1593. Recurrence of Clostridium difficile Infection in Multiple Myeloma Patients Receiving Prophylactic Oral Vancomycin or Oral Metronidazole vs. No Prophylaxis
Gisele Moran, MPH; Naveen Yarlagadda, MD; Sandra Susanbar, MD; Nail Koharrz, MD; Juan Carlos Rico, MD and Mary J Burgess, MD; College of Medicine, University of Arkansas for Medical Sciences, Little Rock, Arkansas, 1Internal Medicine, UAMS, Little Rock, Arkansas, 2Myeloma Institute, University of Arkansas for Medical Sciences, Little Rock, Arkansas, 3Division of Infectious Diseases, UAMS, Little Rock, Arkansas
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Background. Multiple myeloma (MM) patients are at increased risk of Clostridium difficile infection (CDI) compared with the general population. In prior studies, 12-14% were diagnosed with CDI, and ~16% had recurrent CDI during subsequent treatments. Recent studies have shown that oral vancomycin is effective secondary prophylaxis for the prevention of recurrent CDI in the general population. This retrospective study examined if secondary prophylaxis with oral vancomycin or metronidazole is effective to prevent recurrent CDI in MM patients.

Methods. MM patients who tested positive for their first episode of CDI from January 2014–December 2016 were included, and the 3 months following the CDI diagnosis was reviewed. Patients who died, and those who did not receive additional chemotherapy or antibiotics during the 3-month review period were excluded. The patients were divided into 3 cohorts: (1) oral vancomycin as secondary prophylaxis, (2) oral metronidazole as secondary prophylaxis, and (3) no C. difficile prophylaxis.

Results. A total of 110 MM patients with a first episode of CDI were reviewed, six were excluded due to death and four were excluded due to no subsequent chemotherapy or antibiotics. This left 100 patients included for analysis. The median age was 62 years, range 34–81, 92 subjects (92%) had exposure to antibiotics and 76 (76%) received cefepime. A total of 38 (38%) received secondary prophylaxis: 16 (42%), with oral metronidazole and 22 (58%) with oral vancomycin. There was no significant difference in recurrent CDI in patients who received any secondary prophylaxis (7/38, 18.4%) and in those who received none (15/62, 24.2%), P = 0.46. Incidence of recurrent CDI in patients receiving oral vancomycin (3/22, 13.6%) was not significantly different from patients receiving oral metronidazole (4/16, 25%), P = 0.56. An analysis of risk factors for recurrent CDI showed no difference in recurrence in patients who were treated either with vancomycin or metronidazole for the initial CDI. Similar in recurrent CDI occurred in patients who received antibiotics and those who received chemotherapy.

Conclusion. Secondary prophylaxis with either oral metronidazole or oral vancomycin did not reduce the incidence of recurrent CDI in MM patients.

Disclosures. All authors: No reported disclosures.

1594. Evaluating Clinical Outcomes of an Alternative Cefepime Dosing Regimen as Empiric Antibiotic Therapy in Hospitalized Adults with Fecal Neutropenia
Manuela Haiduc, PharmD; Derek Bremmer, PharmD, BCPS; Thomas Walsh, MD and Matthew Moffa, DO; Allegheny Health Network, Pittsburgh, Pennsylvania
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Background. A cefepime dosing regimen of 1 g every 6 hours (1 g Q6h) has shown to provide similar exposure above the target minimum inhibitory concentration compared to the higher FDA-approved regimen of 2 g Q8h for febrile neutropenia. We hypothesize clinical outcomes among patients receiving either dosing strategy will be similar.

Methods. A retrospective chart review of hospitalized patients who received cefepime for documented febrile neutropenia over a two-year period was performed. Patients were grouped based on cefepime dosing strategy: 1 g Q6h vs. 2 g Q8h. The primary objective as average time to defervescence was similar between the 1 g Q6h and 2 g Q8h groups (85.9 hours vs. 89.7 hours: P = 0.206), respectively. Additionally, no differences were found in the secondary objectives including all-cause 30-day mortality, duration of therapy, and length of stay (LOS).

Results. Seventy-five patients in each arm were included. There were no differences in baseline age or severity of illness between groups. There was no difference in the primary objective as average time to defervescence was similar between the 1 g Q6h and 2 g Q8h groups (85.9 hours vs. 89.7 hours: P = 0.206), respectively. Additionally, no differences were found in the secondary objectives including all-cause 30-day mortality (6.7% vs. 9.3%; P = 0.547), duration of therapy (95.7 hours vs. 99.1 hours: P = 0.174), and LOS (9 vs. 7 days: P = 0.251).

