1598. Oral Step Down Therapy With Levofloxacin for Low-Risk Febrile Neutropenia in Children
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Background. Intravenous antibiotic therapy is used for most children with febrile neutropenia (FN). For some children, therapy is completed with outpatient parenteral antibiotic therapy (OPAT). Adult data support step-down therapy to a quinolone-based oral antibiotic regimen for selected patients and recent pediatric FN guidelines recommend consideration of this strategy, but pediatric data are sparse. Because oral therapy is associated with lower costs and fewer adverse events compared with OPAT, we sought to evaluate the safety and feasibility of an oral step-down program for selected pediatric FN.

Methods. This was a retrospective pre-post study evaluating oral-step down therapy at discharge with levofloxacin for low-risk FN children. Eligibility criteria for oral therapy were: age >1 year, no documented bacteremia, anticipated neutropenia <7 days at discharge, absicrue >24 hours, and were tolerating an enteral diet. Informed consent discussion began in 2015, the formal practice change was implemented in September 2017. Intervention periods were defined as: pre-intervention (January 2014–March 2015), peri-implementation (March 2015–September 2017); post-implementation (October 2017–March 2018). The primary outcomes were: the percentage of FN patients who were discharged on oral levofloxacin and OPAT during each period. A secondary outcome was the percentage of patients readmitted within 7 days requiring receipt of IV antibiotics. Chi-square tests were used to compare outcomes between periods and statistical process control charts to monitor the changes during the intervention.

Results. During the pre-intervention period, 4/107 (3.7%) nonbacteremic FN were discharged on oral levofloxacin. This increased to 62/239 (26%) during the peri-implementation period and 37/68 (54%) during the post-implementation period (P < 0.001) (Figure 1). The percentage of patients discharged on OPAT decreased from 74% in the pre-intervention to 9% in the post-intervention period (P < 0.001). Readmission rates within 7 days of discharge receiving IV antibiotics in the first 24 hours were similar across the study periods (11%, 16%, and 9%, respectively; P = 0.19) (Figure 2).

Conclusion. An oral step-down program reduced OPAT use for low-risk pediatric FN with no change in readmissions.

1599. Rejection Outcomes in Lung Transplant Recipients Post Respiratory Syncytial Virus Infections
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Background. Respiratory syncytial virus (RSV) infections in lung transplant recipients (LTRs) have been associated with bronchiolitis obliterans syndrome (BOS). However, limited data exists regarding the association of RSV with other types of rejection.

Methods. This retrospective study of all RSV-infected LTRs at Duke University from January 2013 to May 2017 examined acute cellular rejection (ACR), acute antibody mediated rejection (AMR), new human leukocyte antigen (HLA) detection, new donor-specific antigen (DSA) detection, new BOS development and BOS progression at 1 year after RSV infection. Early and late RSV vs. no RSV: detection occurring ≤ or >180 days post lung transplant, respectively. Logistic regression was performed to adjust risk of rejection.

Results. Of 114 RSV-infected LTRs, 20 and 94 had early and late infection respectively. The cohort differs regarding underlying prior BOS, site of infection and RSV treatment (see table). Overall 1-year ACR after RSV infection was 44.7% (75% vs. 38.3% in early and late groups, respectively). Patients with early RSV infection had significantly higher rate of new HLA and DSA detection (see table). After adjusting by infection site and RSV exposure, the odd ratios (OR) for new HLA detection for patients with early RSV was 5.4 [1.4, 20.7]. Both oral and inhaled RBV did not decrease the OR for ACR after adjusting for infection and timing of RSV infection after lung transplantation.

Conclusion. Our data showed RSV infection was associated with very high rates of ACR in both early and late RSV groups. Patients with early RSV had higher rates of new HLA and DSA detection.

