

Research Article**Clinical Study of Vitro Retinal Manifestations in HIV Positive Patients Attending MRCEH, Mysore****Sandeep K¹, Venkataram K²**¹Assistant Professor, Department of Ophthalmology, P.K Das Institute of Medical Sciences, Vaniamkulam, Kerala, India 679522²Assistant Professor, Department of Ophthalmology, Karnataka Institute of Medical Sciences, Hubli, Karnataka India 679522***Corresponding author**

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Abstract: Vitro Retinal manifestations are extremely common and varied in HIV infected patients. The present study was done to know the overall prevalence of Vitro Retinal manifestations in HIV infected patients and to know the frequency of individual manifestations. A total of 150 HIV seropositive patients attending MRCEH hospital, Mysore were included in the study. Detailed history, thorough physical examination and relevant investigations were done to confirm the Vitro Retinal manifestations. Out of 150 HIV positives, 70 cases amounting to 46.67% had Vitro Retinal manifestations in present study. Majority (71.42%) of the patients belonged to the age group 21-50 years and male to female ratio was 2.18:1. CMV Retinitis was the most common (31.42%) manifestation. This study thus emphasizes the need for Vitro Retinal (eye&fundus) examination of all patients with HIV infection for early management and improved quality of life.**Keywords:** HIV; Seropositive; Vitro Retinal manifestation; varicella zoster retinitis; CMV retinitis; toxoplasma

INTRODUCTION:

The HIV (Human Immunodeficiency Virus) pandemic has taken the world by storm and India is no exception. Close to 5 million people were newly infected with virus in 2005 [1]. HIV infection affects more than one organ, and practically affects all the tissues and organs of the human body. Eye is the one of the most common organs affected due to HIV. Ocular lesions are varied and affect almost all structures of the eye. HIV itself has been isolated from tears, conjunctiva, cornea, aqueous humour, iris, sclera, vitreous and retina. Since the original description of ocular involvement in patients with HIV by Holland and coworkers in 1982, a number of clinical based surveys have been reported from different parts of the world. Ocular lesions occur in as many as 70% of the patients with HIV and can be its initial manifestation [2]. The first two cases of ocular lesions in AIDS patients in India were reported by Biswas *et al*[4].

MATERIAL AND METHODS:

This study was done in Mysore race coarse hospital (MRCEH), Mysore from Nov.2013 to Oct.2014, (1year). HIV positive patients attending

OPD were source in this study. The HIV positive were declared based on WHO/NACO guidelines. After pretest counseling of the individuals blood samples were tested for anti-HIV antibodies as per strategy III (strategies of HIV testing by WHO) according to which serum reactive with COMB method (rapid test) was retested with a second rapid test i.e., CAPILLUS method which is based on a different test principle. Followed by second retesting of the positive serum by a third rapid test i.e., TRIDOT method which is based on a different test principle compared to capillus method. The three rapid tests used for the diagnosis of HIV seropositivity.

- COMB METHOD
- CAPILLUS METHOD
- TRIDOT METHOD

The 150 cases included in this study were positive for HIV. All patients were personally interrogated thoroughly and a detail history was taken, including the past history. Emphasis was given on habits such as IV drug abuse, alcoholism, and smoking, tobacco chewing and sexual habits.

Detailed Physical examination and relevant investigations were undertaken. Ophthalmic examination was done in detail, including visual acuity testing, slit lamp examination and indirect ophthalmoscopic examination was done with dilated pupil.

