Results. There were 120,654 incident cases of HZ seen in hospital or emergency department during the study period. Immunocompromised adults accounted for 13% of these cases despite representing only 3% of the population. The risk of HZ was higher for immunocompromised adults compared with immunocompetent (IRR = 2.8, 95% CI 2.8–2.9) and ranged across type of immunocompromising condition (from 2.2 [95% CI 2.3–2.4] in those with a solid tumor malignancy to 11.0 [95% CI 10.0–12.0] in those who had undergone a hematopoietic stem cell transplant). The risk of any HZ complication was also higher in immunocompromised adults (IRR = 3.5, 95% CI 3.4–3.6) and was highest for disseminated zoster (IRR = 31.5, 95% CI 26.3–37.5).

Conclusion. The risk of HZ and related complications was higher in immunocompromised populations compared with immunocompetent. Our findings underscore the high-risk nature of this population and the potential benefits that may be realized through HZ vaccination of this group.

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1760. Outcomes of Acyclovir-Resistant Herpes Simplex Virus Infections in Hematologic Malignancies and Hematopoietic Cell Transplant
Justine Abella, Ross, PharmD; Jana Dickter, MD; Bernard Tegtmeier, PhD; Sanjeev Dadwal, MD; City of Hope National Medical Center, Duarte, California
Session: 169. Transplant ID: Viral, Mycoplasma/Ureaplasma Infections
Friday, October 4, 2019: 12:15 PM

Background. Acyclovir-resistant (ACVr) herpes simplex virus (HSV) infection management is a challenge in patients with hematologic malignancies (HM) and hematopoietic cell transplant (HCT) recipients.

Methods. Retrospective review of patients aged ≥18 years with underlying HM and/or HCT and culture-positive ACV HSV between 1/1/2009 and December 1/2017 at a tertiary cancer center. Clinical, laboratory, microbiological, and treatment data collected.

Results. 33 patients identified; 25 (76%) acute leukemias, 3 (9%) chronic myeloid leukemia/chronic lymphocytic leukemia (CML/CLL), 3 (9%) lymphomas, 2 (6%) other HM, and 32 (97%) HCT. Median age of patients was 59 years (25–73) and 64% of them were females. HM type: 22 (67%) matched unrelated donor, 3 (9%) cord blood, and 7 (21%) matched related donor. All patients were on acyclovir prophylaxis prior to diagnosis. The median time to onset of ACV HSV infection was 147 days after transplant. Infection site: 16 (49%) oral, 10 (30%), ano-genital, 5 (15%) oral and esophagus, lung, 2 (6%) esophagus/lung. Pertinent laboratory data on day of viral culture (median/range): white blood cell (WBC) 4.6 cells/µL (0.1–85.9), absolute neutrophil count (ANC) 2,316 cells/µL (0–17,000), absolute lymphocyte count (ALC) 574.5 cells/µL (2–12,000).

Conclusion. The median time to onset of ACV HSV infection was 147 days after transplant. ACVr HSV is predominantly encountered in allogeneic HCT, particularly those that are females. HCT type: 22 (67%) matched unrelated donor, 3 (9%) cord blood, and 7 (21%) matched related donor.

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1761. A Single-Center Experience with Cidofovir for the Treatment of Double-Stranded (ds) DNA Viruses in Hematopoietic Cell Transplant (HCT) Recipients
Anat Stern, MD; Yiqi Su, MS; Dionysios Neofytos, MD; Genoetova Papanicolaou, MD; Memorial Sloan Kettering Cancer Center, New York, New York; University Hospital of Geneva, Geneva, Geneva, Switzerland
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Background. Cidofovir (CDV), a nucleotide analog antiviral, is active against multiple dsDNA viruses relevant in HCT recipients. Despite a broad spectrum of activity, CDV utility is limited due to nephrotoxicity. We describe our experience with CDV in a large contemporary cohort from a single Institution.

Methods. Retrospective review of adult HCT recipients who received CDV for any indication from 2011 to 2017. Initiation and duration of CDV treatment were at physicians’ discretion. CDV exposure and indications, Serum Creatinine (Scr) and outcomes were extracted from medical records and hospital databases.

Results. Of 1,235 HCT recipients, 54 (4.4%) received ≥1 dose of CDV. Stem cell source was peripheral blood in 39 (72%) patients, cord blood in 13 (24%) and marrow in 2 (4%); 42 (78%) patients received CD34+ selected HCT. At CDV initiation, 23 (43%) patients had active GvHD and 16 (30%) received systemic steroids. CDV was started a median of 85.5 days (range 14–355) post HCT, for a median of 3 doses (range 1–13) for a median of 2 weeks (range 1–17). Indications were adenovirus (ADV) infection in 35 patients, CMV in 19, BK virus in 21 and HHV6 in 3 patients. Nineteen (35%) patients had ≥1 dsDNA virus. Forty-one (76%) patients received CDV (3–5 mg/kg) once weekly, mainly for ADV or CMV, and 13 received CDV (≤1 mg/kg) once to thrice weekly, mostly for BK hemorrhagic cystitis (N = 12).

