Poster 18

Adenoviral Infection Clearance Via Intravenous Cidofovir Treatment in Two Children on Continuous Veno-venous Hemodiafiltration

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Close

Background

- Adevnoviral infections complicate care of critically ill, immunosuppressed patients; however adenoviral infections may be treated with intravenous (IV) cidofovir.[1,2]
- Cidofovir has small volume of distribution (0.5L/kg) and minimal protein binding.[3]
- Due to extended period of active metabolite presence, prolonged interval dosing (1 mg/kg 3x/week) has been reported for pts with kidney dysfunction .[1,4]
- About 50% of drug is cleared by high flux hemodialysis (HD)[5]
- No dosing recommendations exist for pts treated with continuous veno-venous hemodiafiltration (CVVHDF).
- We routinely prescribe a total dose of 2000 ml/1.73m2/hr of combined dialysate and pre-filter replacement fluid for CVVDF.
- We present two children treated during CVVDHF with IV cidofovir for adenoviral infections.

Objectives

- Describe cidofovir dosing for adenoviral clearance during CVVHDF
- Evaluate pharamacokinetics of cidofovir during CVVHDF

Conclusions

- Adenovirus infections may be cleared with intravenous cidofovir 1.5 mg/kg q48 hours while on CVVDHF.
- While significant nephrotoxicity is associated with cidofovir, studies have shown safe and efficacious use in pediatric patients, thus further observation is warranted to determine if additional surviving patients may recover sufficient kidney function to come off dialysis.[6,7]
- Further evaluation by studying cidofovir pharmacokinetics during CVVHDF is planned.

References

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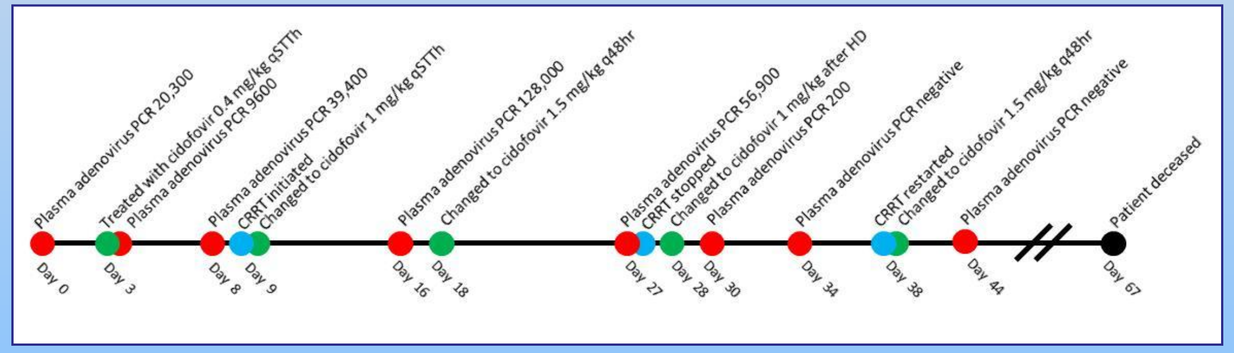
Case 1

A 5 yr old girl with relapsed T-cell leukemia underwent bone marrow transplantation complicated by sinusoidal obstruction syndrome (SOS) and multiple infections (cytomegaloviremia, BK viruria, and disseminated adenovirus) leading to multi-organ failure. Pt required CVVHDF for acute kidney injury (AKI) from abdominal compartment syndrome (ACS) due to SOS-related ascites and multiple nephrotoxic medications. Cidofovir was dosed 1 mg/kg IV thrice weekly at start of CVVHDF, and then increased to 1.5 mg/kg q 48 hrs for rising serum adenovirus PCR titers. Pt transitioned for 10 days to HD, and cidofovir was dosed 1 mg/kg after each treatment. Pt restarted CVVHDF for hemodynamic instability, so IV cidofovir 1.5 mg/kg resumed. After increased cidofovir on CRRT, 16 days later serum and urine adenovirus PCR levels became undetectable and decreased in stool. Unfortunately, pt's disease burden worsened and she passed.



Case 2

A 2 yr old boy with biliary atresia underwent liver transplantation post-operatively complicated by cardiac arrest, hepato-renal syndrome (HRS), and adenoviral viremia/enteritis. Pt required CVVHDF for AKI from poor kidney perfusion during cardiac arrest, ACS due to HRS-induced ascites, and multiple nephrotoxic medications. Prior to initiating CVVHDF, pt was first treated with IV cidofovir 0.6 mg/kg thrice weekly, with decreasing serum adenovirus PCR titers. After CVVHDF was begun, cidofovir dosing was continued 1.5 mg/kg IV q48 hours. After 13 days cidofovir therapy, pt's serum adenovirus PCR titers were negative, as well as stool. After nearly 3 weeks of therapy, cidofovir was stopped with no relapse of infection. Pt's AKI never recovered enough to stop renal replacement therapy; however he was transitioned to intermittent HD and discharged home.