was not associated with a positive test (19% vs 20%, p = 0.834), but for US-born patients, having a history of travel was associated with a positive test (33% vs 14%, p = 0.039). For the 8a positive patients, 34% had a HTLV-I/HIV test, 48% had at least one stool test, and 76% were given treatment.

**Conclusion.** There is a significant serore prevalence of 8s in our transplant candidate population, both non-foreign and foreign born, prompting the indication for universal screening at our facility.

**Disclosures.** No reported disclosures

1387. Impact of Cytomegalovirus Prophylaxis on Healthcare Resource Use and Costs among Kidney Transplant Recipients: A United States Renal Data System-Medicated Linked Database Study

Amrit D. Raval, PhD1; Michael Ganz, PhD2; Priya Saravanan, MS3; Yuexin Tang, PhD4; Carlos Santos, MD, MPH5; 1Merck & Co., Inc., Rahway, New Jersey; 2Evidence, Inc., Waltham, Massachusetts; 3Merck and Co, Inc, North Wales, Pennsylvania; 4Rush University Medical Center, Chicago, Illinois

**Session:** P-79. Transplant: Studies of Pre-transplant Screening and Evaluation

**Background.** Cytomegalovirus (CMV) management requires a balance between reducing the risk of CMV infection and avoiding anti-viral toxicities. Limited information is available on the impact of CMV prophylaxis on the healthcare resource use (HCRU) and costs among adult kidney transplant recipients (KTRs) in the United States. Therefore, we examined HCRU and cost associated with CMV prophylaxis stratified by the CMV risk categories among KTRs at 1-year post KT.

**Methods.** We identified a cohort of 22,918 adults first-time KTRs during 2011–2017 using the US Renal Data System registry-linked Medicare data. Additional inclusion criteria were to have continuous coverage in Medicare Part A & B for ≥6-month pre- and ≥12-month post KT and Medicare Part D for ≥12-month post-KT. CMV prophylaxis was confirmed as ≥1 prescription fill for valacyclovir/ganciclovir prophylaxis doses within 28 days post-KT.

**Results.** CMV prophylaxis was utilized in 86%, 82%, and 32% of high, intermediate, and low-risk KTRs with an average cost of prophylaxis per KTRs of $16,241, $8,491, and $8,668, respectively. In no prophylaxis groups, ganciclovir was utilized in 52%, 34%, and 36% of KTRs (as either pre-emptive or deferred therapy) with an average cost of $6,719, $2,722, and $841 among high, intermediate, and low-risk KTRs, respectively. Among high-risk KTRs, CMV prophylaxis group had a significantly higher prescription drug cost ($26,060 vs. $13,433) but a lower average direct healthcare medical cost ($84,914 vs. $101,268), mainly due to lower all-cause hospitalization cost ($56,758 vs. $69,852) (Table 1). CMV prophylaxis group had lower rates of all-cause rehospitalization, and CMV-and opportunistic infection (OIs)-related hospitalization compared to no prophylaxis (Table 2). In high-risk KTRs, nearly 32% had myelosuppressive events-related hospitalization, and 15% filled granulocyte colony-stimulating factors with an average cost of $4,695 per treated KTR.

**Conclusion.** CMV prophylaxis had a higher cost of medications but had a lower medical cost with including all-cause and CMV-related hospitalizations. Myelosuppressive events were frequent and resource-intensive especially in high and lower medical cost with including all-cause and CMV-related hospitalizations.

### Table 1. Baseline Susceptibility

| Risk Category | CMV Susceptibility |
|---------------|-------------------|
| High          | 48%               |
| Intermediate  | 32%               |
| Low           | 10%               |

**Disclosures.** Amit D. Raval, PhD; Merck & Co., Inc. (Employee) Yuexin Tang, PhD, MD, MPH (Other Financial or Material Support, Spouse’s employment) Merck & Co., Inc. (Employee, Shareholder)

1388. Epidemiology and Treatment Outcomes of Nontuberculous Mycobacterial Infections at a Community Teaching Hospital in the Southeastern United States

Y. Vivian Tsai, PharmD1; Carolyn Derrick, PharmD2; Ismael Yunusa, PharmD, PhD3; Sharon Weisman, MD4; Julie An, PharmD5; Al-hasan, MD6; PharmD, BCPS-AQID7; Bookstaver, Pharm D1; Prisma Health Richland - University of South Carolina, Columbia, South Carolina; University of South Carolina School of Medicine, Columbia, South Carolina; University of South Carolina College of Pharmacy, Columbia, South Carolina; 2University of South Carolina, Columbia, SC.

