can affect the various structures of the eye and adnexa.

KEYWORDS

AIDS, Herpes Simplex Keratitis, Herpes Zoster Ophthalmicus, CMV Retinitis.

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BACKGROUND

The Human Immunodeficiency Virus (HIV) is a lentivirus (a subgroup of retrovirus) that causes HIV infection and Acquired Immunodeficiency Syndrome (AIDS). AIDS is a condition in humans in which progressive failure of the immune system allows life-threatening opportunistic infections. This study was undertaken primarily to study ophthalmologic aspects of HIV infected and AIDS patients to determine the prevalence and frequency of common ocular manifestations in HIV.

Numerous ophthalmic manifestations of HIV infection may involve the anterior or posterior segment of the eye. Anterior segment findings include tumours of the periocular tissues and a variety of external infections. Posterior segment changes include an HIV-associated retinopathy and a number of opportunistic infections of the retina and choroid. Ocular manifestation is very common and broad from a wide variety of complications in patients suffering from HIV/AIDS. It involves any part of the eye from the adnexa and anterior segment to posterior segment including orbital and the optic nerve.[1] Lower CD4 + T cell counts coupled with age were predisposing factors to HIV-related ocular complications.[2]

The increasing longevity of individuals with HIV disease may result in greater numbers of patients with opportunistic infections of the retina. Due to the potentially devastating and rapid course of retinal infections, all persons with HIV disease should undergo routine ophthalmologic evaluations. Clinical monitoring will include staging of the HIV/AIDS disease using either the presence or absence of HIV-related signs and symptoms using the WHO staging system.[3] Any HIV-infected person who experiences ocular symptoms also should receive prompt and competent ophthalmologic care.

It's an alarming sign to assess various clinical complications of HIV disease and to create awareness about the importance of these complications amongst the clinicians to know the clinical progress and response to various treatment modalities of these diseases. The present study was based on clinical profile of patients presenting primarily with ocular complications and evaluate the amount of visual handicap in HIV/AIDS patients by early diagnosis and prompt treatment. Subtle abnormalities of vision (decreased contrast sensitivity, abnormal colour vision, visual field loss, abnormal results on other psychophysical tests) in the absence of ocular opportunistic infections and in the absence of media opacities are more common in patients with Human Immunodeficiency (HIV) infection than in the general HIV-uninfected population.[4]

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Aim- The aim of the study is to evaluate the incidence and extent of involvement of ocular structures in HIV patients who attended the Government General Hospital, Kakinada, during the period of January 2014-August 2016.

MATERIALS AND METHODS

This is a longitudinal study of 200 patients of HIV with ocular complications who were attended the Department of Ophthalmology, Government General Hospital, Kakinada.

RESULTS

The observations and results from the study were analysed and compared with the existing literature.

Age Distribution- Two hundred patients were examined; 156 were males and 44 were females. Majority of these cases belongs to age group of 20 and 40 years. It was observed that most of the patients were in the age group of 21-30 years, which accounts for 50%. The youngest patients were 8-year-old (one male and one female), oldest 60 years male.

Age in Years	Number of HIV Cases	Percentage
1-10	4	2%
11-20	10	5%
21-30	100	50%
31-40	48	24%
41-50	22	11%
51-60	16	8%
Total	**200**	**100%**

Table 1. Showing Age Distribution of HIV Patients

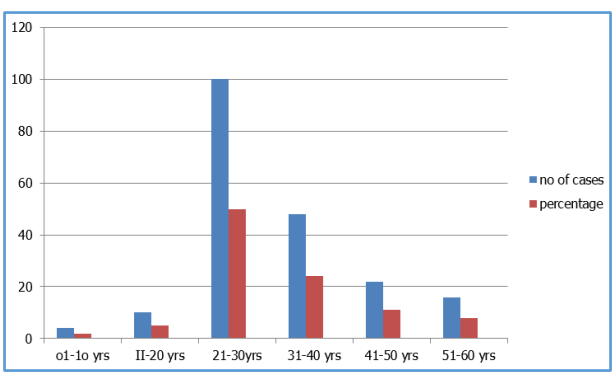

Figure 1. Showing Age Distribution of HIV Patients

Sex Distribution- It was observed that male patients were affected more than females, i.e. 78% were males and females were 22%.