1600. An Optimal Respiratory Syncytial Virus (RSV) Treatment in Lung Transplant Recipients: Oral Ribavirin, Inhaled Ribavirin, or Conservative Approach
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Background. Respiratory syncytial virus (RSV) is a common community acquired infection in lung transplant recipients (LTRs). The mortality in RSV-infected LTRs has been reported as 10–20% despite antiviral therapy; however, there is no consensus regarding treatment given limited data.

Methods. A retrospective study of all LTRs at Duke University during January 2013 and May 2017 with a positive RSV PCR respiratory specimen was performed. Baseline characteristics, sites of infection, antiviral therapy, side effects, outcomes including all-cause 1 year mortality post RSV infection, and 90-day readmission rates were analyzed. The Cox proportional hazard model was used to adjust the effect of ribavirin (RBV) on mortality.

Results. One hundred fourteen RSV-infected LTRs were identified: 70 received oral RBV; 32 inhaled RBV and 12 supportive care only. Baseline characteristics were similar between the 3 groups except site of infection and oxygen requirement at diagnosis (see table). Of 32 patients treated with inhaled RBV, 19 had a creatinine clearance <40 ml/minute and 8 were unable to take oral drugs. Unadjusted all-cause 1 year mortality was highest in the supportive care group (33.3% vs. 7.1% (oral RBV) vs. 25% (inhaled RBV), P = 0.01). There were no significant differences in readmission rates among the 3 groups. The adjusted hazard ratio (HR) for death and oral RBV use was 0.27 (0.07, 1.1), P = 0.07. The adjusted HR for death and inhaled RBV use was 0.90 (0.22, 3.68), P = 0.88. RBV was stopped prematurely in only 1 patient in the oral group due to nausea and vomiting.

Conclusion. Oral and inhaled RBV appear to be well tolerated in LTRs. Our data support the use of oral RBV as a safe alternative to inhaled RBV in LTRs. Additional studies are required to determine whether LTRs with asymptomatic RSV infection would benefit from RBV therapy.
1601. Effect of Preemptive Rituximab Therapy on Epstein-Barr Reactivation in Allogeneic Hematopoietic Stem Cell Pediatric Transplants

Background. Epstein-Barr virus (EBV) viremia is frequent in children with allogenic HSCT. Our previous studies have found that EBV infection is a risk factor for the development of post-transplant lymphoproliferative disease (PTLD). However, the effect of preemptive rituximab therapy on the risk of EBV reactivation and the development of PTLD needs to be better defined.

Methods. We retrospectively included all children who had a positive EBV VL within 12 months after an allogeneic HSCT (2007–2015) in a single tertiary pediatric hospital. Whole blood EBV-VL was monitored weekly using a real-time PCR, during the first 100 days after HSCT and then monthly until 6 months post-HSCT or until EBV-VL became undetectable. EBV-VL clearance was defined as two negative EBV-VL at least 1 week apart. Pre-emptive rituximab was defined as a treatment administered before the occurrence of PTLD. We determined the impact of pre-emptive rituximab on EBV-VL clearance, using a marginal structural model, adjusting for age at transplant, time between transplant and first positive EBV-VL, in vivo T-cell depletion at induction, value of EBV-VL at the first dose of rituximab, and the EBV-VL value at the current and previous time points.

Results. Of 214 children who underwent allogeneic HSCT, EBV DNA was detected in 87 (41%) children. Children who received rituximab after diagnosis of PTLD were excluded, leading to a cohort of 78 children. Twenty-two (28%) children received pre-emptive rituximab. Mean (SD) age was similar in both groups (10 [5] years). First post-transplant positive EBV-VL was earlier in the pre-emptive rituximab group (mean of 55 [54] vs. 113 [96] days; P < 0.005) and first positive EBV-VL was higher in the pre-emptive rituximab group (mean of 3.4 [0.6] vs. 3.0 [0.6] logVL/mL; P < 0.005). In adjusted analyses, pre-emptive rituximab was associated with a higher likelihood of EBV-VL clearance (hazard ratio 1.86; 95% confidence interval 1.10–3.14; Figure 1). Of the 10 children who developed PTLD, none had received pre-emptive rituximab.

