ORIGINAL ARTICLE

CYTOMEGALOVIRUS RETINITIS IN PATIENT TAKING ANTE-RETROVIRAL THERAPY IN A TERTIARY CARE HOSPITAL IN WESTERN INDIA

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ABSTRACT

Introduction: The spectrum of HIV-associated ophthalmic disease is very broad and ranges from adnexal disorders to posterior segment diseases. In spite of having a longer life span, those developing ocular morbidity due to CMV retinitis will have a poor quality of life due to blindness. This study was therefore conducted at our ART centre with the aim to observe changing trends in CMV retinitis patients compared to non CMV retinitis patients.

Methodology: Demographic, clinical and ophthalmic findings of 100 patients were recorded. Visual Acuity, Anterior segment and fundus assessment were carried out for 200 eyes. After data collection patients were divided in to CMV retinitis (termed as 'CMVR' now onward) and without CMV retinitis (termed as 'non CMVR' now onward) group and compared.

Results: Total 15 (15%), 8 bilateral and 7 unilateral cases were having CMV retinitis. Age and sex were not correlated with presence of CMV retinitis while CD4 was correlated. Lower CD4 patients groups had higher cases. Abnormal findings were more observed in CMVR group compared to non CMVR group and this difference found statistically significant except slit lamp finding in right eye.

Conclusion: CMV retinitis rate is decreasing but it is considerable and presence of complication emphasizes need of regular ophthalmic screening of HIV positive persons.

Keywords: Cytomegalovirus, Retinitis, HIV, CD4 count

INTRODUCTION

HIV/AIDS is undoubtedly a multisystem disorder but ophthalmic disease can occur in upto 50% of AIDS patients during the natural history of their infection[1]. The spectrum of HIV-associated ophthalmic disease is very broad and ranges from adnexal disorders to posterior segment diseases. The most common ocular opportunistic infection in patients with HIV is Cytomegalovirus (CMV) retinitis. Prior to epidemic of HIV, CMV retinitis was rarely documented. In the pre-HAART era, there was 30% lifetime probability of developing CMV retinitis in AIDS patients[2]. Since the introduction of HAART in mid 1990's, the incidence has reduced by 80%[2]. In developing countries like ours, the scenario was different. Potent HAART drugs started becoming freely available at ART centres only after 2004. Before that, many patients with AIDS died early in the course of the disease from systemic opportunistic infections, before their CD4 counts fell low enough to allow the development of CMV retinitis. Now, patients are living longer than what they used to without HAART, even with low CD4 counts. In spite of having a longer life span, those developing ocular morbidity due to CMV retinitis will have a poor quality of life due to blindness. Although, as compared to the pre-HAART era the incidence rates of CMV retinitis have declined[3,4], but they have not dropped to zero. Patients primarily remain at risk for developing CMV retinitis either because of delayed diagnosis of HIV infection or because they are noncompliant with, intolerant of, or unresponsive to HAART. Thus, burden of blindness will increase in the near future.

Surat is considered as an 'epicentre' of HIV in the state[5]. ART centre of New Civil Hospital is the second largest in the state. As per NACO guidelines, incidence of CMV retinitis increases when CD4 count falls below 100 cells/μl[6]. A cut-off value of 150 cells/μl was therefore considered for the study to include variations. HAART has changed the presentation and outcomes of CMV retinitis. Increased access to HAART and increased survival of patients with AIDS makes it possible to observe changing trends in CMV retinitis. This study was therefore conducted at our ART centre with the aim to observe such changing trends.

METHODOLOGY

After clearance of institutional ethical committee, the study was carried out over a period of 2 years and 2 months from September 2010 to November 2012 in the Department of Ophthalmology at New Civil Hospital, a 800 bedded tertiary level General Hospital with an ART centre which has highest number of registered HIV patients.

During the study period around 100 patients with initial CD4 counts less than 150 cells/µl were evaluate. These patients were prediagnosed known cases of HIV infection attending ART centre of New Civil Hospital, Surat and on HAART.

The patient's relevant history (ocular symptoms, mode of transmission), current CD4 counts, HAART duration and ophthalmic clinical findings were recorded on a detailed printed proforma after informed written consent. History regarding any treatment for CMV retinitis previously received was also noted.

Visual Acuity was assessed using self illuminated Snellen's chart. Anterior segment examination was done on a Carl Zeiss/Appasamy slit lamp, to rule out any anterior segment inflammation. For fundus assessment, the pupils of both eyes were dilated with tropicamide 1% or tropicamide 1% with phenylepherine 2.5% eye drops. Indirect ophthalmoscopy was performed using Heine indirect ophthalmoscope with +20D lens.

Photographs in form of fundus photos were taken on Topcon fundus camera except for those patients who were highly moribund and unable to sit for long times. Slit lamp imaging photos were also taken with the patients informed consent for documentation. B-scan ultrasonography was done using Biomedix B-Scan/UBM machine in patients suspected of having retinal detachment.

After data collection patients were divided in to CMV retinitis (termed as 'CMVR' now onward) and without CMV retinitis (termed as 'non CMVR' now onward) group and compared.

RESULTS

Out of 100 HIV positive patients 15 found to be having CMV retinitis. Eight patient had bilateral while 7 patient had unilateral CMV retinitis. Table 1 shows comparison of demographic and clinical profile of CMVR and non CMVR patients.

Age and sex distribution among CMVR group and non CMVR group was statistically not different. Highest patient were between 30 to 39 years in both groups. More cases are male in both groups.

