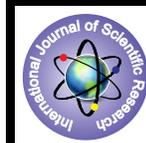


Study of Ophthalmic manifestations of HIV and Review of literature



Medical Science

KEYWORDS :

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ABSTRACT

Aim of this study is to acknowledge the importance of ophthalmic evaluation in diagnosis of HIV through the ophthalmic manifestations and the need of inclusion of ophthalmic evaluation in every HIV diagnosed patient.

This study illustrates the ophthalmic manifestations of HIV and gives an overall review of literature giving emphasis on five studies done in India in recent past.

Ophthalmic manifestations of HIV infection are diverse. Both anterior and posterior segments involved.

Earliest studies done in the 90's showing 10-20% prevalence of ophthalmic manifestations.

Lesser prevalence was found in children compared to adults.

Cytomegalovirus retinitis (CMVR) was the most frequent retinal infection with overall prevalence of 8.7%.

The review of various studies across the world and in India have shown the increase in severity of ophthalmic manifestations with fall in CD4count.

70-75% ophthalmic lesions have been found in patients with CD4count < 200.

Introduction:

Ophthalmic manifestations of HIV infection are diverse. Both anterior and posterior segments of the eye can be involved and it may even lead to blindness^[1].

Thus, it becomes challenging to screen carefully and thoroughly every HIV positive patient in order to pick up subtle, unconventional and unexpected manifestations.

Observation:

STUDY	SAMPLE SIZE	OPHTHALMIC MANIFESTATIONS	RESULTS	Incidence of CMV retinitis
Biswas et al ^[7]	100			17%
Gharai et al	199	45%	Retinal detachment 70% (14/20) of CMV retinitis patients. HIV vasculopathy 11% (11/100) (IRU) (5%)(ARN)(3%)	20%
Ocular lesions in 1,000 consecutive HIV-positive patients in India: a long-term study	1000	68.5%	(IRU) was seen in 17.4%. Recurrence in 2.53% visual outcome improvement in 14.3%	36.2%
Prevalence of HIV-associated ophthalmic disease among patients enrolling for antiretroviral treatment in India	149	17.5%	Objective visual impairment in 20%	25%
Ophthalmic Manifestations of HIV Patients in a Rural Area of Western Maharashtra, India	60	65%		15%

STUDY	CD4<200	CD4>200
Biswas et al ^[7]		
Gharai et al		
Ocular lesions in 1,000 consecutive HIV-positive patients in India: a long-term study	69%	31%
Prevalence of HIV-associated ophthalmic disease among patients enrolling for antiretroviral treatment in India	76.7%	33.3%
Ophthalmic Manifestations of HIV Patients in a Rural Area of Western Maharashtra, India	72%	28%

Discussion:

The earliest studies on this subject stated the prevalence of ophthalmic manifestations of HIV infection ranging from 10 to 20%^[1-2]. There is a lesser prevalence of ophthalmic manifestations of HIV infection in children as compared to adults as described in various studies. Moreover the pattern of ophthalmic manifestations of HIV in pediatric patients has been found to be different from that found in adults^[3-6]. All areas of the visual system can potentially be affected in patients with HIV infection and thus a detailed ophthalmological examination is important^[7]

Patients with visual disturbances or unremitting ophthalmic symptoms, regardless of CD4 cell count should be evaluated by an ophthalmologist.

Aim of this study is to acknowledge the importance of ophthalmic evaluation in diagnosis of HIV through the ophthalmic manifestations and the need of inclusion of ophthalmic evaluation in every HIV diagnosed patient.

Several opportunistic infections caused by organisms like viruses, bacteria, fungi, and protozoa that would not otherwise cause infection in healthy persons, may occur in AIDS patients. Cytomegalovirus (CMV) is the most common of all these infectious agents which affects retina, optic nerve or both, in AIDS patients. Less common infections include *Toxoplasma gondii*, *Varicella zoster virus*, and *Pneumocystis carinii*. CMV retinopathy develops in 15% to 35% of patients with AIDS^{8,9}. Floaters are the earliest warning signs of CMV retinitis. CMV retinitis can easily be diagnosed by examination of fundus, that appears as full thickness retinal necrosis with white granular areas accompanied by perivascular exudates and haemorrhages. The appearance is also called 'cottage cheese' with 'tomato ketchup' appearance. Clinically, CMV retinitis is usually seen sometime after diagnosis, at around 9 to 15 months, correlating strongly with low CD4+T-lymphocyte count. Four drugs have currently been approved, i.e., ganciclovir, foscarnet, cidofovir, and fomiverson. Ganciclovir can be given intravenously, intravitreally, and by sustained-release timed device implanted in the vitreous cavity to release ganciclovir at a slow rate over five to eight months. Currently, intravitreal cidofovir and fomiverson (ISIS 2922) are being tried for CMV retinitis and show favourable response^{10,11}. Kaposi's sarcoma is a rare form of cancer that appears as a non-tender purple nodule in the eyelid. It can occur in