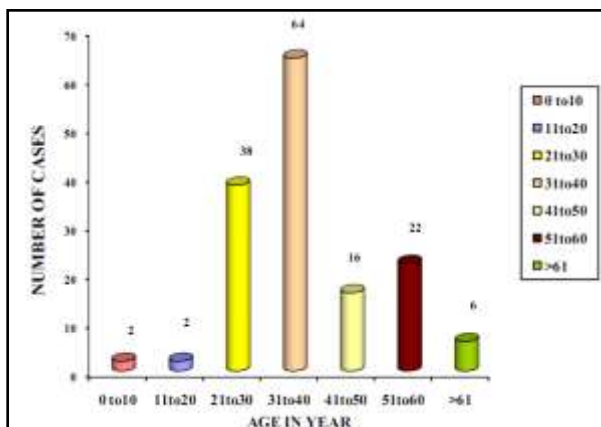
Treatment was carried out by the physicians. Patients presenting primarily with ophthalmic complaints were managed by the ophthalmologist based on the clinical diagnosis.

RESULTS AND DISCUSSION

150 Patients who were HIV seropositive were examined during study period and out of which 70 patients with vitreoretinal manifestations. All patients were completely worked up with regards to the aims of this study.

Table 1: Age distribution - 150 cases

| Age in Years | Number of Cases | Percentage |
|--------------|-----------------|------------|
| 0 to10 | 2 | 01.33% |
| 11to20 | 2 | 01.33% |
| 21to30 | 38 | 25.33% |
| 31to40 | 64 | 42.67% |
| 41to50 | 16 | 10.67% |
| 51to60 | 22 | 14.67% |
| >61 | 6 | 04.00% |
| TOTAL | 150 | 100.00% |

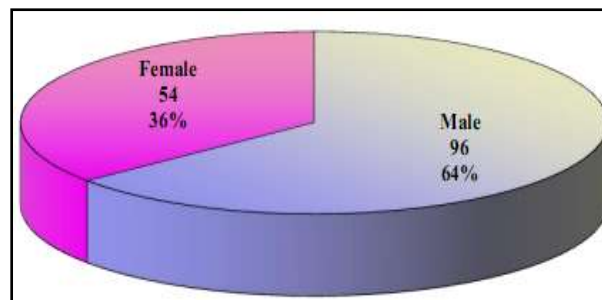


Graph 1- Age Distribution-150 Cases

In the present study, 150 HIV patients were examined. Maximum incidence was found in age group of 31-40 years amounting to 42.67%.

Table-2: Sex Ratio – 150 Cases

| Sex | Number of Cases | Percentage |
|--------|-----------------|------------|
| Male | 96 | 64% |
| Female | 54 | 36% |
| Total | 150 | 100% |



Graph 2 - Sex Ratio - 150 Cases

In the present study, the HIV incidence was higher in males amounting to 64%, than females, 36%.

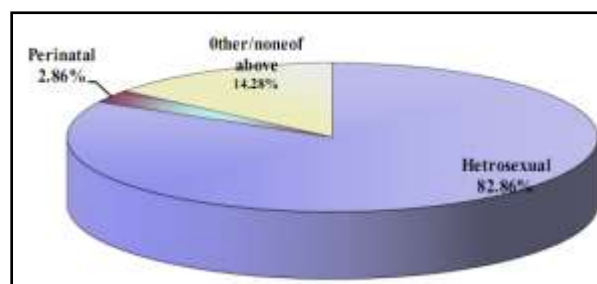
Table 3: Incidence of vitreoretinal manifestations

| Total number of patients | With vitreoretinal manifestations | Without vitreoretinal manifestations |
|--------------------------|-----------------------------------|--------------------------------------|
| 150 | 70(46.67%) | 80(53.33%) |

In the present study of 150 patients with HIV, the vitreoretinal manifestations were seen in 46.67% of cases.