Conclusion. The regimen of cefepime 1 g Q6h provides similar clinical outcomes as the traditional FDA-approved 2 g Q8h regimen in the treatment of febrile neutropenia. The lower total daily dose will result in less drug exposure and a potential decreased risk of cefepime-related adverse drug events.

1595. Impact of Levofloxacin for the Prophylaxis of Bloodstream Infection on the Gut Microbiome in Patients with Hematologic Malignancy
Matthew Ziegler, MD; Jennifer H. Han, MD, MSCF; Daniel Landsburg, MD; David Pegues, MD, FIDSA, FSHEA; Emily Reese, MS; Cheryl Gilmaz, MS, MT, CIC; Theresa Gorman, MSN, RN, BSN; Jessica Bink, MSN, RN, AOCNS-BC; Amy Moore, MSN, RN, ACNS-BC; Brendan J. Kelly, MD, MS' and CDC Prevention Epicenters Program; 1Division of Infectious Diseases, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, 2Center for Clinical Epidemiology and Biostatistics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, 3Division of Hematology and Oncology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, 4Healthcare Epidemiology, Infection Prevention and Control, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, 5Infection Prevention and Control, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania, 6Division of Infectious Diseases, Dept. of Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania
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Background. Prophylactic antibiotics for the prevention of bloodstream infections (BSIs) during neutropenia (NTP) may reduce the incidence of BSIs, NTP fever, and mortality. However, antibiotics may also result in dysbiosis of the gut microbiome. We aimed to study the impact of levofloxacin prophylaxis compared with broad-spectrum β-lactam (BSBL) antibiotics used for the treatment of NTP fever on gut microbiome features in patients with hematologic malignancy.

Methods. Stool specimens from hematologic malignancy patients admitted for chemotherapy or stem cell transplant (SCT) in the setting of the evaluation of diarrhea were collected from September 2017 to November 2017. Levofloxacin prophylaxis was standard of care for patients undergoing autologous SCT or induction chemotherapy for acute myeloid leukemia (AML). 16S rRNA (V1–V2 amplicon) sequencing was performed using the Illumina HiSeq platform, formation of operational taxonomic units (OTUs) was performed using QiIME 1.9.1, and taxonomic assignment was performed via the GreenGenes database (13.8). Descriptive statistics were used to compare microbiome features.

Results. A total of 57 samples from 44 patients were included, most with AML (42%), multiple myeloma (33%), or non-Hodgkin's lymphoma (12%). In 7 days prior to sample collection, 28 (49%) patients received a BSBL and 17 (29%) received levofloxacin. The gut microbiome of patients with BSBL exposure had significantly reduced Shannon alpha diversity compared with those without: median 1.96 [IQR 1.08–2.57] vs. 2.22 [IQR 2.05–2.93]; P < 0.01. However, those with and without levofloxacin exposure showed no difference: median 2.37 [IQR 2.19–2.75] vs. 2.22 [IQR 2.05–2.93]; P = 0.14. In contrast, levofloxacin exposure was associated with a lower risk of dominance: 2% vs. 15% (55%); P = 0.01 and was associated with a greater proportion of Bacteroidetes taxa: 75% vs. 27% (P < 0.01).

Conclusion. Our findings suggest that the impact of antibiotics on the gut microbiome vary by class, and that levofloxacin may have limited impact on the gut microbiome in this patient population. Further studies are needed to investigate this potential differential impact of antibiotic classes.

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1596. Thinking Locally: Can Unit-Specific Methillin-Resistant Staphylococcus aureus Screening Augment Stewardship Interventions for Febrile Neutropenia? Rachel Bartash, MD,1 Belinda Ostrowsky, MD, MPH, FIDSA, FSHEA;2 Adam Binder, MD;3 Kellese Cowman, MPH;4 Carol Sheridan, RN MSN OCN BMTCN;5 Yi Guo, PharmD;6 Michael Levi, ScD, (D) ABMM;5 Wendy Szymczak, PhD;7 Philip Gulbrandsen, MSc and Priya Nori, MD,1 Division of Infectious Diseases, Department of Medicine, Montefiore Medical Center and Albert Einstein College of Medicine, Bronx, New York, 2Sidney Kimmel Cancer Center, Thomas Jefferson University, Philadelphia, Pennsylvania, 3Oncology, Montefiore Medical Center, Bronx, New York, 4Pharmacy, Montefiore Medical Center and the Albert Einstein College of Medicine, Bronx, New York, 5Pathology, Montefiore Medical Center and the Albert Einstein College of Medicine, Bronx, New York.

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Background. Inappropriate IV vancomycin prescribing for febrile neutropenia (FN) is an excellent stewardship target given well-established guidelines specifying indications for its use. As a supplement to an educational initiative with institutional FN guidelines, we conducted methillin-resistant Staphylococcus aureus (MRSA) colonization screening to estimate its prevalence on our hematology/oncology unit. We hypothesize that MRSA prevalence data can augment existing stewardship efforts to improve IV vancomycin use in FN.