Duration of HAART was also not different in among CMVR group and non CMVR group. However, CMVR was found more in 50 or less CD4 and the difference was statistically significant.

Table 1: Comparison of Demograhic and clinical profile of patient with and without Cytomegalovirus Retinitis

	CMVR (n=15)	No CMVR (n=85)	x^2 (df), p value
Age (yars)			
less than 20	1 (6.7)	1 (1.2)	4.06 (4),
20 – 29	2 (13.3)	17 (20)	0.398
30 – 39	8 (53.3)	39 (45.9)	
40-49	4 (26.7)	19 (22.4)	
50 or more	0 (0)	9 (10.6)	
Sex			
M	11 (73.3)	57 (67.1)	0.03 (1),
F	4 (26.7)	28 (32.9)	0.857
CD4 (cells/µl)			
Less or equal to 50	6 (40)	10 (11.8)	8.24 (3),
51 - 100	3 (20)	22 (25.9)	0.041
101 - 150	1 (6.7)	19 (22.4)	
More than 150	5 (33.3)	34 (40)	
Duration of HAART			
<=6	2 (13.3)	27 (31.8)	3.41 (3),
>6 – 12	1 (6.7)	10 (11.8)	0.332
>12 - 60	11 (73.3)	46 (54.1)	
>60	1 (6.7)	2 (2.4)	

Table 2 shows various clinical ophthalmological findings and it's distribution among CMVR and non CMVR group.

Abnormal findings were more observed in CMVR group compared to non CMVR group and this difference found statistically significant except slit lamp finding in right eye.

DISCUSSION

Proportion of CMV retinitis is 15% which is found to be much lesser than earlier studies.[7,8] This lower prevalence may be do to better ARV drugs available today compare to two earlier studies cited here.

Observations of CMV retinitis more in less than 50 CD4 cells/ mm^3 indicate increased risk of CMV retinitis in HIV positive persons during low CD4 counts. This correlates with findings of other researchers[9] which indicate role of fallen immunity in development of retinitis and it reemphasize the need of routine screening for CMV retinitis when CD4 counts are lower.

Complications of retinitis like retinal detachment, hemorrhage, uveitis, optic atrophy etc found higher in retinitis group. These findings are consistent with certain studies reported earlier[10] which found complications of retinitis such as retinal detachment, uveitis and optic atrophy to be 39%.

Presence of complications of retinitis in patients may be due to lower CD4 counts as Elizabeth A et al[11] reported that low CD4 T cell counts are also associated with increased risk of retinitis progression, retinal detachment, and decline in visual acuity.

Table 2: Various ophthalmic findings in patient with and without Cytomegalovirus Retinitis

Ophthalmic Findings	Left Eye		Right Eye	
	CMVR (n=15)	No CMVR (n=85)	CMVR (n=15)	No CMVR (n=85)
Dilated Fundus Examination				
Choroiditis	0 (0.0)	1 (1.2)	0 (0.0)	1 (1.2)
Cystoid Macular Edema	0 (0.0)	1 (1.2)	0 (0.0)	0 (0.0)
Exudates + Hemorrhages	5 (33.3)	0 (0.0)	2 (13.3)	0 (0.0)
Hemorrhages	2 (13.3)	0 (0.0)	0 (0.0)	0 (0.0)
Retinal Detachment	2 (13.3)	1 (1.2)	3 (20.0)	1 (1.2)
Atrophic + Pigmentary Patches	0 (0.0)	0 (0.0)	5 (33.3)	1 (1.2)
optic atrophy	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.2)
Not any diagnostic (NAD)	6 (40.0)	82 (96.5)	5 (33.3)	81 (95.3)
NAD vs Abnormal finding (p value)	<0.001		<0.001	
Slit Lamp Examination				
Conj Kaposi	0 (0.0)	0 (0.0)	1 (6.7)	0 (0.0)
Corneal Opacity	1 (6.7)	0 (0.0)	0 (0.0)	1 (1.2)
Nuclear+ Posterior Subcapsular Cataract	0 (0.0)	6 (7.1)	0 (0.0)	5 (5.9)
Pseudophakia	0 (0.0)	2 (2.4)	0 (0.0)	1 (1.2)
Pthisical Eye	1 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)
Vitreous Hemorrhage	1 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)
Vitritis	3 (20.0)	0 (0.0)	2 (13.3)	1 (1.2)
Not any diagnostic (NAD)	9 (60.0)	77 (90.6)	12 (80.0)	77 (90.6)
NAD vs Abnormal finding (p value)	<0.001		0.44	
Visual acuity				
3meter finger counting or less	6 (40.0)	2 (2.4)	4 (26.7)	2 (2.4)
4meter finger counting-6/18	4 (26.7)	5 (5.9)	6 (40.0)	9 (10.6)
6/6-6/12	5 (33.3)	78 (91.8)	5 (33.3)	74 (87.1)
6/12 or higher vs <6/12 (p value)	<0.001		<0.001	

CONCLUSION

CMV retinitis rate is decreasing but it is considerable and presence of complication emphasizes need of regular ophthalmic screening of HIV positive persons. This should be done more frequently in patient having lower CD4 as it increases risk of CMV retinitis.

Limitation of Study

Lower sample size may be one of the limitations of the study which can be overcome by conducting a large scale study. Comparing present study result with HIV positive people no taking ART may be more helpful in conclusion which is also a limitation of the study.

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