DEPARTEMENT OF OPTHALMOLOGY
FACULTY OF MEDICINE PADJADJARAN UNIVERSITY
NATIONAL EYE CENTER CICENDO EYE HOSPITAL
BANDUNG

Mini Observational	:	Clinical Characteristics and Management of Cytomegalovirus Retinitis with HIV in Cicendo Eye Hospital National Eye Centre, Bandung
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Clinical Characteristics and Management of Cytomegalovirus Retinitis with HIV in Cicendo Eye Hospital National Eye Center, Bandung

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ABSTRACT

Introduction : Cytomegalovirus (CMV) is a major morbidity and mortality in patients with HIV. CMV retinitis is the most common ophthalmic manifestasion that can occur in 15-40% of patients related to HIV and demands aggressive treatment to prevent a severe visual loss.

Purpose : To describe clinical characteristics and management CMV Retintis with HIV in Cicendo Eye Hospital, Bandung.

Method : This was retrospective study which data was obtain from 24 patient's medical records who diagnosed CMV Retinitis with HIV and received injection intravitreal Ganciclovir from April 2015 to December 2017.

Result : The mean age was 38,3 years, 19 patients (79,1%) were male and 5 patients (20,8%) were female. All patients were HIV positive and had antiretroviral therapy since diagnosed with HIV. Tuberculosis was the most common other opportunistic infection in our patients. 20 patients (31 eyes) underwent intravitreal injection of Ganciclovir conformed with the condition of each eye.

Conclusion : The patients in this study mostly underwent with longstanding antiretroviral theraphy. The various of clinical manifestasion findings have implicationts for the management of the diseases and periodic screening after diagnosis of HIV.

Keyword : CMV retinitis, HIV, ganciclovir

INTRODUCTION

Cytomegalovirus (CMV) retinitis is one of the most common infection in patients with AIDS and has been known occur as high as 40% of patients before highly active antiretroviral theraphy. Diagnosis CMV retinitis basically from clinical finding, it can occur on both eyes with severe visual loss. CMV retinitis often presenting sign of systemic CMV infection, and all the patients should be evaluated for systemic disease. Primary infection of virus spreads hematomgenously then infect the retina.[1,2]

CMV retinitis was common before the introduction of highly active antiretroviral theraphy (HAART). CMV retinitis occurs in 25–42 % of all patients who develop AIDS when $CD4^+$ T cell count is less than 50 cells/mm^3. This infection was associated with higher mortality among AIDS patients prior to the introduction of HAART. Considered by HAART, at least 20% continue to be at risk of CMV retinitis because of poor response to HAART, do not tolerate the regimen, or are noncompliant.[2,3,11]

In despite of with reconstitution of $CD4^+$ T cell count to more than 500

cells/mm^3, CMV retinitis may still occur, it means there are other factors that might be influence the infection and give continuous monitoring for such patients. The most common presenting complaints were blurred vision, floaters, photopsia and ocular pain. Clinical manifestasions on each patients could be various, there are two common characteristic of the infection, a fulminant edematous type and the granular indolent type.[3-5]

The natural evolution represents the damage of the retina in 2-3 months. The most common complications are macular damage, optic neuropathy, optic nerve atrophy, retinal detachment. Treatment of CMV retinitis requires both anti-CMV therapy and HAART. Therefore collaborating with the treating physician is a must in order to the treatment plan as to get the most favorable response to anti-CMV therapy.[4,5,7,11]

The purpose of this study was to describe the characteristic and management of CMV retinitis with HIV from patients in Cicendo Eye Hospital, Bandung.

METHOD

This was a retrospective observational study involving patients who diagnosed with CMV retinitis from Vitreoretinal Unit Cicendo Eye Hospital, Bandung, Indonesia, between April 2015 to December 2017.

Inclusion criteria were demographic information, patients diagnosed with CMV retinitis, reactive IgG of Cytomegalovirus on laboratory examination, number of CD4, data of patients diagnosed with HIV infection, medical and ophthalmology history, and complete ophthalmology examination included, slit-lamp biomicroscopy, and indirect ophthalmoscopy through a dilated pupil.

All data of patients were reported in percentage or absolute numerical value. Data in this study was analyzed using Microsoft Excel 2016.

RESULT

In addition, we collected the data of patients that recorded in Cicendo Eye Hospital, especially from Vitreoretinal Unit. The data were patients that diagnosed with HIV infection from 2015 until 2017 in all cases. There were increasing total of patients from year to year, 46 patients on 2015, 50 patients on 2016, and 66 patients 2017. There are 162 total of patients with HIV infection for 3 years. This data should be our concern to give a continuing observation for all patients, especially with HIV infection.

In our study, there were 24 patients with HIV infection and presented CMV retinitis. The average age was 38.3 ± 7.6 years (median: 35 years), 19 patients (79.19%) were male, and 5 patients (20.83%) were female. Ten patients (41.67%) had unilateral disease and fourteen (58.33%) had bilateral diseases. Demographic and clinical characteristics are presented in Table 1.

Table 1. Characteristic of CMV Retinitis

Characteristic	Total (N=24)	%
Age (mean ± SD), years	38,3 ± 7,69	
Sex		
Male	19	79.17
Female	5	20.83
CMV Retinitis		
Unilateral	10	41.67
Bilateral	14	58.33

All patients in our study come with the main complaint of floaters and decreased of visual acuity. The most common cases of CMV retinitis clinically manifested with edematous form as early detection of CMV retinal damage (37.50%). Three patients of edematous form, presented with the clinical examination similar to uveitis and panuveitis at first clinical diagnosis, and six patients presented with retinal detachment.