Category	Number of Cases	Percentage
Males	156	78%
Females	44	22%
Total	**200**	**100%**

Table 2. Showing Sex Distribution of HIV Cases

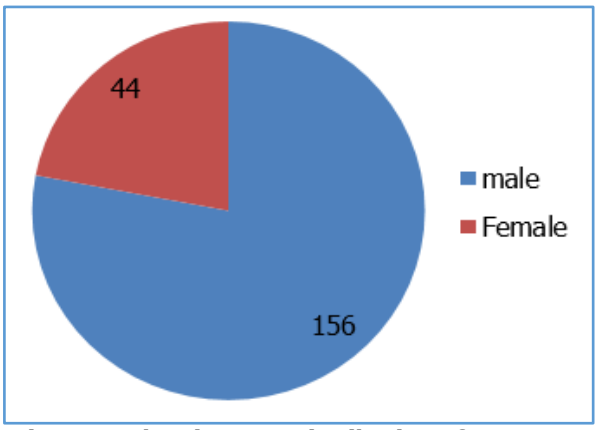

Figure 2. Showing Sex Distribution of HIV Cases

Number of Sexual Contacts- Out of 200 patients, 108 male patients had multiple sexual contacts with commercial sex workers. 28 had single exposure to CSW and 18 patients did not give any history of sexual contracts.

Males	Number of Sexual Contacts Commercial Sex Workers
108	Multiple
28	Single
18	No history of contacts

Table 3. Showing Number of Sexual Contacts in HIV Patients

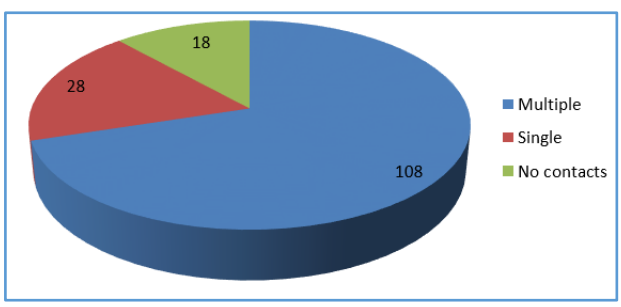

Figure 3. Showing Number of Sexual Contacts in HIV Patients

Marital Status- It was observed that, out of these, 200 patients, 110 married, 82 were unmarried and 8 widows. Out of the 44 female patients, 30 were housewives, 4 were commercial sex workers, 4 were unmarried and 8 were widows. Out of 156 male patients, 80 were married and 76 were unmarried.

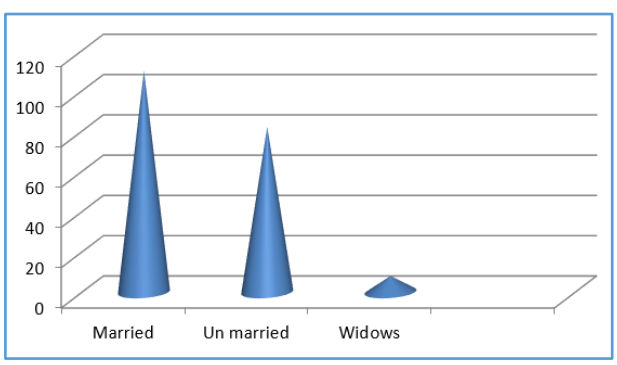

Figure 4. Showing Marital Status of HIV Patients

Category	Number of HIV Cases
Married	110
Unmarried	82
Widows	8
Table 4. Showing Marital Status of HIV Patients	

Mode of Transmission- It was observed that the predominant mode of transmission was heterosexual in 194 patients, homosexual transmission in 2 patients and through blood transfusion in 4 patients.

