TEACHING FILE

INTERSTITIAL PNEUMONIA AND CYTOMEGALOVIRUS INFECTION IN A 2 MONTH OLD CHILD

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Clinical Problem : A 2 month old girl presented with cough and breathlessness. She was ventilated and detected to have bilateral interstitial pneumonia along with hypoglycemia. Her liver function tests were also abnormal and she required multiple blood and plasma transfusions apart from IV antibiotics. Her cytomegalovirus IgM was positive (4.84 IU/ml). Echocardiography showed left ventricular hypertrophy with diastolic dysfunction. HIV ELISA was negative. CMV viral load was 790 copies/ml. She was started on oral valganciclovir (250mg/sqm 12 hourly for 3 weeks and then 125mg/sqm 12 hourly for another 3 weeks) and she responded to same. Hearing assessment showed mild hearing loss in left ear. Ultrasound of skull was normal. Her liver functions normalized at 8 months of age. Her hearing assessment at 1 year of age was normal. She is advised yearly hearing and eye assessment.

Question : Does interstitial pneumonia with CMV need treatment with anti-herpes agents?

Expert Opinion : Cytomegalovirus (CMV) infection is usually asymptomatic in healthy individuals and manifests as a life and sight threatening disease commonly amongst immunocompromised and HIV infected individuals. CMV is the commonest cause of congenital infection worldwide being transmitted transplacentally, during labour, through breast milk or saliva. It manifests as hepatitis, developmental delay, pneumonia or hearing loss. (1) According to a study conducted in 2010, primary CMV infection in infants can cause both systemic diseases or affect single organs. (1) CMV pneumonia commonly occurs in the setting of immunocompromised individuals. Primary CMV infections may either be symptomatic or asymptomatic acquired either transplacentally or perinatally. Ten percent of congenital infections present with symptoms at birth. (2) The remaining 90% infants are asymptomatic at birth but around 7-20% of them have been reported to suffer from permanent sequelae particularly sensorineural hearing loss. (3) Our patient presented with interstitial pneumonia and abnormal liver function tests with mild hearing loss suggestive of CMV infection though there was no CNS manifestation. The pulmonary findings associated with CMV can manifest in various ways, interstitial pneumonia being the commonest and others including bronchiolitis, asthma etc. But development and prognosis of CMV pneumonia depends upon host factors (4) and is more common amongst immuncompromised and HIV-AIDS infected individuals. However, the patient tested negative for HIV ELISA.

The normal treatment plan for CMV pneumonia is using IV ganciclovir and immunoglobulins but valganciclovir can also be administered orally. It is prodrug of ganciclovir and studies suggest that it is pharmacokinetically equivalent to ganciclovir. (5) Valganciclovir has an oral bioavailability of 60%. It gets rapidly converted to ganciclovir by intestinal and hepatic esterases being a prodrug of ganciclovir (6). Studies have shown that valganciclovir at a dose of 900 mg orally results in blood levels of ganciclovir obtained when a standard dose of 5mg/kg intravenous is administered and is also known to have similar efficacy to intravenous ganciclovir as induction therapy in HIV associated CMV retinitis (7). The efficacy of valganciclovir for prophylactic use in pediatric liver transplant patients was first proved by a a retrospective study carried out in 2004 (8).Valganciclovir has been approved by the FDA only for use of prevention of CMV disease in pediatric patients between the ages 4 months and 16 years with kidney and heart transplants (9). It has also now been successfully used in treatment of infants with congenital CMV infections. Patients with severe CMV diseases have been treated with a loading dose of IV ganciclovir followed by oral valganciclovir in

various in a study conducted in 2007 (8).A case of a preterm infant with congenital CMV infection who was treated with oral valganciclovir and showed a good response has been reported (10). The infant however was treated first with IV ganciclovir followed by oral valganciclovir which succeeded in decreasing the viral load successfully (10). In our patient, we used oral valganciclovir right from the beginning and the patient had a good response to the same.

Thus it can be concluded that oral valganciclovir is a safe and effective alternative to ganciclovir to treat cytomegalovirus pneumonia in infants.

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