582. Safety and Efficacy of High-Dose Ganciclovir versus Standard Dosing for Cytomegalovirus Viremia in Solid Organ Transplant (SOT) Recipients

Mary Grace Fitzmaurice, PharmD[1]; Pavithra Srinivas, PharmD, BCPS, BCIDP, AAHIVP[2]; Jamie Eckardt, PharmD[1]; Christine Koval[1]; Christine Koval[1]; Jessica Lum, MD[1]; [1]Cleveland Clinic, Cleveland, Ohio; [2]Cleveland Clinic Foundation, Cleveland, OH

Session: P-22. Care Strategies for Transplant Patients

Background: Standard dose ganciclovir (SD-GCV) for treatment of CMV infection/disease is 5 mg/kg every 12 hours, although higher doses (7.5–10 mg/kg every 12 hours) may be considered for resistant CMV. Literature on safety/efficacy of high dose GCV (HD-GCV) is limited. We sought to evaluate safety and clinical outcomes of SD-GCV vs HD-GCV strategies.

Methods: Retrospective single center study of adult SOT recipients with CMV viremia from 1/1/2017-1/31/2019 who received IV GCV therapy. Primary objective was to compare incidence of cytopenias between SD-GCV and HD-GCV. Secondary outcomes compared CMV viremia clearance, incidence of CMV disease and recurrent viremia within 30 days, granulocyte colony stimulating factor (G-CSF) use, and antiviral resistance testing rates.

Results: We evaluated 121 patients: 74 received SD-GCV, 47 received HD-GCV. Baseline characteristics were similar between groups. Most patients received a liver transplant (46% SD vs 36% HD) and had D+/R- CMV serostatus (55.4% SD vs 68% HD). Induction immunosuppression occurred in 75%, mostly with anti-thymocyte globulin. Median baseline CMV viral loads were similar (4620 IU/mL SD vs 7770 IU/mL HD, p=0.25).

Incidence of cytopenias was similar between groups: leukopenia (43% SD vs 43% HD, p=0.96), neutropenia (15% SD vs 13% HD, p= 0.75), thrombocytopenia (24% SD vs 31% HD, p=0.62). HD-GCV did not significantly impact CMV clearance (HR: 0.79 [95% CI 0.52–1.21], p=0.27). There was no difference in incidence of CMV disease (35% SD vs 38% HD, p=0.72) or incidence of recurrent CMV viremia (15% SD vs 28% HD, p=0.098).

G-CSF requirement was not different (23.7% SD vs 14.3% HD, p=0.295), however, patients on HD-GCV received more doses of G-CSF (median 2 SD vs 5 HD, p=0.001). More patients in HD-GCV group were tested for antiviral resistance: 15 (21%) SD vs 20 (43%) HD, p=0.01. Of these, there was no difference in rate of resistance detection (7/15 (47%) SD vs 11/20 (55%) HD, p=0.95).

Conclusion: Therapy with HD-GCV did not demonstrate increased incidence of cytopenias compared to SD-GCV, nor did we observe improved time to CMV clearance or incidence of CMV disease between groups. Opportunities exist for improving stewardship of antiviral resistance testing and use of G-CSF when considering HD-GCV therapy.

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583. Successful prevention of Strongyloides reactivation in liver transplant recipients with individualized screening and treatment: 10 year experience at a large transplant center in New York City

Farah Rahman, D.O.[1]; Sarah Taimur, MD[1]; Melissa R. Gitman, MD[1]; Dallas Dunn, MD[1]; Emily Baneman, MD[1]; Risa Fuller, MD[1]; Samantha E. Jacobs, MD, MS[1]; Meenakshi Rana, MD[2]; Timonthy Sullivan, MD[3]; [1]Icahn School of Medicine at Mount Sinai, New York, New York; [2]Icahn School of Medicine at Mount Sinai; Mount Sinai Health System, Richmond, VA; [3]Mount Sinai Hospital, New York, New York

Session: P-22. Care Strategies for Transplant Patients

Background: *Strongyloides stercoralis* is an intestinal nematode that can establish chronic, asymptomatic infection in human hosts. Following solid organ transplantation, subclinical infection may progress to hyperinfection syndrome, which is associated with high morbidity and mortality. However, the optimal approach for screening and treatment of strongyloidiasis in liver transplant candidates in non-endemic areas is unknown.

Methods: We performed a retrospective chart review of all liver transplant (LT) recipients from 2010–2019. All patients were evaluated by an infectious diseases physician prior to transplant, and screening for *Strongyloides* exposure (with Strongyloides IgG antibody) was typically limited to those with risk factors for strongyloidiasis. Only patients with positive serologic testing or other evidence of strongyloidiasis were treated with ivermectin.

Results: One thousand and seventy-two LT cases (including 15 retransplants) were reviewed. Serologic testing was perfomed in 664 cases, of which 36 (5.4% of those tested, 3.4% of total) were positive. Of the 36 cases with positive serologic testing, 31 had identifiable risk factors including birth place, travel or eosinophilia. Eosinophilia (defined as peripheral eosinophila greater than 5%) was noted in 3 of the 36 recipients who had positive serology.

Of the total 36 cases with positive serology, 18 were treated both pre- and post-transplant, 7 were treated only pre-transplant and 9 were treated only post-transplant. One patient died prior to initiating treatment, and one did not have documented treatment. One patient with negative serologic testing was empirically treated due to persistent eosinophilia. There was one case of *Strongyloides* hyperinfection due to likely donor-derived infection. There were no cases of *Strongyloides* reactivation in the study cohort.

Conclusion: This study demonstrates that an individualized screening and treatment protocol can effectively prevent *Strongyloides* reactivation in LT recipients. Given the high mortality rate of *Strongyloides* hyperinfection, especially in solid organ transplant recipients, a methodical assessment of epidemiologic risk is essential for appropriate risk stratification and management of *Strongyloides* in LT candidates.