Type	Number of Cases
Heterosexual	194
Homosexual	2
Blood transmission	4
Table 5. Showing Mode of Transmission of HIV	

Occupation- It was observed that out of 200 HIV cases, 94 were manual labourers, 30 were housewives, 28 were drivers, 8 students, 10 businessmen, 20 destitute, 6 were clerks and 4 were CWCS. Out of 30 housewives, 14 could bring their husbands for HIV screening. All were HIV positive and asymptomatic. Out of 80 married males, 38 brought their wives for HIV screening.

Category	Number of Patients
Labourers	94
Housewives	30
Drivers	28
Students	8
Businessmen	10
Destitute	20
Clerks	6
Commercial sex workers	4
Total	**200**
Table 6. Showing Distribution of Occupation in HIV Patients	

Ocular Complications of HIV

Total number of cases- 200.

Ocular findings present in- 134.

Without ocular findings- 66.

A. Anterior Segment Complications

It was observed that, out of 200 cases, anterior uveitis is the most common complication in the anterior segment that accounts for 41.7%.

Type of Ocular Complications	Number of Findings Present in 134 Cases	Percentage of Diseases Present in Ocular Positive Cases
Anterior Segment		
Corneal ulcer	15	11.1%
Herpes zoster ophthalmicus	26	19.4%
Dry eye	3	2.2%
Keratitis	20	14.9%
Anterior uveitis	56	41.7%
Cataract	2	1.4%
Blepharitis	6	4.4%
Conjunctival tumour	2	1.4%
Nerve palsy	2	1.4%
Lid abscess	2	1.4%
Total	**134**	**100%**
Table 7. Showing Anterior Segment Complications in HIV Patients		

B. Posterior Segment Complications

Type of Ocular Complications	Number of Findings Present in 134 Cases	Percentage of Diseases Present in Ocular Positive Cases
Posterior Segment		
CMV retinitis	20	14.9%
Acute retinal necrosis	2	1.4%
Toxoplasma retinitis	2	1.4%
Cotton wool spots	16	11.9%
Papillitis	10	7.4%
Papilloedema	4	2.9%
RB neuritis	8	5.9%
Vitritis	8	5.9%
Total	**70**	**51.7%**
Table 8. Showing Posterior Segment Complications in HIV Patients		

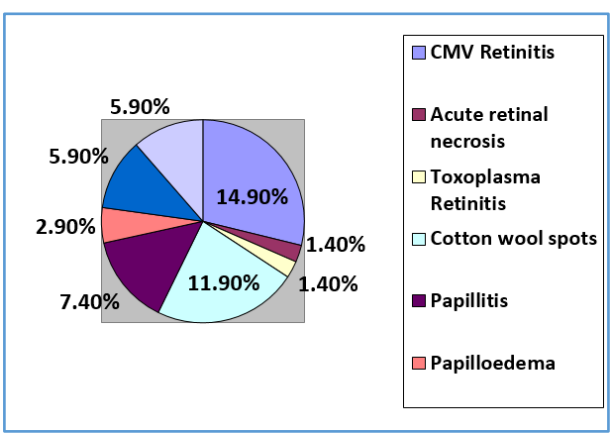

Figure 5. Showing Posterior Segment Complications in HIV Patients

Low vision	6/18-6/60	120
Economic blindness	6/60-3/60	14
Social blindness	3/60-1/60	20
Manifest blindness	1/60-PL	44
Absolute blindness	No PL	20
Normal vision	6/6	50
Table 9. Showing Incidence of Blindness Related to HIV and AIDS		

DISCUSSION

Total 200 HIV patients were studied, 134 of them who had ocular lesions were examined and investigated. Out of 200 HIV patients, 78% were males and 22% were females. Male-to-female ratio 78:22=3.5:1. Majority of the cases belong to 20 to 40 years of age group; sexually most active age group.

