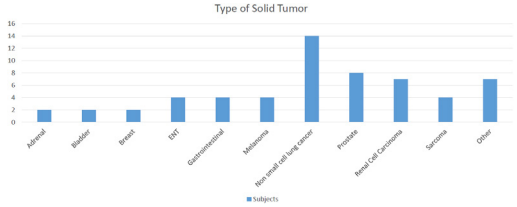

	Total N=92	Group 1 N= 50	Group 2 N= 42
Demographics			
Median age (IQR)	61 (50-71)	61 (51-69)	61 (48-73)
Female subjects (%)	37 (40)	24 (48)	13 (31)
Race (%):			
Caucasian	65 (71)	33 (66)	32 (76)
Hispanic	14 (15)	9 (18)	5 (12)
African American	8 (9)	4 (8)	4 (10)
Asian	1 (1)	1 (2)	0 (0)
Other	4 (4)	3 (6)	1 (2)
Smoking status (%):			
Never	49 (53)	29 (58)	20 (48)
Former	38 (41)	18 (36)	20 (48)
Current	5 (5)	3 (6)	2 (5)
Type of viral infection (%):			
Influenza	34 (37)	18 (36)	16 (38)
RSV	19 (21)	11 (22)	8 (19)
PIV	19 (21)	8 (16)	10 (24)
HMPV	18 (20)	11 (22)	7 (17)
Mixed	3 (3)	2 (4)	1 (2)
Cancer type (%):			
Hematological Malignancy	35 (38)	17 (34)	16 (38)
Solid tumor	59 (64)	33 (66)	26 (62)
Type of Hematological Malignancy (%):			
Acute Leukemia	10 (11)	5 (10)	5 (12)
Chronic Leukemia	3 (3)	2 (4)	1 (2)
Myelodysplastic syndrome	5 (5)	2 (4)	3 (7)
Hodgkin Lymphoma	10 (11)	5 (10)	5 (12)
Non Hodgkin Lymphoma	7 (8)	3 (6)	4 (10)
Type of Solid tumor (%):			
Adrenal	2 (2)	0 (0)	2 (5)
Bladder	2 (2)	1 (2)	1 (2)
Breast	2 (2)	1 (2)	1 (2)
ENT	4 (4)	2 (4)	2 (5)
Gastrointestinal	4 (4)	3 (6)	1 (2)
Melanoma	4 (4)	2 (4)	2 (5)
NSCLC	14 (15)	11 (22)	3 (7)
Prostate	8 (9)	1 (2)	7 (17)
RCC	7 (8)	4 (8)	3 (7)
Sarcoma	4 (4)	2 (4)	2 (5)
Other	7 (8)	5 (10)	2 (5)
Cancer status (%):			
Remission	10 (11)	4 (8)	6 (15)
Active Disease	82 (89)	46 (92)	36 (85)
Type of Check point inhibitor (%):	16 (18)	5 (10)	11 (26)
Ipilimumab	46 (50)	27 (54)	19 (45)
Nivolumab	23 (25)	11 (22)	12 (28)
Pembrolizumab	4 (4)	4 (8)	0 (0)
Atezolizumab	3 (3)	1 (2)	2 (5)
Avelumab	6 (7)	3 (6)	3 (7)
Durvalumab	5 (5)	2 (4)	3 (7)
More than one agent			
Side effects from CPI 6 months prior to infection (%):	12 (13)	0 (0)	12 (28)
Use of steroids within 30 days of infection (%):	6 (7)	1 (2)	5 (13)
Radiation therapy within 18 months of infection (%):	11 (12)	6 (12)	5 (13)
Received Influenza Vaccine (%):	19 (21)	10 (20)	9 (21)
Baseline laboratory values			
White blood cell count (IQR)	5.5 (3.35-7.85)	5.5 (3.2-7.6)	5.5 (3.6-8.3)
Absolute Lymphocyte count≤200 (%)	6 (7)	1 (2)	5 (12)
Absolute neutrophil count ≤500 (%)	8 (9)	3 (6)	5 (12)
Creatinine (IQR)	0.88 (0.73-1.11)	0.9 (0.7-1.13)	0.87 (0.74-1.11)
Antiviral therapy			
Received antiviral therapy (%)	38 (42)	20 (40)	18 (44)
Agent used (%):			
Oseltamivir	29 (32)	16 (32)	13 (32)
Oral Ribavirin	8 (9)	4 (8)	4 (10)
IVIG	4 (4)	0 (0)	4 (10)
Duration of therapy (%):			
Oseltamivir	5 (5-7)	5 (5-5)	5 (5-9)
Ribavirin	8 (7-11)	7 (6-13)	10 (9-10)
Therapy initiated with 48 hours of symptoms (%)	29 (78)	15 (75)	14 (82)
Outcomes			
Total LRTI (%)	29 (32)	12 (24)	17 (40)
Progressed to LRTI (%)	5 (5)	3 (6)	2 (5)
Proven LRTI (%)	9 (31)	4 (33)	5 (29)
Cases admitted (%)	55 (60)	33 (66)	22 (52)
Cases requiring ICU care (%)	11 (20)	5 (15)	6 (27)
Median length of stay (IQR)	4 (2-11)	3 (2-9)	8 (4-13)
Oxygen use (%)	29 (32)	16 (32)	13 (31)
Mechanical Ventilation (%)	4 (4)	3 (6)	1 (2)
30 day Mortality (%)	7 (8)	2 (4)	5 (12)
60 day mortality (%)	9 (10)	3 (6)	6 (14)

Table 1: Comparison of characteristics and outcomes in infected patients while on CPI therapy (group 1) or with prior exposure to CPI (group 2).

