***Methods.*** We retrospectively analyzed HCT patients between 2007 and 2017. Subjects were included if they had macroscopic hematuria (Bedi grade ≥2), a positive urine BKPyV PCR, and at least one plasma BKPyV viral load available after platelet engraftment or Day 28 post-HCT. HC was defined by hematuria and positive urine BKPyV PCR; duration was determined by time to resolution of hematuria. Demographic data, baseline symptoms, and clinical outcomes (e.g., need for bladder irrigation, use of cidofovir) were reviewed.

***Results.*** BKPyV-HC developed in 149 HCT recipients (97.3% allogeneic, 73% myeloablative conditioning) at a median of 54 days post-transplant (IQR 40–73). Seven percent were co-infected with adenovirus at the time of diagnosis. Symptoms and outcomes are shown in Table 1. Of those with plasma viral load testing at the onset of HC, 91% (112/126) had BKPyV viremia with a median viral load of 2,200 copies/mL (IQR 385–9,300). Twenty-nine percent of the cohort received cidofovir.

***Conclusion.*** We describe the characteristics of BKPyV-associated HC in HCT recipients in the modern era of immunosuppression. BKPyV-associated HC is a morbid disease in need of improved management strategies; patient-centered estimates of outcomes are crucial for evaluating new agents.

**Table 1.** Symptoms and outcomes of BKPyV-associated HC

| | BKPyV- HC *n* = 149 (%) |
|---|---|
| Clots in urine* | 92 (60) |
| Dysuria* | 124 (81) |
| Frequency* | 91 (59) |
| Urgency* | 68 (44) |
| Flank pain* | 22 (14) |
| Abdominal pain* | 30 (20) |
| Median duration of symptoms in days (IQR) | 25 (14–49) |
| Median duration of hematuria or urine clots in days (IQR) | 18 (12–39) |
| Median duration of phenazopyridine or oxybutynin use in days (IQR) | 19 (8–34.5) |
| Need for pain medication† | 109 (71) |
| Need for Foley placement† | 49 (32) |
| Need for continuous bladder irrigation† | 26 (17) |
| Need for surgical intervention† | 9 (6) |

*At presentation.

†Any time during course.

***Disclosures.*** **S. Pergam**, Merck: Consultant, Consulting fee; Chimerix: Consultant, Consulting fee. **A. Limaye**, Novartis: Consultant, Consulting fee. **M. Boeckh**, Vir Biotechnology: Consultant and Grant Investigator, Consulting fee and Research grant; Chimerix Inc: Consultant, Grant Investigator and Investigator, Consulting fee, Research grant and Research support.

### 1561. Outcomes of Resistant or Refractory CMV Infection in Recipients of Allogeneic Hematopoietic Cell Transplant

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***Background.*** Resistant or refractory CMV infections are not well defined and may be associated with high morbidity and mortality in allogeneic hematopoietic cell transplant (allo-HCT) recipients. Suspicion of resistant CMV infections is usually based on suboptimal responses to antiviral agents.

***Methods.*** We performed a single-center retrospective chart review (January 2010 to September 2017) of Allo-HCT recipients who had CMV genotypic testing performed for suspected antiviral resistance. Based on the results, we categorized patients as either having refractory CMV (defined as CMV viremia that fails to decrease after at least 2 weeks of appropriately dosed and delivered antiviral therapy; and in the absence of known genetic mutations to the available antiviral agents) or resistant CMV infection (defined as refractory infection with identification of genetic mutations in the *UL97* and/or *UL*54 genes correlating with *in vitro* antiviral resistance). Primary outcome was all-cause mortality.

***Results.*** CMV genotypic resistance analysis was performed in 97 patients. Of those, 23 had resistant (11 had *UL54* gene, 10 had *UL97* gene, and two had both *UL54* and *97*) and 74 had refractory CMV infections. The majority of patients had AML (53%), underwent matched unrelated donor transplantation (43%), and received ATG during conditioning (64%). Patients with resistant CMV infections had a greater number of prior episodes when compared with those with refractory infections and had a longer time from transplant to suspicion of resistance ($P < 0.01$; each). Overall, the incidence of CMV disease was 41% (25% vs. 58% affecting the lungs and 56% vs. 17% the GI tract, in resistant vs. refractory infections, respectively). All-cause mortality was 57% (61% resistant vs. 55% refractory) and CMV-attributable mortality was 11% (9% resistant vs. 12% refractory).