There are 5 patients (20.83%) with neuro-ophthalmology disorder, 1 patient with bilateral papil athropy and 1 patient with unilateral atrhopy. The most common presented clinical manifestasion with neuro-ophthalmogy in this study were optic neuritis and papilitis. The summary of clinical form presented on Table 2.

Table 2. Clinical Form of CMV Retinitis

Clinical Manifestation	Number of Case (N=24)	%
Edematous Form	9	37.50
Indolent Form	4	16.67
Perivascular Form	6	25
Neuro-ophtalmology disorder	5	20.83

The most frequent systemic disorder in our study is Tuberculosis. There were 9 patients (29.17%) diagnosed with tuberculosis. All patients had been treated with tuberculosis medication for six months, except three patients still on medication. One patient had a severe complication with tuberculous meningitis. On this study, one patient (4.17%) had chronic diarrhea and herpetic neuralgia as a systemic disorder related to HIV. This summary of systemic disorder on CMV retinitis with HIV presented on Table 3.

Table 3. Systemic Disorder on CMV Retinitis with HIV

Systemic Disorder	Total (N= 24)	%
Tuberculosis	9	29.17
Chronic Diarrhea, Herpetic Neuralgia	1	4.17
No Systemic Disorder	14	58.33

CMV retinitis that occurred in 24 patients on this study, 5 patients (20.83%) had CD4 count <100 cells/mm^3 and 13 patients (54.16%) had CD4 count >100 cells/mm^3. Some of patients in our study had the treatment of Ganciclovir intravitreal injection for 31 eyes, consist of 13 eyes injected unilaterally and 18 eyes injected bilaterally. There are 2 patients had treatment of Ganciclovir with CD4 count >100 cells/mm^3.

There were only two patients had no treatment by Ganciclovir intravitreal injection, one patient caused by visual loss on both eyes at

first visited with clinical manifestasion retinal necrosis on right eye and chronic retinal detachment on left eye. The other of 1 patient caused by severe complications such as, retinal detachment, papil atrophy, tuberculosis meningitis, toxoplasma cerebri and hepatitis B.

Clinical characteristic and specific treatment are summarized on Table 4 and Table 5.

Table 4. CD4 Count of HIV

CD4	Total (N= 24)	%
>100	5	20,83
<100	13	54,16
No Data of CD4	6	25

Table 5. Specific Treatment of HIV

Specific Treatment for CMV Treatment	Number of Eyes (N=48)
Intravitreal Ganciclovir unilateral	13 eyes
Intravitreal Ganciclovir bilateral	18 eyes

DISCUSSION

Cytomegalovirus (CMV) is one of the most common causes morbidity and mortality in AIDS, it potentially blinding infection and could affected immunocompromised. The CMV retinitis is the most frequent ocular opportunistic in patients that infected with HIV/AIDS, accounts for 75-85% even in the highly active antiretroviral theraphy (HAART) it could still make visual impairment.[3,7,9]

The introduction of HAART in 1990 has decreased HIV associated morbidity, mortality, and increased patient survival. These medication treatable the condition by suppressing viral load and providing the increase number of $CD4^+$ T lymphocytes. New cases of CMV retinitis continue to be diagnosed caused by poor adherence to HAART treatment or viral resistence to one or more of components of HAART theraphy.[5,7,10,11]

The opportunistic infection and late manifestasion on HIV infection, associated with CD4 counts of <50 cell/µI. Visual symptoms were frequently complaint at the time of diagnosis and blurred vision was the most common presenting symptom. Patient with failure of HAART and CMV extraocular disease, had worse prognosis and CMV relapses.[3,9-11]

In our study, the most clinical form was edematous with the most common manifest were cotton wall spot and retinal hemorrhage. Ying shi, et al reported that cotton wall patches are often observed in the early stage and it was difficult to diagnosed cotton wall spot or hemorrhage along retinal vessel in the early stage of CMV retinitis induced by HIV infection.[4,,8,9]

Six patients in our study developed retinal detachment. Based on a previous large study, reported that patients with CMV retinitis found a retinitis-related retinal detachment rate of 16.7%, it usually found on bilaterally disease and lesion as the strongest predictors. Retinal detachment is the most frequent causes of vision loss and various studies have reported an incidence rate about 33% per eye per year.[7,9]

In this study, all patients had been on HAART and 13 patients had CD4 count of HIV <100. Lapere and Rice

reported that patients with CMV retinitis receiving both ocular and systemic anti-CMV theraphy, found 50% reduction in mortality and 90% reduction in new visceral CMV. Anton, et al study said treating CMV retinitis in patients should be on multidisciplinary team, with optimizing immune recovery and treating patients early.[5,8]

The most systemic disorder in our study is tuberculosis infection in nine patients. Lisa et al studies reported that both tuberculosis and HIV increase the general infection. These reactivation and reinfection exposs the immune system to antigen patients with CMV, then it could increasing level of human cytomegalovirus-specific IgG antibodies.[6,10,11]

The succesfull treatment of CMV retinitis requires both anti-CMV theraphy and HAART. Treatment with specific anti-CMV theraphy can controlled the infection with minimal complication. Patients with unresponsive to HAART and long standing AIDS duration, needed to be prolonged treatment from standard 2-3 weeks to control the infection of retitinitis and prevent the severe visual impairment.[3,6,9]

CONCLUSION

Cytomegalovirus retinitis is the most common ocular opportunistic infection for the patient with HIV. Even management of HIV in the HAART era, it still causes the visual impairment. These results have the implications for evaluation and management of diseases. It is important to give optalmic evaluation and screening continously after diagnosed with HIV infection. These plan are required for preservation vision and prevent visual impairment.

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