

Anterior Segment Manifestations in HIV Positive patients –Original article



Medical Science

KEYWORDS : Anterior segment of eye, AIDS, CD4+ T cell count, Iridocyclitis, Herpes Zoster Ophthalmicus

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ABSTRACT

Anterior segment manifestations are very commonly seen in HIV +ve patients. They can be the Harbinger of Systemic Infection in Asymptomatic patients. This study was conducted to know various anterior segment manifestations in HIV +ve patients. With the suppression of immunity chances of acquiring opportunistic infection increases. This can be correlated with patient's CD4 + T-cell counts. Also the drug toxicity (Highly Active Antiretroviral Therapy and drug used for other opportunistic infections) can lead to various anterior segment manifestations.

Introduction:

HIV brings about a substantial depression of the cell mediated immunity with reversal of CD4+T lymphocyte subset, the backbone of cell mediated immunity, with resultant depression of in vivo lymphoproliferative response to various antigens and mitogens. Ocular complications are known to occur as a result of HIV disease. They can be severe leading to ocular morbidity and visual handicap. Ocular manifestations can be the presenting signs of a systemic infection in an asymptomatic HIV+ve patient. With rapid and continuous spread of HIV pandemic and the increased survival of victims the ophthalmic manifestations are on rise. The pattern of ocular morbidity associated with HIV infections in the developing 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.

Since the first report of the ocular manifestations of AIDS by Holland et al in 1982¹, subsequent studies have described several AIDS related conditions in the eye and orbit. 70 to 80% of adult AIDS patients will experience an ocular complication at some point of their illness.^{2,3} All patients with HIV disease should undergo routine ophthalmological examinations, since proper diagnosis and treatment may help to maintain vision and prolong life.

Aims and objectives:

- To study the anterior segment manifestations of HIV positive patients
- To study the anterior segment manifestations of HIV positive patients with respect to age and sex.
- To correlate anterior segment manifestations and patient's CD4+T cell count

Materials and methods : The present study was conducted in ophthalmology out patient department and ART centre of medical college hospital during one year period. The study includes patients with anterior segment manifestations, already diagnosed HIV +ve patients and taking ART from the centre.

Sample size: 100 HIV positive patients presenting with anterior segment manifestations were taken in the study. They were subjected to clinical ophthalmic examinations with due consent of them, data was collected as per clinical manifestations, fundoscopic pictures and CD4+T cells count. This data was analysed by statistical methods to draw conclusions with regard to above objectives.

Observations:

Table1. Sex distribution

Sex	no. of cases	Ratio
Male	54	1.17
Female	46	1
Total	100	

In our study, 54 cases were males and 46 were females. The male preponderance is probably due to 1) Increased sexual promiscuity 2) more exposure to infectious agents because of outdoor activities. And less number of female cases may be due to 1) Attitude to hide the disease. 2) social and psychological problems 3) Less exposure as compared to males. Biswas J.(2001)⁴ observed that male to female ratio in HIV positive patients was 2.9 :1.

Table2. Age and sex distribution

Age in years	Male	Female	Total
<12	2	4	6
13 to 30	5	9	14
31 to 50	41	30	71
>50	6	3	9
Total	54	46	100

Note: Patients having age in between were included in higher group. In the present study, 71 patients were in the age group of 31 to 50 years, followed by 14 cases between 13 to 30 years, 9 cases above 50 years and 6 cases below 12 years. Among 54 males, 41 males (76%) were in the age group of 31 to 50 years followed by 6 cases (11%) above 50 years of age group, 5 cases (9%) between 13 to 30 years and 2 cases (4%) between 0 to 13 year. While amongst 46 females, 30 (65%) were in the age group of 31 to 50 years, 9 cases (20%) in the age group of 13 to 30 years, 4 cases (9%) below 12 years and 3 cases (6%) above 50 years. 71% of the patients were in the age group of 31 to 50 years indicating working class of the population is mostly affected by HIV, the most productive group of population which is really a concern. Young people in India are the most vulnerable to HIV as per⁵. (You and AIDS. The HIV/AIDS Portal for Asia Pacific. August 18, 2005). In a survey, it was found that the majority of AIDS cases occur in adults aged 25 – 44 years and children represent less than 1% of AIDS cases in the United States.⁶

Table3. Anterior segment manifestations

Manifestations	Number of cases	Percentage
Non specific conjunctivitis	42	42
Iridocyclitis	20	20
Conjunctival granuloma	12	12
Herpes Zoster Ophthalmicus	10	10
Cornea(hypopyon and opacity)	8	8
Conjunctivitis(Steven Johnson Syndrome)	6	6
Episcleritis	2	2
Total	100	100

Table4. CD4 Counts & Anterior Segment Manifestations

Anterior Segment Manifestations	CD4 Counts			
	<50	50-200	>200	Total
Non specific conjunctivitis	16	11	15	42
Irido Cyclitis	4	10	6	20
Conjunctival granuloma	2	10	0	12
Herpes Zoster Ophthalmicus (Conjunctivitis – 8, Keratitis - 2)	0	6	4	10
Cornea(hypopyon and opacity)	0	8	0	8
Conjunctivitis(Steven Johnson Syndrome)	0	6	0	6
Episcleritis	0	0	2	2
Total	22	51	27	100

In the present study , out of 100 patients 42 were of Non specific conjunctivitis. Out of the remaining 58 cases , we had 20 cases of iridocyclitis, 12 of conjunctival granuloma , 10 cases of herpes zoster ophthalmicus, 8 cases of Corneal involvement in the form of hypopyon and opacity, 6 cases of Conjunctivitis due to Steven Johnson Syndrome and 2 cases of episcleritis.