Table 4: Mode of Transmission

| Route of Transmission | Number of Cases | Percentage (%) |
|-----------------------|-----------------|----------------|
| Heterosexual | 58 | 82.86 |
| Perinatal | 2 | 02.86 |
| Others/None Of Above | 10 | 14.28 |
| Total | 70 | 100.00 |



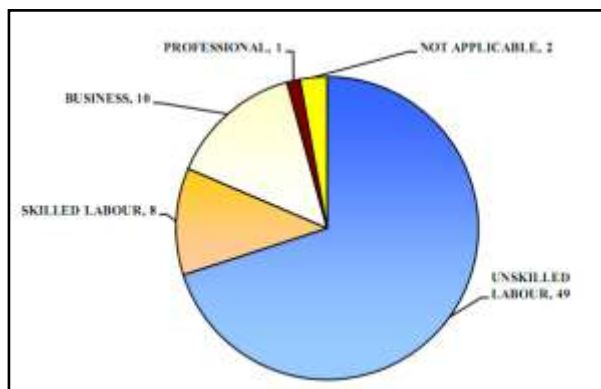
Graph 3 - Mode of Transmission

Table 4 and graph 3 shows distribution of cases according to mode of transmission, 58 patients were victim of the disease due to heterosexual activities. 2 patients had infection via perinatal route. In other 10, precise mode of transmission was not identified. They denied history of exposure and IV drug abuse and blood transfusion. None of the patients in this study were known to be homosexuals.

Table 5: Occupation Distribution

| Occupation | Number | Percentage (%) |
|------------------|--------|----------------|
| Unskilled Labour | 49 | 70.00 |
| Skilled Labour | 8 | 11.43 |
| Business | 10 | 14.28 |
| Professional | 1 | 01.43 |
| Not Applicable* | 2 | 02.86 |
| Total | 70 | 100.00 |

*Children <14 Yrs.

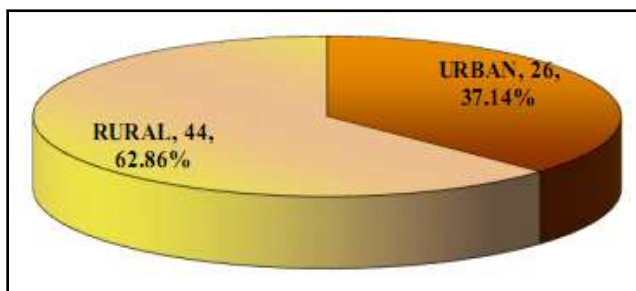


Graph 4: Occupation Distribution

Table 5 and graph 4 shows occupation distribution of patients in this study. 70% of patients were unskilled labour. Next highest frequency was businessmen (14.28%), followed by skilled labour, (11.43%) including drivers and farmers. One (1.43%) was professional.

Table-6: Background Distribution

| Background | Number | Percentage (%) |
|------------|--------|----------------|
| Urban | 26 | 37.14 |
| Rural | 44 | 62.86 |
| Total | 70 | 100.00 |

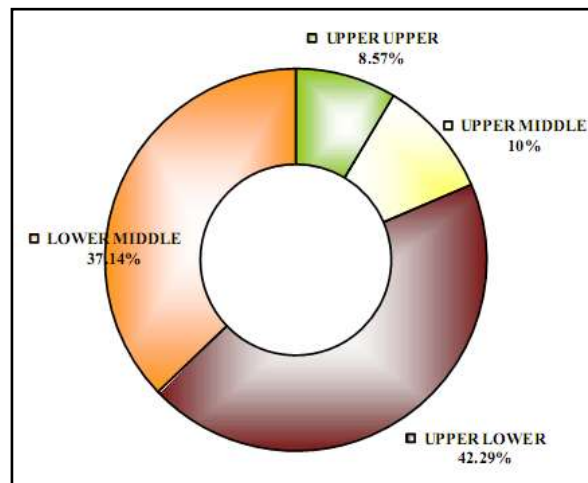


Graph 5 - Background Distribution

In the present study 62.86% of patients had rural background and 37.14% had urban background.

Table 7 - socioeconomic status distribution

| Socioeconomic Status* | Number | Percentage (%) |
|-----------------------|--------|----------------|
| Upper | 6 | 08.57 |
| Upper Middle | 7 | 10.00 |
| Upper Lower | 31 | 44.29 |
| Lower Middle | 26 | 37.14 |
| Total | 70 | 100.00 |



Graph 6: Socioeconomic Status Distribution

*Modified updated B G Prasad's classification of 2005[6].

