1751. The Impact of Prophylactic Systemic Antibiotics (PSA) on Cytomegalovirus (CMV) Infection: A Post-hoc Analysis of a Randomized Controlled Trial (RCT) in Hematopoietic Cell Transplantation (HCT) Recipients

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Background. Prophylactic systemic antibiotics (PSA) during conditioning regimens-induced neutropenia after hematopoietic cell transplantation (HCT) reduce bacteremia but may disrupt the gut microbiota, potentially affecting viral immunity and risk for viral infections. Prior studies suggest a critical role of gut microbiota in the reconstitution of CMV-specific CD8+ T cells and in protection from respiratory viral infections after HCT (J Immunol 2007; 178: 5209; Blood 2018; 131:2978). To identify whether PSA is associated with differences in CMV infection outcomes after HCT, we conducted a post-hoc analysis of CMV infection in the only RCT of PSA exclusively performed in HCT recipients (Infection 1986; 14:115). In that trial, HCT patients received unscreened blood products and were tested weekly by CMV culture in throat, and disease was evaluated by tissue biopsy or bronchoalveolar lavage. CMV disease was confirmed by chart review.

Methods. A post-hoc analysis was performed of a previously conducted RCT in the pre-antiviral era (1984–1986) at the Fred Hutch. Patients received unscreened blood products and were tested weekly by CMV culture in throat, and disease was evaluated by tissue biopsy or bronchoalveolar lavage. CMV disease was confirmed by chart review. We compared the cumulative incidence of CMV at any site, CMV throat shedding, and CMV disease between randomization groups by day 100 post-transplant, treating death as a competing risk. Overall survival was also compared using Kaplan–Meier method.

Results. 119 and 125 allograft recipients were randomized to PSA and no prophylaxis, respectively. Baseline characteristics in both groups were balanced. CMV infection at any site and CMV throat shedding were greater in the PSA group (Figures 1 and 2); CMV disease was numerically reduced in the no PSA group (Figure 3). Overall survival by day 100 was not different between the groups (Figure 4).

Conclusion. CMV infection risk appeared to be increased in recipients of PSA with a significant anaerobic spectrum. While current PSA regimens have narrower spectrum activity, these results provide the rationale to study if changes in gut microbiota play a role in CMV reactivation and adaptive immunity after HCT.
standard-calibrated NAT in solid-organ (SOT) and hematopoietic stem cell transplant (HSCT) recipients.

Methods. Sixty-four patients (36 SOT and 28 HSCT) had plasma CMV viral load assessed using the COBAS AmpliPrep/COBAS TaqMan CMV Test (CAP/CTM; lower limit of quantification [LLoQ] at 137 IU/mL) and cobs 6800 System (cobas CMV; LLoQ at 35 IU/mL). Viral load values were correlated with clinical course and outcomes.

Results. Forty-three of 64 patients (67.2%) had CMV infection or disease (asymptomatic, 67.4%; gastrointestinal disease, 16.3%; pneumonitis 4.7%) at median of 4.4 months (IQR 1.4 to 7.7) from transplantation. At CMV infection diagnosis, viral load results (mean ± SD) were almost two-fold higher when measured by cobas CMV (19,456 ± 51,618 IU/mL) compared with CAP/CTM (10,504 ± 27,744 IU/mL; P = 0.04). Time to onset of CMV viremia was significantly shorter (11.5 days; P < 0.001) while viral clearance was significantly longer (12.7 days; P < 0.001) by cobas CMV when compared with CAP/CTM. Persistent viremia was observed in cobas CMV in 44% of patients at the time of first negative results by CAP/CTM. Patients with negative results by cobas CMV at the end of antiviral treatment had a significantly lower need for re-treatment (OR 0.26, 95% CI 0.64 to 0.99, P = 0.05).

Conclusion. Our study highlights significant differences between CMV QNAT assays despite calibration to the WHO International standard. The significant differences in the degree (almost two-fold), time to onset (12 days difference) and clearance (13 days difference) of CMV viremia between two automated commercial QNAT assays likely have implications for the management of CMV infection in allo-HCT recipients and identified opportunities for improvement. Overall, LMWCMV and IgG pre-vaccination and vaccines specific Abs post-vaccination (Figure 3).