Conclusions. EBV viremia is frequent in children with allogenic HSCT. Our results suggest that pre-emptive rituximab is associated with more rapid EBV-VL clearance. The effect of rituximab on the risk of PTLD needs to be better defined.

Figure 1. Inverse probability of EBV viremia clearance in children.

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1602. Clostridium difficile Infection as a Predictor of Acute Graft vs. Host Disease Among Allogeneic Stem Cell Transplant Recipients

Background. Clostridium difficile infection (CDI) is a major cause of infectious diarrhea especially among allogeneic stem cell transplant (SCT) recipients. The relationship between CDI and acute Graft vs. Host Disease (aGvHD) has been a topic of great interest for some time, as either of the two conditions may affect the other. We studied the temporal relationship of CDI on aGvHD in the first 100 days posttransplant in a large cohort of allogeneic SCT recipients.

Methods. We conducted an analysis of retrospective data extracted from the medical records of adult patients (more than 18 years of age) who underwent their first allogeneic SCT between January 1, 2010 and December 30, 2016 at the University of Kansas Health System. Patients were followed for CDI events between day −10 to day +100. The diagnosis of CDI was defined as a change in the aGvHD grade scale utilizing clinical and pathological information between day 0 and day +100. Analysis included descriptive statistics, multivariable logistic regression, and survival analysis with CDI as a time-dependent variable.

Results. A total of 656 allogeneic SCT recipients were included in the analysis. Of the total sample, 419 (64%) developed aGvHD within the first 100 days. CDI was observed in 112 (17%) of all allogeneic SCT recipients, 72 (64%) of CDI cases developed prior to the onset of aGvHD. Fidaxomicin was used in the treatment of 57 (50%), whereas, vancomycin was used in 53 (47%) of CDI cases. On unadjusted analysis, CDI was associated with aGvHD (P = 0.0036), high grade aGvHD (P = 0.0132), and GI aGvHD (P = 0.0003). On multivariate survival analysis, the following predictors were associated with aGvHD: CDI (adjusted Hazard Ratio (aHR) = 1.44, P = 0.0047), matched unrelated donor vs. matched related donor transplant type (aHR = 1.40, P = 0.0023), myeloablative vs. reduced intensity conditioning (aHR = 1.87, P < 0.0001). This was consistent with the stepwise logistic regression model.

Conclusions. Allogeneic SCT recipients with CDI have a higher risk of aGvHD compared with those without CDI.

Disclosures. All authors: No reported disclosures.

1603. Our Experience With M. marinum Cutaneous Infections in Three Patients Receiving Anti-TNFα

Background. Mycobacterium marinum is an environmental mycobacterium known to cause cutaneous infections in humans. The prevalence of M. marinum has increased with the increased use of anti-TNFα medications, and the development of a severe M. marinum infection that might require earlier diagnosis and more aggressive antibiotic therapy.

Methods. We describe our experience with three cases of aggressive cutaneous M. marinum infection in patients taking anti-TNFα that presented to Abington Memorial Hospital in Pennsylvania between 2014 and 2017.

Results. Age, gender, diagnosis.

| Age (y) | Gender | Diagnosis | Anti-TNFα, duration and indication | Delay in diagnosis | Treatment | Progression |
|--------|--------|-----------|-------------------------------|------------------|----------|-------------|
| 47     | M      | F Cellulitis/lymphangitis | Etanercept, 5 years, for RA | 2 weeks | Clarithromycin etrombulin | Cleared in 2 months |
| 34     | M      | M Cellulitis | Infliximab, 7 years, for UC | 10 weeks | Clarithromycin etrombulin | Cleared in 3 weeks |
| 62     | M      | F Cellulitis | Adalimumab, 8 months, for RA | 4 weeks | Clarithromycin rifampicin | Cleared in 1 month |

Disclosures. All authors: No reported disclosures.