National HIV Curriculum

Cytomegalovirus (CMV) Retinitis: Treatment

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Cytomegalovirus (CMV) Retinitis Treatment: Outline

- Background
- Prevention
- Clinical Manifestations & Diagnosis
- Treatment
- Medication side effects
- Summary

Background

Background – CMV Disease in PWH

- CMV is dsDNA virus in the herpesvirus family
- Causes end-organ disease if with advanced immunosuppression
- Primary infection does not usually cause disease
- Disease typically occurs by reactivation of latent infection
- Retinitis is the most common manifestation of CMV end-organ disease
- Other organs that can be affected include GI tract, lungs and CNS
- Rates of disease have decreased with wider use of ART

Prevention

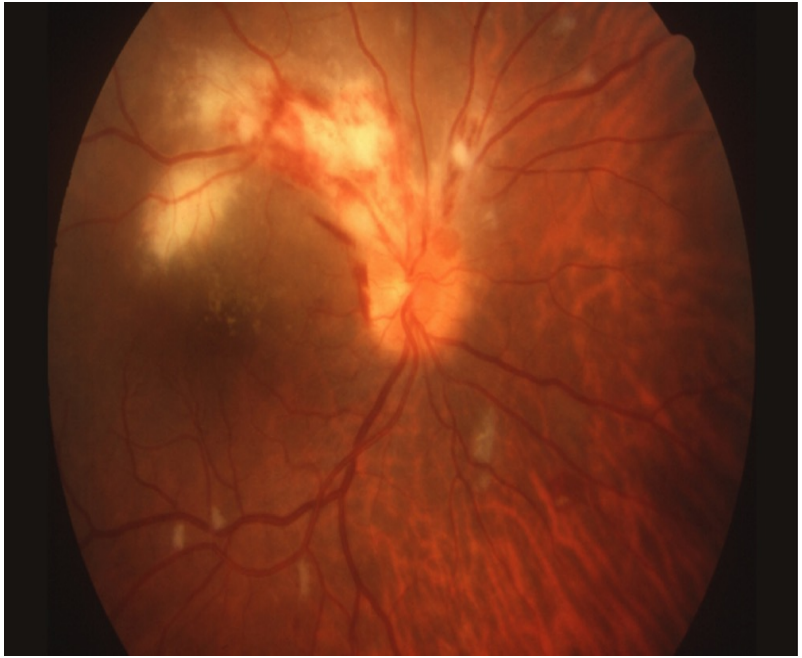
Prevention of severe CMV Disease

- Thorough evaluation to recognize early manifestations of disease
  - Complete review of systems and physical exam
  - Consider baseline ophthalmologic exam for PWH with CD4 <100 cells/mm^3
- Use ART to maintain the CD4 count >100 cells/mm^3
- Primary prophylaxis against CMV disease is not recommended

Clinical Manifestations & Diagnosis of CMV Retinitis

Clinical Manifestations of CMV Retinitis

- Four ‘Fs’: flashes, floaters, field deficits or failing vision
- Loss of peripheral or central vision
- Minimal pain and redness
- Starts in one eye and can spread to contralateral eye



Source: HHS. Opportunistic Infections Guidelines. Cytomegalovirus. July 2021.

Diagnosis of CMV Retinitis

- Clinical diagnosis
- Most have CD4 count <50 cells/mm^3
- Recognizing characteristic retinal changes on dilated fundoscopic exam
- 95% positive predictive value
- PCR of aqueous or vitreous humor may be useful if diagnosis is unclear

Source: HHS. Opportunistic Infections Guidelines. Cytomegalovirus. July 2021.

Treatment

Phases of Treatment for CMV Retinitis

INDUCTION

~14-21 days of antivirals *plus* clinical improvement on retinal exam

MAINTENANCE

≥3 months of antivirals *plus* immune reconstitution on ART

Source: HHS. Opportunistic Infections Guidelines. Cytomegalovirus. July 2021.

Treating CMV Retinitis – *Preferred Induction Regimen*

Induction Therapy	Recommendation	Comments
Duration: minimum 14-21 days)	IV Ganciclovir OR Oral Valganciclovir +/- Intravitreal injections of Ganciclovir or Foscarnet	For sight-threatening lesions, IV therapy is preferred IV ganciclovir can be switched to oral valganciclovir at any point based on clinical improvement Alternative regimens include IV Cidofovir or Foscarnet
Close follow-up with ophthalmology is critical		

Source: HHS. Opportunistic Infections Guidelines. Cytomegalovirus. July 2021.

Treating CMV Retinitis – *Preferred Maintenance Regimen*

Maintenance Therapy	Recommendation	Comments
Duration: minimum 3 months	Oral Valganciclovir	Alternative regimens include IV Cidofovir or Foscarnet
Close follow-up with ophthalmology is critical		

Source: HHS. Opportunistic Infections Guidelines. Cytomegalovirus. July 2021.

Initiation of ART with New Diagnosis of CMV Retinitis

- Recommend deferring ART for 1-2 weeks after starting anti-CMV treatment to reduce risk of IRIS

Source: HHS. Opportunistic Infections Guidelines. Pneumocystis pneumonia. January 2023.

Discontinuing Maintenance Therapy

- Completion of ≥3 months of treatment
- No active retinal lesions
- CD4 >100 cells/mm^3 for ≥3 months on ART
- Ophthalmology has been consulted
  - Q3 month exams to evaluate for early CMV relapse and immune reconstitution uveitis

Source: HHS. Opportunistic Infections Guidelines. Pneumocystis pneumonia. January 2023.

Restarting Maintenance Therapy

- If CD4 decreases to <100 cells/mm^3

Source: HHS. Opportunistic Infections Guidelines. Pneumocystis pneumonia. January 2023.

Medication Side Effects

Potential Side Effects of Medications Used for CMV retinitis treatment

Medication	Potential Side Effects
Ganciclovir & valganciclovir	Cytopenias
IV Cidofovir	Renal toxicity, teratogenicity, neutropenia, increased risk of immune recovery uveitis
IV Foscarnet	Renal toxicity

*Contains sulfonamide and there is potential for cross-reactivity with other sulfa-containing drugs; dapsone not contraindicated in patients with sulfonamide allergy

Summary

CMV Retinitis Treatment: Editor's Summary

- Major cause of ocular disease in PWH with a CD4 <50 cells/mm^3
- Diagnosis is made based on classic findings seen on dilated fundoscopic exam
- CMV retinitis treatment consists of an intensive induction phase followed by a chronic maintenance phase
- Induction therapy may require intravenous ganciclovir initially as well as intravitreal antiviral therapy
- Close consultation with ophthalmology is essential to determine optimal CMV retinitis treatment
- ART can be initiated within 1-2 weeks after initiating anti-CMV treatment

Source: HHS. Opportunistic Infections Guidelines. Pneumocystis pneumonia. January 2023.

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