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584. Ventricular assist device infections with Pseudomonas aeruginosa

Scott C. Roberts, MD[1]; Hannah H. Nam, MD[1]; Rebecca N. Kumar, MD[1]; Teresa Zembower, MD, MPH[2]; Chao Qi, PhD[2]; Michael Malczynski, BS[3]; Jonathan D. Rich, MD[4]; Amit A. Pawale, MD[1]; Rebecca S. Harap, BSN[1]; Valentina Stosor, MD[4]; [1]Northwestern Memorial Hospital, Chicago, Illinois; [2]Northwestern University Feinberg School of Medicine, Northwestern Memorial Hospital, Chicago, IL; [3]Northwestern Medicine, Chicago, IL; [4]Northwestern University, Chicago, IL

Session: P-22. Care Strategies for Transplant Patients

Background: Infection is a leading cause of morbidity and mortality in ventricular assist device (VAD) recipients. *Pseudomonas aeruginosa* (PA) is the second most common organism implicated in VAD infections, occurring in 10–50% of infections. The epidemiology of VAD recipients with PA infection are poorly described.

Methods: We identified patients (pts) at Northwestern Memorial Hospital with a VAD-specific PA infection from January 1, 2012 to Dec 31, 2019. VADs included the Heartmate II, Heartmate 3, and Heartware HVAD devices. VAD-specific infections were defined according to the 2013 ISHLT Guidelines.

Results: Seventeen out of 91 (18.7%) VAD infections were due to PA. Infections of the driveline exit site (DLES) occurred most commonly (n=15, 88.2%), followed by pocket (n=2, 11.8%) and pump (n=2, 11.8%) infections. Median time to infection after VAD implantation was 295 days (IQR 154 – 440 days). Eight (47.1%) pt isolates were not fluoroquinolone (FQ) susceptible. Resistance to multiple antibiotic classes was observed in pts in whom serial cultures were obtained. Median antibiotic treatment was 107 days (IQR 55 – 183 days, maximum 775 days). Five (29.4%) pts received FQ monotherapy on initial diagnosis, 3 (60%) of whom required change to a different class for resistance. Surgical debridement and VAD exchange were performed in 5 (29.4%) and 3 (17.6%) pts respectively. Co-pathogens were identified in 9 (52.9%) pts, the most common being *Staphylococcus aureus* (n=2) and *Enterococcus spp* (n=2). A total of 5 (29.4%) pts went on to successful heart transplantation; one had recurrent PA infection at the prior DLES requiring prolonged antibiotics and removal of retained DL material. All cause 1-year mortality rate was 11.7% (n = 2), both of whom died from cerebrovascular accidents.

Conclusion: VAD-specific infections with PA occurred late after device implantation and required prolonged antibiotic courses. Antimicrobial resistance was high at diagnosis and worsened in pts on prolonged therapy. Morbidity and mortality in pts with PA VAD infections were high. The preponderance of DLES infections warrants further study and highlights the need for improvements in DLES care and infection prevention strategies.

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585. A Cost-Effective Implementation Reducing The Number Of Urine Cultures In An Acute Care Community Hospital

Rohit Jain, MD[1]; Nitasa Sahu, MD[2]; Denise Marsh, BSN[3]; Shannon Raines, RN[3]; Kirk Jones, BS/PHARM D[3]; Ramarao Vunnam, MD[2]; Dhirisha Bhatt, MD[2]; Reshma Golamari, MD[2]; Rezhan Hussein, MD[2]; [1]Penn State Health Milton S.Hershey Medical Center, Hummelstown, Pennsylvania; [2]Hershey Medical Center, Hershey, Pennsylvania; [3]UPMC WMHS, Cumberland, Maryland

Session: P-23. Clinical Practice Issues

Background: Asymptomatic bacteriuria is a common finding in hospitalized patients. This is defined as bacteriuria of $\geq 10^5$ colony-forming units (cfu) per mL without any genitourinary signs or symptoms. Treatment for such leads to increased antimicrobial resistance and is especially common in the inpatient setting. One study showed a lack of appropriate clinical indication to order a urinalysis in more than half of the patients. In order to expedite a patient's care, it is common to order a urinalysis and urine culture together and await the results. One study evaluated the impact of changing the order set in inpatients and yielded a 45% reduction in the urine cultures ordered and cost savings as high as $103,845. Reflex testing is used to facilitate effective and efficient patients care while remaining compliant with state and federal regulations in the ordering of lab test.

Methods: Starting October 25, 2019, the electronic medical record order set was changed so there were only 2 options from the previous 9 options. The modified options included a "Urine analysis with reflex culture" and "Urine analysis with microscopy." The reflex was not encouraged to be used for those who were pregnant, neutropenic, or had any evidence of immunocompromise.

Results: Following the implementation of this initiative in October 2019, there was a decrease in overall urine culture cost. From Jan 2019 to September 2019, the cost ranged between $13428.96 to $15157.44/month in the Emergency Department. On the inpatient side, it ranged between $5141.12 to $6559.36/month. After revision of the new order set, the ED cost had dropped to as low as $5672.96/month and $3811.52/month for inpatients. This is a cost reduction of approximately $9484.48 and $2747.84 for the ED and inpatient, respectively.The total number of cultures also reduced from an average of 326/month in the ED to 193/month. The inpatient number of cultures dropped from an average of 130/month to 102/month.

Conclusion: Modifying the process of urine culture ordering has significantly cut down cost for both the hospital and patient. With clear education and modification of the electronic medical record, such interventions can dramatically improve the unnecessary testing for UTI's.

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