Baseline Scr was mean 0.88 mg/dL (standard deviation [SD] = 0.37) at CDV initiation, mean 1.07 mg/dL at end of treatment (EOT) (SD = 0.57, N = 48, P = 0.004) and mean 1.23 mg/dL at EOT + 2 weeks (SD = 0.72, N = 28, P = 0.027). At EOT, 13 patients (24%) had acute kidney injury (AKI, 21.5-fold increase from baseline Scr). Of those, 12 (92%) received concomitant nephrotoxic drugs. AKI was attributed to other etiologies by treating physician in six patients. Of 51 patients with follow-up at EOT, 29 (57%) had clinical response to CDV treatment. Nineteen (35%) patients died ≤4 weeks from last CDV dose.

Conclusion. 24% of highly immunocompromised HCT patients experienced AKI following CDV treatment for dsDNA viruses. The co-administration of nephrotoxic medications and the direct effect of infection limit our ability to assess the relative impact of CDV on renal function. Our data underscores the need for safer treatment options for HCT patients with life-threatening infections with dsDNA viruses.

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1762. Genotype Prevalence and Molecular Characteristics of Human Adenovirus in Pediatric Hematopoietic Stem Cell Transplant Recipients

Jesse Blumenstock, BS; Despoina M. Galetaki, MD; Craig L. K. Bogé, MPH; Sydney G. Shuster, MPH; Alix Seif, MD, MPH; Hans Petersen, MS; Ana Maria Cardenas, PhD, D(ABMM); Brian T. Fisher, DO, MPH, MSCE; Adriana Kajon, PhD; Children's Hospital of Philadelphia, Philadelphia, Pennsylvania; Lovelace Respiratory Research Institute, Albuquerque, New Mexico; Becket Dickinson, Philadelphia, Pennsylvania; Children's Hospital of Philadelphia; Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania

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Background. Human adenovirus (HAdV) is a documented source of morbidity and mortality after hematopoietic cell transplant (HCT); however, there are limited data documenting HAdV species and type in this population. Understanding the molecular characteristics of HAdV could inform the development and assessment of interventions. The species and type of HAdV-positive specimens are detailed using an archived convenience sample of specimens obtained in pediatric HCT recipients.

Methods. The cohort included autologous and allogeneic HCT recipients between January 2000 and December 2013. An archived clinical repository of frozen specimens was interrogated to identify residual HAdV-positive specimens, which were sent to Lovelace Respiratory Research Institute (LRRI) to determine species and type. Medical chart review was performed to determine whether an isolate was related to HAdV disease or HAdV-attributable death.

Results. There were 547 HAdV PCR-positive clinical specimens from 87 HCT recipients. Of the 547 specimens, 289 were identified from an archived repository and sent to LRRI to determine species and type, and HAdV was successfully isolated and typed from 61 (Figure 1). Species C was the most common species (59.0%) with C2 being the most frequent type (34.4%). Of the 15 recipients with type C2, plasma was the most common specimen source (57.1%). Three recipients with C2 had this species and type detected from multiple sources (Tables 1 and 2). Among those with a typing result, type C2 also was responsible for 33.3% of all HAdV-attributed disease and 38.1% of all HAdV-attributed death.

Conclusion. Species C was the most common species to be isolated in a convenience sample of HAdV-positive clinical specimens from a single-center cohort of pediatric HCT recipients. Type C2 was most commonly associated with HAdV disease and attributable death. These results suggest HAdV species and type influence the impact of HAdV in this patient population. The findings need to be confirmed in prospective cohorts, but suggest real-time molecular typing may be relevant and provide possible targets for the development of future interventions. These results must be interpreted with caution; not all clinical specimens were available for molecular typing, and it is possible C2 is easier to isolate from archived specimens.

Figure 1: Flow diagram of specimens collected from Pediatric Hematopoietic Cell Transplant (HCT) Recipients to typing of Human Adenovirus isolates

Table 1: Indicators for coinfecion administration. ADV: Adenovirus; CMV: Cytomegalovirus; HHV6: Human Herpes virus 6.

Table 2: Characteristics of patients with acute kidney injury

Table 3: Rates and Outcomes of End Organ Disease

N: Number of patients; % Probable: % of cases classified as probable; % Clinical response: % of cases classified as clinical response; % death within 4 weeks: % of cases classified as death within 4 weeks.