IQR 8–14) (Figures 1 and 2). No correlations were found between absolute CD4, CD8, and CD19 and IgG pre-vaccination and vaccines specific Abs post-vaccination (Figure 3).

1753. Adherence and Immunogenicity of Early Vaccination in Pediatric Allogeneic Hematopoietic Cell Transplantation (allo-HCT) Recipients Dana Danino, MD; Joseph Stanek, CIPP; Micah Skees, CIPP; Hemalatha Rangarajan, MD; Monica I. Ardura, DO, MSCS; Nationwide Children's Hospital (NCH) Columbus, Ohio; The Ohio State University, Beavercreek, Ohio; Nationwide Children's Hospital and The Ohio State University, Columbus, Ohio

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Background. Allo-HCT recipients are at increased risk for vaccine-preventable infections. Early vaccination (EV) beginning at 3–6 months (mo) post-HCT has been shown to be safe, immunogenic, and is recommended. We assessed adherence and immunogenicity to EV in children post-allo-HCT.

Methods. Retrospective analysis of allo-HCT performed 1/1/10–6/30/18 at NCH. Children who died, relapsed, or received anti-CD20 biologics in the 6 mo preceding intended vaccination were excluded. Institutional guidelines recommend EV starting at 6 (+1) mo post-HCT with: 3 PCV13 + 1 PPSV23, IPV, HBV, DTaP and Hib. Vaccination rate were analyzed at 6 (+1), 8 (+1) and 10 (+1) mo post HCT and serologies were obtained pre- and 24 weeks post vaccination. Immunogenicity was defined as antibody (Ab) concentrations ≥ 1.3 μg/mL or a fold rise ≥ 70% of 10 PCV13 serotypes, tetanus (T) and diphtheria (D) Ab ≥ 0.1 IU/mL, and HBs Ab ≥ 10 IU/mL.

Results. During the 8-year study period, 171 allo-HCT were performed: 131 children were eligible for EV (Table 1); however, EV occurred in only 49.6% (65/131) and was completed in 37.5% (45/120) of children at 10(+1) mo post-HCT. Vaccination immunogenicity of PCV13, HBV, T and D was achieved in 40/45, 34/36, 63/64, and 18/18 of evaluable children, respectively. Specific IgG geometric mean concentration pre- and post-vaccination was similar in children whether they received early or delayed vaccination (median 9.8 mo post-HCT).

Conclusion. Despite recommendations, adherence to EV was low among our cohort of allo-HCT recipients and identified opportunities for improvement. Overall, vaccines were immunogenic with no significant differences in Ab concentrations among patients receiving early vs. delayed vaccination. No robust correlations were found between number of T&B cells or total IgG and Ab titers.

Disclosures. All authors: No reported disclosures.

1754. Pre-Transplant Vaccination Rates in Solid-Organ Transplant Recipients Daniel Friedman, MD, Sara Belga, MD; Catherine Burton, MD; Arvind Prekaskas, MD; Dima Kabbabi, MD; University of Alberta, Edmonton, AB, Canada

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Background. Recipients of solid-organ transplants (SOT) are at increased risk of vaccine-preventable illnesses. Because of the immunosuppression administered following SOT, live vaccines are generally contraindicated post-SOT, and response to inactivated vaccines may be suboptimal. National and international guidelines recommend optimizing immunizations prior to SOT. We analyzed rates of vaccination for SOT candidates in a cohort of adult kidney and liver transplant recipients.

Methods. A retrospective chart review of adult kidney, kidney/pancreas (KP) and liver transplant recipients was conducted between 2014 and 2016. We calculated the rates of vaccinations of the following vaccines: pneumococcus, meningococcus, Hepatitis A and B, Haemophilus influenzae type B, measles, mumps, rubella, polio, tetanus, diphtheria and pertussis.

Results. 300 patients were included (147 kidney, 14 KP, 139 liver). Liver recipients were older (mean age 53 vs. 50; P = 0.026) and less likely to have had a previous transplant (5.8% vs. 21.1%; P < 0.001) or a living donor (15.8% vs. 32.3%, P = 0.01).

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