This is an alarming feature of HIV epidemic in India. American men who have sex with men and in the youngest age group when compared to the distribution of new diagnoses. In 2007, a higher percentage were women, black/African American and in the youngest age group and a lower percentage were injection drug users.[5] The highest incidence of HIV infection was seen in married patients, 55% compared to unmarried 41%. 71% of HIV positive male patients had multiple sexual contacts with commercial sex workers. Marital status was associated with HIV infection only at Kilifi with divorced/widowed and polygamously married volunteers two to three times more likely to be HIV infected than volunteers who had never been married.[6]

The most common mode of transmission was heterosexual transmission in 97%. Currently, HIV is mainly being transmitted by heterosexual exposure. Heterosexual transmission has increased by over twofold from 30.6% in 2004 to 73.9% in 2013.[7] The highest incidence of HIV infection was seen in manual labourers (43%) maybe due to illiteracy, multiple sexual contacts and unprotected sex, followed by housewives (15%) and drivers (14%). Other groups of HIV positive cases include students (4%), businessman (5%) and dentists (10%), etc.

Majority of ocular complications with HIV are of infective origin in our study. Viral infections are commonest (30%) ocular complications of HIV disease in the present. CMV retinitis, Herpes zoster ophthalmicus was the commonest viral infections seen in this study. This is the first study in the U.S. to document the frequency of recurrent ocular inflammation after initial resolution of clinically-diagnosed Herpes zoster ophthalmicus. Frequency data and knowledge of risk factors for recurrence will help in planning clinical trials to test new management strategies such as prolonged antiviral treatment or post-HZO vaccination.[8] It became evident early in the AIDS epidemic that CMV retinitis was a frequent opportunistic infection among patients with AIDS and that it typically occurred in patients with CD4 + T cells (helper T cells) <50 cells/μL.[9] Some of these patients were treated with acyclovir 800 mg 5 times daily for 7 days.

The other common viral infection in our study was Herpes simplex. The characteristic clinical feature of Herpes simplex in our study was ulcerated forms seen over the lips, suprapubic areas, genitalia and keratitis. Extensive ulceration with prolonged course not responding to routine antibiotics were suspected clinically as herpes simplex with HIV background. These cases were given specific acyclovir treatment 200 mg orally 5 times a day daily for 7 days. HSV-1, most commonly observed in the form of herpes labialis is responsible for an estimated 98% of non-neonatal ocular infections. HSV-2 is the usual aetiologic agent for genital and neonatal herpes infections; it can occasionally also infect ocular and orofacial structures through sexual transmission.[10]

In our study, more than 56% of the patients presented with one of the ocular complications. Therefore, eye is the most common organ affected due to AIDS. Ocular involvement in AIDS is as high as 75%. Ocular lesions are varied and affect almost all structures of the eye. This study highlights the importance of clinical presentation of various ocular diseases in HIV.

CONCLUSION

The present study shows that AIDS related ophthalmic complications are significant ophthalmic problem and the anterior segment involvement is common with Herpes zoster virus and the posterior segment involvement is commonly associated with CMV retinitis correlating CD4 and CD8 counts.

It may be emphasised that it is a burning awareness to the general public and the treating physician about the various ophthalmic complications of AIDS. We may tackle the dreaded complications at any stage and therefore prevent the occurrence of blindness to some extent with the present modalities of the treatment. There is an urgent need for better diagnostic and therapeutic approaches to tackle this sight-threatening disease.

The constraints expressed by the author help in improving the diagnostic and healthcare promotion by better availability of ART drugs along with anti-CMV drugs like foscarnet and ganciclovir at an affordable price or free supply by the Government and training of ophthalmologists to give intravitreal injections at medical college hospitals there by alleviate the ocular complications.

The information on ocular complications of the AIDS maybe propagated by handouts both to the doctors and the patients by the government and non-governmental organisations.

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