**Session:** P-80. Tuberculosis and other Mycobacterial Infections

**Background.** Gaps in evidence concerning the epidemiology of nontuberculous mycobacterial (NTM) organisms and their associated treatment outcomes are evident in the literature. The aim of this study was to describe NTM species distribution and susceptibility profile and associated treatment outcomes among adult patients at a tertiary referral hospital in the Southeastern United States.

**Methods.** A retrospective cohort study of adult patients with NTM infections from January 1, 2010 to June 30, 2020 was performed. Included patients had a positive culture for NTM species and clinical suspicion of infection. Patients were excluded if they had concurrent positive culture for M. tuberculosis (MTB) or monomicrobial culture for M. gordonae. Study endpoints included predictors for favorable treatment outcomes, species distribution, and susceptibility at baseline. Favorable treatment outcome was defined as physician-guided cessation of therapy due to clinical improvement. Univariate followed by multivariate regression analysis was used to analyze favorable predictors.

**Results.** A total of 250 and 78 patients were included in microbiologic and outcomes cohorts, respectively. Among treated patients, 47 (60%) had a favorable treatment outcome. The outcomes cohort consisted primarily of non-Hispanic Caucasians (71%) with pulmonary infection (67%). The most common isolated organisms were Mycobacterium avium complex (MAC) (67%) and M. abscessus (18%). Being self-pay, underweight, history of MTB treatment, and concurrent asthma were more common in those with unfavorable treatment outcomes. The significant favorable predictors included antibiotic change not due to escalation or de-escalation of therapy and private health insurance. Among MAC isolates, clarithromycin and amikacin were highly susceptible; however, M. abscessus has reduced susceptibility to first-line agents such as amikacin, clarithromycin, and cefotaxim (Table 1).

### Table 1. Baseline Susceptibility

| Species         | Clarithromycin | Amikacin | Ofloxacin | Ciprofloxacin | Azithromycin |
|-----------------|----------------|----------|-----------|---------------|--------------|
| M. abscessus    | S              | S        | S         | S             | S            |
| M. avium       | S              | S        | S         | S             | S            |
| M. bovis       | S              | S        | S         | S             | S            |
| M. lactis      | S              | S        | S         | S             | S            |
| M. fortuitum   | S              | S        | S         | S             | S            |
| M. xenopi      | S              | S        | S         | S             | S            |
| M. terrae      | S              | S        | S         | S             | S            |
| M. simiae      | S              | S        | S         | S             | S            |
| M. canadensis  | S              | S        | S         | S             | S            |
| M. gordonae    | S              | S        | S         | S             | S            |
| M. marinum     | S              | S        | S         | S             | S            |

**Conclusion.** Considering the long incubation time, knowledge of prevalence, antimicrobial susceptibility patterns, and outcomes could guide empirical antimicrobial selection for NTM infections. This is particularly useful for M. abscessus infections where most isolates carry significant resistance to one or more first-line agents.

**Disclosures.** Julie Ann Justo, PharmD, BS, BCPS-AQID, bioMerieux (Speaker’s Bureau) Merck & Co. (Advisor or Review Panel member) Therapeutic Research Center (Speaker’s Bureau) Vaxart (Shareholder) E Brandon Bookstaver, Pharm D, ALK Abello, Inc. (Grant/Research Support, Advisor or Review Panel member) BioMerieux (Speaker’s Bureau) Bedrion Biopharma (Grant/Research Support, Advisor or Review Panel member)

1389. Nontuberculous Mycobacterial Infections of the Upper Extremity

Thomas M. Polveroni, BA1; Kelly Scott, MD, MPH2; Kevin J. Renfree, MD3; Holaensaripour R. Vikram, MD, MPH3; Carolyn Mead-Harvey, MS4; Mayo Clinic Alix School of Medicine, Phoenix, Arizona; 2Department of Orthopedics, Mayo Clinic Arizona, Phoenix, Arizona; 3Mayo Clinic Hospital, Arizona; Phoenix, Arizona; 4Department of Quantitative Health Sciences, Mayo Clinic Arizona, Phoenix, Arizona.

**Session:** P-80. Tuberculosis and other Mycobacterial Infections

**Background.** Although uncommon, nontuberculous mycobacterial infections (NTMI) of the upper extremity cause significant morbidity based on their natural history, delay in diagnosis, prolonged duration of antimicrobial therapy often combined
with surgical debridement, and functional loss. Herein we describe our experience with such infections.

Methods. Records for adult patients from two academic, tertiary facilities with culture-proven NTMI involving the upper extremity were retrospectively reviewed. Demographic information, co-morbidities, laboratory and microbiological evaluation, management, and outcomes were extracted. Patients were analyzed based on pathogen identified and immune suppression.

