Commentary: Caveats in the screening and management of cytomegalovirus retinitis in human immune deficiency virus and non-human immune deficiency virus infected patients

Cytomegalovirus retinitis (CMVR) is one of the leading causes of blindness in immunosuppressed patients of human immune deficiency virus (HIV) and non-HIV etiology. Though the incidence of CMVR among HIV patients has decreased in the post-highly active antiretroviral therapy (HAART) era, still it remains one of the important causes of blindness in HIV patients. The clinical features and visual prognosis of CMVR are comparable between both the groups of HIV and non-HIV etiology. The current research work should be appreciated since it describes the clinical features, management, and outcomes of CMVR in immunosuppressed patients with blood cancer and solid organ transplantation in addition to CMVR in HIV patients.[1] Besides, the authors have rightly highlighted the reactivation of CMVR in the maintenance

therapy of acute lymphoblastic leukemia (ALL), which has been previously reported and postulated to be due to delayed T-cell regeneration resulting from immunosuppression.

There are some comments on the current article. First, there are some non-HIV causes of CMVR other than leukemia, lymphoma, and solid organ transplant. These include hematopoietic stem cell transplantation, drug-induced immunosuppression, and local steroid administration.[2] Hematopoietic stem cell transplantation itself is a treatment for blood cancers and can cause CMVR. A large case series including CMVR cases from more varying etiologies will give a more comprehensive description of CMVR in the non-HIV cohort of immunosuppressed patients. Second, ocular infiltration of neoplastic cells in leukemia and lymphoma can mimic CMVR. Analysis of aqueous and vitreous fluid would have helped the authors in the differential diagnosis of this neoplastic infiltration. Third, a low hemoglobin concentration is a predictor of CMVR in patients with hematologic malignancies. This may be due to the decreased life span of erythrocytes in infectious and immunologic diseases. It would have been better if the authors had noted the level of hemoglobin concentration in the study population. Fourth, the authors have not mentioned the criteria for discontinuing maintenance therapy. The criteria for discontinuing the maintenance therapy is proposed to be CD4+ cells count >100/μL or an increase in CD4+ cells more than 50 cells/μL or relapse-free interval of 3–6 months along with healed retinal lesions.[3] Fifth, the authors have not mentioned about the resolution of the retinal lesions. The resolution of the CMVR lesions and the formation of retinal atrophy is considered a reliable sign of healing.[2] This may or may not be associated with a gain in visual acuity. Sixth, the authors mention that they injected intravitreal injection of ganciclovir maximum up to three doses in the eyes with CMVR. However, the prescribed induction doses of ganciclovir intravitreal injection is 2 mg twice a week for 3 weeks, and then a maintenance dose of 2 mg once a week.[4] Seventh, all the patients should be monitored for the development of side effects related to the systemic drugs used in CMVR. Both ganciclovir and valganciclovir share similar side effect profile. They are related to myelosuppression (neutropenia, anemia, and thrombocytopenia) and gastrointestinal (nausea and diarrhea). Ganciclovir induced neutropenia should be treated with discontinuing the drug and augmenting neutrophil synthesis with colony-stimulating factors such as filgrastim (Neupogen®).[4]

Screening and management of CMVR have many future perspectives, both in HIV and the non-HIV cohort of patients. First, there is ongoing research for the development of newer drugs in the management of CMVR, especially for drug-resistant CMVR patients. Letermovir is a new drug for the management of drug-resistant CMVR in patients of allogeneic hematopoietic stem cell transplant recipients and this drug was approved in 2017.[5] Second, the guidelines for routine screening for CMVR in the patients with CD4+ counts <50 cells/μL in the pre-HAART era needs to be revised in the post-HAART era.[6] Third, ocular imaging can help predict the visual outcomes of CMVR. There are recent studies using fundus photography and fundus autofluorescence (FAF) in the eyes of CMVR. These studies have found that progression and change in the area involved in CMVR can help in the visual prognostication in these eyes.[7,8] Fourth, the trizonal location of the retinal lesions combined with other associated findings like cotton wool spots, retinal hemorrhages, macular degeneration, and retinal detachment may help in the application of artificial intelligence (AI) in the follow-up and prognostication of CMVR in recent future.

Chitaranjan Mishra

Department of Vitreo-Retina, Aravind Eye Hospital, Madurai, Tamil Nadu, India

Correspondence to: Dr. Chitaranjan Mishra, Department of Vitreo-Retinal Services, Aravind Eye Hospital, Anna Nagar, Madurai - 625 020, Tamil Nadu, India.
E-mail: drchitaranjan.gnec@gmail.com

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