***Conclusion.*** Our data showed that resistant CMV infections are associated with a higher rate of CMV disease. However, both resistant and refractory CMV infections had increased all-cause mortality and similar CMV-attributable mortality. There was no difference in outcomes between allo-HCT recipients who had resistant or refractory CMV infections. New treatment strategies for resistant or refractory CMV infections are needed.

***Disclosures.*** **S. L. Aitken**, Merck: Speaker's Bureau, Consulting fee. **E. Ariza-Heredia**, Oxford Immunotec: Grant Investigator, Research grant. **R. Chemaly**, Merck: Consultant, Research grant; Chimerix: Consultant, Research grant; Novartis: Investigator, Research grant; Oxford Immunotec: Consultant, Research grant.

### 1562. Impact of Skin Biopsy on Diagnosing Infections and Changing Treatment in Cancer Patients with New Skin Rash

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***Background.*** Skin lesions in immunosuppressed cancer patients have a broad differential of infectious and non-infectious causes. Rash may be an early indication of serious systemic infections that are otherwise difficult to diagnose; hence, skin biopsy with culture and histopathology plays a vital role in establishing a diagnosis. Our study aims to determine the yield of skin biopsy in identifying infections and its impact on diagnosis and therapy.

***Methods.*** We performed a retrospective review of all cancer patients admitted to University of Maryland from August 2010 to October 2017 who had a skin biopsy for new rash. We classified the skin lesion as infectious if the biopsy pathology or culture showed a pathogenic organism.

***Results.*** Of 269 patients biopsied for new skin lesions, 43 (16%) were caused by infection and 226 (84%) were non-infectious. Among non-infectious causes, 63% were due to graft vs. host disease, 9% cancer, 9% drug reaction, 4% Sweet syndrome, and 29% were nondiagnostic. The median WBC count trended toward significantly lower in the infectious group (1,100/μL) vs. the non-infectious group (2,700/μL; $P = 0.08$). Of the 43 infectious lesions, 21 (49%) were fungal, 13 (30%) bacterial, seven (16%) viral and one (2%) mycobacterial. Sixty-seven percent patients had absolute neutrophil counts <1,000/μL, 40% were febrile, and 28% had had a stem cell transplant. The majority of infections (58%) were identified by skin biopsy alone. Change in diagnosis after biopsy was significantly more likely in patients with infectious cause of skin lesions than non-infectious (47% vs. 28%, respectively, $P < 0.02$). Patients with a biopsy-confirmed infectious cause were five times (95% CI 2.70–10.22) more likely to have a change in therapy post biopsy compared with patients with a non-infectious cause. The sensitivity and specificity of provider diagnosis prior to biopsy was 86 and 81%, respectively. The positive predictive value of pre-biopsy provider diagnosis was low at 46%.

***Conclusion.*** Skin biopsy of new rash in immunocompromised cancer patients frequently reveals systemic infections (especially fungal) and often leads to a change in diagnosis and therapeutic management.

***Disclosures.*** **All authors:** No reported disclosures.

### 1563. Relationship of Cumulative Viral Burden of Adenovirus with Mortality in Allogeneic Hematopoietic Cell Transplant Recipients with Early Adenovirus Viremia

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***Background.*** Higher peak adenovirus (ADV) viral loads (VL) have correlated with higher mortality in allogeneic hematopoietic cell transplant (HCT) recipients. ADV viral dynamics may inform trial design of new treatment strategies. We examined the relationship between cumulative viral burden expressed as average area under the curve (AAUC) and mortality.

***Methods.*** We identified 62 HCT at MSK monitored by plasma ADV qPCR (Viracor-Eurofins) who had >1 value of ADV VL ≥100 copies/mL <100 days post-HCT. AAUC was calculated as the sum of the area of trapezoids of AAUC VL ($\log_{10}$copies/mL) divided by the duration (weeks) of viremia. AAUC was categorized into quartiles (Q). Survival was obtained by the Kaplan–Meier method at 16 weeks from onset of ADV. Cox proportional hazard models were used to evaluate the association between AAUC and mortality. Age, underlying disease, HLA match, stem cell source, ex vivo T-cell depletion (TCD) and acute graft-vs. host disease (aGVHD) were included in the model.

***Results.*** Of 62 patients, 24 (39%) were children, 40 (65%) had acute leukemia or myelodysplastic syndrome, 50 (81%) received myeloablative conditioning, 41(66%)