upto 25% of AIDS patients in the west¹². If it affects the conjunctiva, it appears as a bright red fleshy mass and is commonly seen in the fornix. The low prevalence of human herpes virus-8 in India could also be another reason for the low frequency of Kaposi's sarcoma. Localised radiotherapy is the treatment of choice for isolated lesions.

Neuroophthalmic complications are known to occur in 10% to 15% of HIV infected patients¹³. Because over 50% of the human brain is concerned in some ways with the act of seeing, the eyes may show signs of brain involvement, resulting in blurred vision, problems with eye movement, or double vision.

STUDIES:

1. Biswas et al:

- Biswas et al. reported the first two cases of ocular lesions in AIDS in India.
- Biswas et al. documented ocular disorders seen in first 100 HIV positives India between 1993 and 1998.
- 76% patients with HIV showing ophthalmic manifestations were in 20-40 years age group.
- CMV retinitis (17%) and HIV retinopathy (15%) were the most common ophthalmic lesions¹⁷.

2. Gharai et al :

Gharai et al conducted a study.

The subject group of his study was 199 eyes of HIV positive patients. Median age of patients included in the study was 34 years. 68% of the patients in the subject group were on HAART. 45% HIV patients had ophthalmic manifestations. Most common manifestation found in this study was CMV retinitis (20%).

Retinal detachment was seen in 70% (14/20) of CMV retinitis patients.

HIV vasculopathy was seen in 11% (11/100) of patients.

Other lesions found were immune recovery uveitis (IRU) (5%), acute retinal necrosis (ARN) (3%), choroiditis (2%), neuro-ophthalmic manifestations (12%), complicated cataract (6%).

3. Ocular lesions in 1,000 consecutive HIV-positive patients in India: a long-term study:

This study was conducted by Sridharan Sudharshan.

It was conducted in the year 2012-2013.

Type of study was prospective observational.

Study group included was in the age group from 1.5 to 75 years of age.

Results:

- Ocular lesions were seen in 68.5% of the patients
- CMV retinitis was found to be the most common manifestation.
- HIV diagnosis to onset of ocular lesions was 2.43 years.
- Immune recovery uveitis (IRU) was seen in 17.4%.
- Recurrence of ocular infection was seen in 2.53% (post-HAART) and >20% (pre-HAART).
- Visual outcome improvement was seen in 14.3% whereas maintained in 71.6%.

4. Prevalence of HIV-associated ophthalmic disease among patients enrolling for antiretroviral treatment in India:

- It was a cross-sectional study.
- It was conducted by Sophia Pathai¹.
- Conducted in the year 2009.
- It was a cross-sectional study held at a large public sector ART centre in Mumbai, India.
- The patients included in the study had a median CD4 cell count of 180 cell/ μ L.

Results:

- Prevalence of ophthalmic manifestation was 17.5% in all par-

ticipants and 23.8% in those with CD4 cell counts <200 cells/ μ L.

- Objective visual impairment was seen in 20% patients.
- Cytomegalovirus retinitis (CMVR) was the most frequent retinal infection with overall prevalence of 8.7%.

5. Ophthalmic Manifestations of HIV Patients in a Rural Area of Western Maharashtra, India

- It was a study conducted on a subject group of 60 patients.
- Ophthalmic manifestations were seen in 65% of the subject group.
- The most common manifestation was found to be CMV retinitis with an incidence of 15%.

Results:

- The average incidence of ophthalmic manifestations in HIV positive patients is 50%.
- The most common presentation-CMV retinitis.
- The incidence of Ophthalmic manifestation rises with decrease in CD4 count, ranging from 70-75% in patients with CD4 <200.

Conclusion:

- With increased ART availability, life expectancy is likely to improve.
- Burden of HIV-related ocular disease is likely to remain stable or increase with possible immune reconstitution ocular complications.
- Strategies for screening high-risk populations for HIV-related ocular disease are needed with provision for its management and treatment.
- During the early phase of AIDS, ophthalmic manifestations of the disease infact helps to suspect underlying HIV infection and its associated opportunistic infections.

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