Non specific conjunctivitis- In our study, 42 patients were having non specific conjunctivitis. About 10% of AIDS patients develop non specific conjunctivitis.⁷

Iridocyclitis- In present study iridocyclitis was seen in 20% of patients. Iridocyclitis is seen in almost all the stages of HIV infection. However it is most common in stage 1 . Symptomatic anterior uveitis in HIV+ ve patients has been described by Verma et al. ⁸ With the advent of HAART a new ocular inflammatory syndrome of immune recovery uveitis has been described in patients with inactive CMV retinitis responding to HAART therapy. Another group of ocular diseases is drug induced uveitis seen due to drugs like Rifabutin and Cidofovir.

Conjunctival granuloma- In our study Conjunctival granuloma was seen in 12% of HIV positive patients with ocular manifestations . All 12 patients were male in the age group of 31 to 50 years. 10 cases had CD4+ T cell count in the range of 50 to 200 cells/ micro L and belonged to stage 3 of HIV. 6 of them had past history of systemic tuberculosis and were treated for the same. 2 patients were having CD4+ T cell count below 50 cells/ micro L and were in stage 4 disease. They also had past history of systemic tuberculosis. Orbital and lacrimal gland involvement by M. tuberculosis leads to localized granuloma . ⁹ Sometimes unusually they can present as a conjunctival mass. ¹⁰ Findings in our study suggest that tuberculosis may be an etiological factor of conjunctival granuloma as the prevalence of tuberculosis is high in India. In our study 8 cases out of 12 conjunctival granuloma had a past history of tuberculosis.

Herpes Zoster Ophthalmicus- In our study 10% of patients had Herpes Zoster Ophthalmicus. Out of them 2 patients presented as Herpes Zoster keratitis with healed skin lesions. According to Cole et al (1988) ¹¹ in 3% of HIV + ve individuals, Herpes Zoster Ophthalmicus may be the presenting manifestation. According to Kestelyn (1989) ¹² Herpes Zoster Ophthalmicus predicts the increased risk for development of AIDS in 85% patients already infected with HIV. According to Biswas J.(2001) ¹³ Herpes Zoster Ophthalmicus affects 5 – 15% of HIV +ve patients. Sellitti et al(1993) ¹⁴ reported that all patients below 50 years of age with Herpes Zoster Ophthalmicus at initial examination should be tested for HIV. HIV infected patients should be monitored closely after Herpes Zoster Ophthalmicus for development of acute retinal necrosis.

Herpes Zoster Conjunctivitis- In the present study Herpes Zoster Conjunctivitis was seen in 8 cases out of 100. Out of these 6 were females ,4 of which had CD4+T cell count in the range of 50- 200cells/ micro L and 2 had CD4+T cell count > 200 cells/

micro L. 2 male patients had Cd4+T cell count in the range of 50- 200cells/ micro L. All the cases were in between 31 to 50 years of age. The visual acuity was not significantly hampered in all the cases. We had 2 females with Herpes Zoster Ophthalmicus as the first manifestation of HIV. There was also associated blepharitis. Therefore we recommend that all young patients who have Herpes Zoster Ophthalmicus at initial examination should be tested for HIV.

Herpes Zoster Keratitis- In present study, 2 female patients had Herpes Zoster Keratitis in the right eye. They were in the age group of 31 -50 years , with CD4+T cell count > 200 cells/ micro L.

Episcleritis- In present study, 2 female patients had episcleritis . They were in the age group of 31 -50 years , with CD4+T cell count > 200 cells/ micro L.

Corneal involvement- In our study 8 patients had corneal involvement . Out of these, 2 female patients presented as hypopyon corneal ulcer . The remaining 6 (2 males and 4 females) had leucoma grade corneal opacity . All of them were in the age group of 31 -50 years , with CD4+T cell count in the range of 50 - 200 cells/ micro L. The clinical presentation of corneal involvement in HIV-infected individuals differs from that in the general population. In immunosuppressed individuals multiple pathogens are involved and carry a high risk of perforation. Paucity of inflammation in immunosuppressed patients contribute to delay in diagnosis and treatment.

Steven Johnson Syndrome – In our study conjunctivitis due to Steven Johnson Syndrome was seen in 6 cases out of 100. All of them were in the age group of 31 -50 years , with CD4+T cell count in the range of 50 - 200 cells/ micro L. There was associated adnexal involvement (excoriation of lids, trichiasis, matted and sticky cilia) , erythematous lesions over body, face and ulcerative lesions over the mucous membranes. All of them were on ART and Steven Johnson Syndrome was drug induced (Nevirapine and Co-trimoxazole). There was a history of Herpes Zoster infection in 1 case.

Summary: In this study done on 100 HIV positive patients most of the patients 39(78%) were in the age group of 31 to 50 years . With relation to CD4+T cell count more immunosuppression lead to more ocular manifestations (opportunistic infections), in the study 30 (60%) patients had CD4+T cell count of < 100. Non specific conjunctivitis and iridocyclitis were the most common manifestations amounting of 62% of cases , other manifestations were seen less commonly.

Conclusion: Anterior segment ophthalmic manifestations are very common in HIV positive patients. They occur as a result of direct effect of virus or due to increased susceptibility of the opportunistic infections . All young patients who have Herpes Zoster Ophthalmicus at initial examination should be tested for HIV. Periodic ophthalmic evaluation and intensification of HAART to increase the CD4+T cell count will help these patients in reducing ocular morbidity.

Abbreviations: ART- Antiretroviral therapy, HAART – Highly active antiretroviral therapy, AIDS – Acquired immunodeficiency syndrome, CD- Cluster of differentiation, HIV – Human immunodeficiency virus.

Conflicts of interest- Nil.

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