Methods. (1) Pre-intervention: we conducted a retrospective chart review of vancomycin receipt for FN on a 32-bed Hematology/Oncology unit, November 2015–May 2016 (control group). (2) Intervention: in January 2017, we implemented an institutional FN guideline with recurring education to hematology/oncology providers emphasizing criteria for appropriate vancomycin initiation. Vancomycin audit was again conducted from February 2017–October 2017 (intervention group). The primary outcome was appropriateness of vancomycin use per guideline indications (chi-squared analysis). Use was considered inappropriate if no guideline indications were met.

Results. Forty-three of 69 controls were started on vancomycin appropriately vs. 60 of 91 intervention group patients (49% vs. 66%, P = 0.02). Results of MRSA screening and follow-up for invasive infection are shown in Table 1.

Conclusion. Recurring, guideline-focused education can improve appropriateness of vancomycin for FN. High NPV in our study supports the hypothesis that MRSA screening can augment stewardship efforts to reduce vancomycin use when not indicated.

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1597. Risk Factors for Failure of Primary (Val)ganciclovir Prophylaxis Against Cytomegalovirus (CMV) Infection and Disease in Solid Organ Transplant (SOT) Recipients Mark Poulussen Khurana, Medical Student1, Isabelle Paula Lodding, MD1, Amanda Mocroft, MSc, Professor2, Soren Schwartz Sorensen, MD2, Michael Perch, MD2, Allan Rasmussen, MD1, Finn Gustafsson, MD and Jens Lundgren, MD, DMSc, Professor3, 1Centre of Excellence for Health, Immunity and Infections (CHIP), Department of Infectious Diseases, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark, 2Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK, 3Department of Nephrology, Righospitalet, University of Copenhagen, Copenhagen, Denmark, 4Department of Cardiology, Section for Lung Transplantation, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark, 5Department of Surgical Gastroenterology, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark, 6Department of Cardiology, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark and 7Centre of Excellence for Health, Immunity and Infections (CHIP), Rigshospitalet, University of Copenhagen, Copenhagen, Denmark.

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Background. Following solid-organ transplantation (SOT), the optimal dose of primary (val)ganciclovir (v)gcv) prophylaxis against CMV infection is debated, and breakthrough infection and treatment-limiting side effects are frequently seen. Rates and risk factors for CMV prophylaxis breakthrough and premature cessation of prophylaxis for other reasons were investigated in a large cohort of consecutive SOTs.

Methods. SOT recipients transplanted (tx) between 2012 and 2016 at Rigshospitalet, and who were initiated on primary prophylaxis ≤54 days post-tx were followed from this time until 90 (±7) days post-tx. A prophylaxis score for each patient/day was calculated during the follow-up time (FUT) (score of 100 corresponding to the manufacturers’ recommended dose for a given eGFR; Figure 1). Prophylaxis breakthrough was defined as PCR verified CMV DNA positivity in plasma or BAL (i.e., infection) and premature stop of prophylaxis as >7 days with a score of 0. Time to event and hazard ratios (HR) were estimated with Cox models after adjustment for relevant risk factors.

Results. Of 585 SOTs (311 kidney, 117 liver, 106 lung, 51 heart) included, 41 (7%, 95% CI 4.9–9.1%) experienced CMV prophylaxis breakthrough (9/41 [22%, 9.2–34.6%] developed viral resistance to (v)gcv) and 33/585 (5.6%, 3.7–7.5%) ceased prophylaxis for other reasons during the first 90 days after tx. After adjustment for tx type, CMV IgG D+/R− mismatch and increasing % of FUT with a prophylaxis score ≤90 were associated with increased risk of breakthrough (HR 4.76 [95% CI 2.38–9.54] P < 0.001 and HR 1.15 [1.04–1.27] P = 0.007/100 longer FUT w/ score < 90 respectively, Figure 2) whereas tx type was not. The main risk factor for stopping prophylaxis for reasons other than breakthrough was lung tx (22.9%, HR 13.4 vs. kidney SOT) ([19.6–17.0]), mainly due to liver or myelotoxicity.

Conclusion. SOTs receiving (v)gcv primary prophylaxis doses below the manufacturers’ recommended doses according to latest eGFR were at an increased risk of CMV prophylaxis breakthrough, particularly in case of CMV IgG D+/R− mismatch, while 23% of lung tx recipients stopped prophylaxis mainly due to toxicity. Our findings indicate the need to dose adjust (v)gcv according to latest eGFR and preferably use novel, less toxic agents.

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