In the present study, 31(44.29%) patients were in upper lower group and 26(37.14%) were in lower middle group, 7(10%) patients in upper middle and 6(8.57%) in upper class.

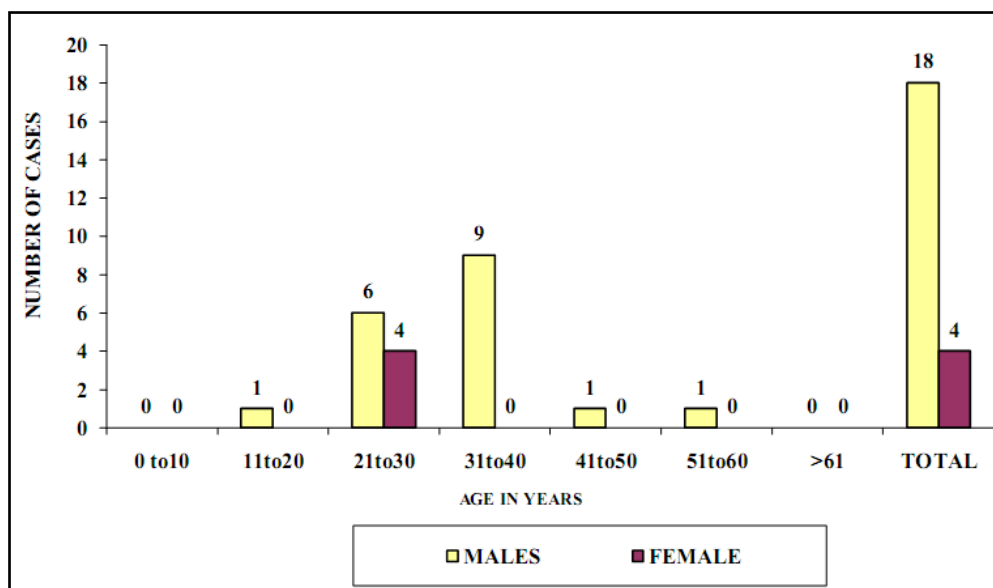
Table 8: vitreoretinal manifestations

| Manifestations | Number | Percentage |
|------------------------|--------|------------|
| CMV Retinitis | 22 | 31.42% |
| HIV Retinopathy | 13 | 18.57% |
| Chorioretinitis | 6 | 08.57% |
| Toxoplasmosis | 2 | 02.86% |
| Optic Atrophy | 2 | 02.86% |
| Frosted Branch Angitis | 2 | 02.86% |
| Retinal Detachment | 2 | 02.86% |

In the present study following were the ocular manifestations seen in 70 patients. 22(31.42%) patients had CMV retinitis, which is the commonest manifestation. 13(18.57%) patients had HIV retinopathy, Chorioretinitis was seen in 6(8.57%) patients, the cause of which could not be established. 2(2.86%) patients had toxoplasmosis. Frosted branch angitis, retinal detachment and optic atrophy were also seen in 2(2.86%) patients each.

Table 9: age & sex distribution of CMV retinitis

| Age In Years | Male | Female | Total Cases | Percentage (%) |
|--------------|------|--------|-------------|----------------|
| 0 to10 | 0 | 0 | 0 | 00.00 |
| 11to20 | 1 | 0 | 1 | 04.54 |
| 21to30 | 6 | 4 | 10 | 45.46 |
| 31to40 | 9 | 0 | 9 | 40.92 |
| 41to50 | 1 | 0 | 1 | 04.54 |
| 51to60 | 1 | 0 | 1 | 04.54 |
| >61 | 0 | 0 | 0 | 00.00 |
| TOTAL | 18 | 4 | 22 | 100.00 |



Graph 7 -Age & sex distribution of cmv retinitis

In the present study, the incidence of CMV retinitis was more in males, amounting to 81.82%. Incidence of CMV retinitis in females was 18.18%. Male to female ratio was 4.5:1. 86.36% of cases were in age group of 21 to 40 year.