CPI: Check point inhibitor; RSV: Respiratory syncytial virus; PIV: Parainfluenza virus; HMPV: Human Metapneumovirus; NSCLC: Non-small cell lung cancer; RCC: Renal cell carcinoma; LRTI: Lower respiratory tract infection

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2682. Prophylaxis-Driven Molecular Epidemiology of *Pseudomonas aeruginosa* Bloodstream Infections in Adults With Leukemia

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Session: 275. Transplant ID: Malignancy and Neutropenia
Saturday, October 5, 2019: 12:15 PM

Background: Fluoroquinolones (FQs) are routinely used as antimicrobial prophylaxis in leukemia patients receiving chemotherapy to prevent Pseudomonas aeruginosa infections. Patients who are intolerant to FQs may receive cefpodoxime (CPD) or other agents. How FQ use affects the resistance profile and epidemiology of breakthrough P. aeruginosa infections is unknown. To determine this, we performed a whole-genome sequencing (WGS)-driven epidemiologic study of leukemia patients with P. aeruginosa bloodstream infections.

Methods: All adult (age > 17 years) inpatients with leukemia and a first episode of monomicrobial P. aeruginosa bloodstream infection were included. Clinical data were extracted from the electronic medical record. Isolates were sequenced using an Illumina NextSeq and phylogenomics was performed using an in-house analysis pipeline consisting of Bowtie2, SAMtools and bcftools.

Results: 110 patients were included and most had a diagnosis of acute myeloid leukemia (n = 66). Twenty (18%) patients received FQ prophylaxis, 56 (54%) received CPD, and the remaining 34 (31%) received other agents. 9 (8%) isolates were multidrug-resistant (MDR). MDR was more common in those receiving FQ prophylaxis (20% vs 6%, P = 0.06). 76 sequence types (STs) were represented with ST235 (n = 8) being most common followed by ST244 (n = 7). ST235 strains were genetically distinct, but closely related (>10 but < 250 SNPs) in comparison to other STs. 2 ST244 strains were genetically identical despite being isolated 4 months apart, suggesting horizontal transmission. MDR was more common among ST235 isolates compared with other STs (38% vs 6%, P = 0.02). ST235 strains were more common in patients receiving FQ vs other prophylaxis (20% vs 4%, P = 0.04). 1 ST244 isolate harbored a VIM-2 β-lactamase. In 20 FQ-resistant isolates, 80% had mutations in either parC (S87L) or gyrA (T83I) and 50% had both. FQ-resistance mutations were more common in FQ recipients (50% vs 8%, P < 0.01).

Conclusion: Most P. aeruginosa infections occurred in non-FQ recipients, while MDR P. aeruginosa infections were more common in FQ recipients. These data suggest that decisions on empiric treatment of patients with P. aeruginosa bacteremia must take antimicrobial prophylaxis history into account.

Disclosures: Samuel L. Aitken, PharmD, Melinta Therapeutoics: Grant/Research Support, Research Grant; Merck, Sharpe, and Dohme: Advisory Board; Shionogi: Advisory Board.

2683. Evaluation of the Negative Predictive Value (NPV) of Methicillin-Resistant *Staphylococcus aureus* (MRSA) Nasal Swab Screening in Acute Myeloid Leukemia Patients

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Background: Methicillin-Resistant *Staphylococcus aureus* (MRSA) nasal swabs are utilized to guide discontinuation of empiric MRSA therapy. In multiple studies, MRSA nasal swabs has been shown to have a negative predictive value (NPV) of ~99% in non-oncology patients with pneumonia and other infections. At Yale New Haven Hospital (YNHH), a negative MRSA nasal swab is utilized in acute myeloid leukemia (AML) patients to de-escalate empiric MRSA antibiotic therapy. The primary endpoint was to assess the percentage of patients with a negative MRSA nasal swab who developed a culture documented (CD) MRSA infection during their admission. Secondary endpoints included the number of MRSA nasal swabs that were initially negative but converted to positive, and the types of MRSA infections.

Methods: This was a retrospective chart review of AML patients with a suspected infection and a MRSA nasal swab collected at YNHH between 2013 and 2018. Patients were excluded if < 18 years old, prior confirmed MRSA infection or positive MRSA nasal swab within the past year.

Results: 194 patients were identified with 484 discrete encounters analyzed. Hematopoietic stem cell transplantation occurred in 83 (43%) patients. A total of 468 (97%) encounters had a negative MRSA nasal swab upon admission with no CD MRSA infection during their hospitalization. Three encounters (0.6%) had a negative MRSA nasal swab with a subsequent CD MRSA infection during their admission. Identified infections were bacteremia (2) and pneumonia (1). Median duration from the negative MRSA nasal swab to CD infection was 16 days. Thirteen encounters (3%) had a positive MRSA nasal swab, 5 of which had a CD MRSA infection. Infections included bacteremia (3), pneumonia (2), and sputum with negative chest X-ray (1). MRSA nasal swab had a sensitivity of 57% (CI 0.56–0.58), specificity of 98% (CI 0.98–0.98) positive predictive value of 31% (CI 0.3–0.32), and NPV of 99% (CI 0.99–0.99).

Conclusion: The results of this retrospective study demonstrate that a negative MRSA nasal swab has a 99% NPV for subsequent MRSA infections in AML patients with no prior history of MRSA colonization or infection. Based on these findings, a negative MRSA nasal swab can help guide de-escalation of empiric MRSA antibiotic therapy in this immunosuppressed population.