Management of Cytomegalovirus and Herpes Zoster in Immunocompromised Patients

Cytomegalovirus (CMV) is a double-stranded DNA virus belonging to the Herpesviridae family. Other family members include herpes simplex virus type 1 and herpes simplex virus type 2, varicella zoster virus, human herpes virus HHV-6, HHV-7 and HHV-8. CMV shares many of the attributes of the other herpes viruses, including genome, virion structure, and the ability to cause latent and persistent infections. CMV has the largest genome of all herpes viruses. Multiple genetically distinct strains of CMV exist which may account for the differences in virulence. Infection with more than one strain of CMV is possible.

Clinically significant CMV disease is not uncommon in patients immunocompromised by HIV infection, solid-organ or bone-marrow transplantation, those receiving high-dose steroids, tumour necrosis antagonists, or other immunosuppressing medications for conditions such as systemic lupus erythematosus, rheumatoid arthritis, Crohn’s disease, or psoriasis, among others.

Organ transplantation and cytomegalovirus

CMV infections can have direct or indirect effects. Direct effects include bone marrow suppression, myocarditis, pneumonia, GI disease, hepatitis, pancreatitis, nephritis, retinitis, and encephalitis, among others. Indirect effects may include acute and chronic graft rejection, accelerated atherosclerosis (heart transplants), secondary bacterial or fungal infections, EBV-associated post-transplant lymphoproliferative disease and decreased graft and patient survival.

In support of the diagnosis, CMV antigen or inclusions are found with histological examination. CMV isolated from clinical samples in the absence of clinical symptoms may represent viral colonisation or subclinical replication. This may warrant antiviral suppressive therapy. In patients infected with HIV, antiviral therapy is often not required in the absence of clinical apparent disease.

HIV and cytomegalovirus

In patients with HIV infection, CMV involves the entire GI tract. In the upper GI tract, CMV has been isolated from oesophageal, gastric and duodenal ulcers. Upper GI tract oesophageal disease can present with painful dysphagia, while lower GI tract disease may present with colitis. For an accurate diagnosis, a full colonoscopy with multiple biopsies is necessary.

Retinitis is the most common manifestation of CMV disease in HIV positive patients. Affected patients report decreased visual acuity, floaters, and loss of visual field on one side. This frequently progresses to bilateral involvement that may be accompanied by systemic CMV disease.

Treatment

The best option for treatment and prevention is ganciclovir and valgaclovir with foscarnet or cidoviro and off label leflunomide as a second line. Prophylactic treatments include high dose valaciclovir, penciclovir, famciclovir and aciclovir. There is no consensus at this time as to whether prophylaxis or pre-emptive treatment is better in solid-organ transplants.

Herpes zoster (HZ)

HZ infections are more common and often more complicated in immunocompromised patients. The key clinical objective is to reduce the incidence of cutaneous and visceral dissemination that can lead to life-threatening complications. For localised disease, oral valaciclovir, famciclovir or acyclovir with close outpatient follow-up is best. Intravenous acyclovir therapy is reserved for those with disseminating varicella zoster virus infection, ophthalmic involvement, very severe immunosuppression or the inability to take oral medication. Foscarnet is the drug of choice to treat aciclovir-resistant HZ. Appropriate analgesic therapy with early antiviral treatment reduces the incidence and severity of acute zoster pain and post-herpetic neuralgia.
VAVIREX® 500 is indicated for:

- The treatment of
  - herpes zoster (shingles)
  - recurrent genital herpes in immunocompetent adult patients

- The prevention of
  - recurrent herpes simplex infection of the skin and mucous membrane
    of the ano-genital area

- The prophylaxis of
  - cytomegalovirus (CMV) infection, CMV disease and other herpes infections
    following organ transplantation where a special risk exists