DISCUSSION

In the present study, out of 150 patients with HIV, 70 patients had vitreoretinal manifestations.

Table-10: Incidence of vitreoretinal manifestation in HIV in various studies

| STUDY | INCIDENCE |
|---|-----------|
| PRESENT STUDY | 46.67% |
| BISWAS JYOTIRMAY <i>et al.</i> ; [4] (2000) | 40.00% |
| BISWAS JYOTIRMAY <i>et al.</i> ; [2] (1999) | 45.70% |
| MOTWANE SHANTA <i>et al.</i> ; [3] (1996) | 62.07% |
| AWAN <i>et al.</i> ; [7] (1996) | 66.00% |
| JABS <i>et al.</i> ; [8] (1995) | 50.00% |
| WILLIAMS R FREEMEN <i>et al.</i> ; [5] (1984) | 73.08% |

In present study, 46.67% patients had vitreoretinal manifestations. Table 10 shows incidence of vitreoretinal manifestations in HIV patients in various studies. The incidence varies from 15 to 73.08%. Incidence in the present study is within these values. Incidence in present study almost equals the study of Biswas J *et al* [2].The incidence of vitreoretinal involvement is high, hence ophthalmic examination in all HIV positive patients is mandatory.

Table-11: Age distribution in various studies

| STUDY | AGE 21to50 (in %) |
|--|-------------------|
| PRESENT STUDY | 71.42 |
| MOTWANE SHANTA <i>et al.</i> ; [3] (1996) | 89.65 |
| WILLIAM R FREEMAN <i>et al.</i> ; [5] (1984) | 96.15 |

In present study, 71.42% of patients were in the age group of 21-50 years, which is consistent with previous studies. Table 11 shows age distribution in various studies. All these studies show higher proportion of patients in this age group. This

needs emphasis as the morbidity of these patients has a considerable impact on the economy of not just their family but society as a whole.

India being a developing country cannot afford to lose its youngsters, as they form backbone of the society. Its effect on the coming generations and society can be prevented by simple measures and by arousing awareness among the population.

Table-12: sex distribution in various studies

| STUDY | M:F RATIO |
|--|-----------|
| PRESENT STUDY | 2.18:1 |
| BISWAS J <i>et al.</i> ; [4] (2000) | 3.34:1 |
| BISWAS J <i>et al.</i> ; [2] (1999) | 6.5:1 |
| MOTWANE SHANTA <i>et al.</i> ; [3] (1996) | 8.61:1 |
| AWAN <i>et al.</i> ; [7] (1996) | 1.63:1 |
| JABS <i>et al.</i> ; [8] (1995) | 7.33:1 |
| WILLIAM R FREEMAN <i>et al.</i> ; [5] (1984) | 2.5:1 |

In our study, 68.57% of patients were males, 31.43% were females. The male to female ratio is 2.18:1. Male predominance is consistently higher in all the above studies. In present study, male to female ratio is almost equal to study conducted by William R Freeman *et al* [5] and other studies shows a little higher ratio. It has been seen that male to female transmissibility is 20 times greater than that of

reverse, probably due to prolonged exposure of vaginal, cervical mucosa and endometrium to the semen.

OCCUPATION DISTRIBUTION:

Among the 70 patients, 49 were unskilled labour and who were mainly uneducated, daily wage workers. Due to ignorance regarding HIV and lack of proper education they have put themselves into a vicious cycle of morbidity. 10 business person and one professional shows that, they may be literate but lack of awareness and low morale, negligence have been cause of there victimization. Farmers and drivers were included in skilled workers category. This aspect of the study was mainly to highlight, that disease has spread rapidly because of lack of awareness and education among majority of our population. Health education, sex education and awareness regarding dangerous disease should be given to entire population by government and with the help of voluntary organizations.

URBAN/RURAL DISTRIBUTION:

In the present study, 37.14% patients were from urban areas and 62.86% patients from rural areas. Higher incidence in rural areas highlights lack of awareness, ignorance in rural set up. Most of the rural patients gave history of subjecting to the risk factor during their visit to urban centers.

Table 13: Vitroretinal Manifestations in Various Studies (In %)

| MANIFESTATIONS | PRESENT STUDY | BISWAS J <i>et al.</i> ; [4] 2000) | BISWAS J <i>et al.</i> ; [2] (1999) | AWAN <i>et al.</i> ; [7] (1996) | JABS <i>et al.</i> ; [8] (1995) |
|------------------------|---------------|------------------------------------|-------------------------------------|---------------------------------|---------------------------------|
| CMV RETINITIS | 31.42 | 17 | 21.4 | 3 | 37 |
| HIV RETINOPATHY | 18.57 | 15 | 12.8 | 25 | 50 |
| CHORIORETINITIS | 8.57 | 5 | 5.7 | - | - |
| TOXOPLASMOSIS | 2.86 | - | 1.4 | 1 | 1 |
| OPTIC ATROPHY | 2.86 | 7 | 2.8 | 1 | 1 |
| FROSTED BRANCH ANGITIS | 2.86 | - | - | - | - |
| RETINAL DETACHMENT | 2.86 | 8 | 10 | - | - |

Vitroretinal involvement in HIV positive/aids patients:

Vitroretinal manifestations of HIV infection in any geographic area depends on the overall availability of health care facilities and the prevalence of disease pattern. In a country where the majority of people are of lower socio economic, many patients may die in the relatively early phase of infection. Table 13 compares vitreoretinal manifestations in HIV patients in various studies.

In our study, 22(31.4%) patients were affected with CMV retinitis, which was found to be most common ocular manifestation in HIV patients. CMV retinitis is also the most common opportunistic infection in the HIV infected patients in the studies conducted in the other parts of the world. Biswas J *et al.*[2]; also found it as most common manifestation, but a lesser incidence (23%) was reported in African study by Awan *et al.*[7].

The second common ocular manifestation in present study was HIV retinopathy. It was seen in 13(18.57%) patients. It is also common manifestation in other studies. A higher incidence (50%) was seen in American study by Jabs *et al*[8].

6(8.57%) patients had chorioretinitis; no diagnosis could be established in these cases.

3 patients (4.28%) patients had toxoplasmosis, and 2 (2.86%) patients had optic atrophy. Frosted branch angitis was seen in 2 patients (2.86%). These are not so common manifestation in our study, a finding which is also consistent in other studies.

2 (2.86%) patients had retinal detachment. Biswas J *et al*[2] found a relatively higher incidence of retinal detachment in their study. 1(1.43%) which seems to be rare manifestations in present study, similar to other studies.

CONCLUSION

With 46.67% HIV patients of the study having vitreoretinal manifestations. While some ophthalmic findings are nearly exclusive to HIV seropositive individuals, many are found in the general population. However, HIV infected individuals often have an increased prevalence, severity, atypical presentation and difficulty with treatment of the disease.

CMV retinitis was the most common ocular lesion found in this study. The commonest route of transmission is multiple, unsafe and unprotected sexual contact with multiple partners. Most of the affected patients belong to lower socioeconomic class and were unskilled workers.

Every effort must be made to prevent HIV transmission. It is critical that public should be educated on safe sexual practices and to increase general awareness on the disease, as even literates' forms large proportion suffering from the disease. With continued spread of AIDS pandemic and increased survival of its victims with HAART, greater attention should be focused on its vitreoretinal manifestations.

The ophthalmologists should be able to recognize the common vitreoretinal lesions. HIV testing should be obtained when atypical or unusual ocular lesions are seen. As an ophthalmologist our primary role is in early diagnosis, prevention of visual handicap, reducing morbidity and giving better quality life to a human being.

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