Results. 77 patients were identified. The mean age was 59 years and 65% of patients were male. 48% reported a preceding injury, with the hand being most frequently involved (58%). 41% were considered immune compromised; 19% of them were organ transplant recipients. Mean symptom duration prior to presentation was 203 days. Mean time to culture identification was 33 days, and 25 different species of NTM were identified (subcategorized as rapid or slow growers). 77% had solitary lesions, with cutaneous/subcutaneous location as the most common site. All patients underwent surgical debridement with four undergoing amputation to control infection. 69% received combination antimicrobial therapy for a mean duration of 184 days. Immunosuppressed patients were treated with antimicrobial therapy for a longer duration (mean 243 vs 155 days). One-third of patients experienced complications and/or recurrence regardless of organism type.

Conclusion. NTM of the upper extremity is often misdiagnosed leading to significant delays in appropriate management. Knowledge of its protean manifestations and early consideration in the differential diagnosis of chronic, painful swelling of the hand or wrist, nodular or inflammatory lesions, or septic arthritis is crucial. A low threshold for surgical or biopsy with specimens sent for histopathology as well as microbiologic analysis is warranted. A combined approach with surgical debridement and prolonged combination antimicrobial therapy is necessary for optimal outcomes; however, adverse reactions from such therapy are commonly encountered.

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1390. Durlobactam, a Diazabicyclooctane (DBO) β-lactamase Inhibitor (BLI), Inhibits BlaC and Peptidoglycan (PG) Transpeptidases of Mycobacterium tuberculosis (Mtb): A Novel Approach to Therapeutics for Tuberculosis (TB)?

David Nguyen, MD; Christopher Bethel, MS; Magdalena A. Taracila, MS; Qing Li, n/a; Khalid M. Dousa, MD; Sebastian G. Kurz, MD; Liem Nguyen, PhD; Barry N. Kreiswirth, PhD; Wilem Boom, MD; Robert A. Bonomo, MD;

1University Hospitals Cleveland Medical Center/ Rainbow Babies & Children's Hospital, Cleveland, Ohio; 2Louis Stokes Cleveland VA Medical Center, Cleveland, OH; 3Research Service, Louis Stokes Veterans Affairs Medical Center, Cleveland, OH; 4Case Western Reserve University, Cleveland, Ohio; 5Case Western Reserve University, Cleveland VA Medical Center, Cleveland Heights, Ohio; 6Mount Sinai National Jewish Health Respiratory Institute, New York City, NY; 7Hackensack Meridian Health, New Jersey; 8Case Western Reserve University/ University Hospitals Cleveland Medical Center, Cleveland, Ohio; 9Louis Stokes Cleveland VA Medical Center, Cleveland, OH

Session: P-80. Tuberculosis and other Mycobacterial Infections

Background. Novel therapies for multidrug-resistant TB are needed and new BLIs could answer this call. Mtb encodes for BlaC, a class A β-lactamase. BlaC is inhibited by clavulanate (CLA) while the DBO avibactam (AVI) is an inefficient inhibitor (low k<sub>i</sub>K<sub>i</sub> value). Carbenapems are hydrolyzed slowly by BlaC (low kcat/K<sub>m</sub> value) making them “dual action” compounds that inhibit both BlaC and PG transpeptidases, the intended β-lactam targets. DBOs inhibit PG transpeptidases in other bacteria. To explore the therapeutic potential of new DBOs against Mtb, we compared the inhibitor activity of AVI, relebactam (REL), and durlobactam (DUR, formerly ETX2514) against BlaC and Mtb PG transpeptidases using a biochemical approach. We also investigated the ability of DUR to lower minimum inhibitory concentrations (MICs) of β-lactams against Mtb H37Rv.

Methods. Mass spectrometry was performed to capture acyl-enzyme complexes (AECS) of purified BlaC and PG transpeptidases (PonA1, Ldt<sub>A</sub>) with BLIs and PGs in other bacteria. Steady-state enzyme kinetics were determined using nitrocefin as a substrate, MICs with amoxicillin (AMX), meropenem (MER), CLA, and DUR alone and in combination against Mtb H37Rv were assessed using a microdilution method.

Results. DUR alone had a MIC of 2 µg/mL with Mtb H37Rv (Table 1). BlaC formed AECS with all carbenapems and BLIs. BlaC had lower Ki<sub>i</sub> values and higher k<sub>i</sub>K<sub>i</sub> values than those with AVI and REL and comparable to those with CLA; however, with a period of pre-incubation, AVI fully inhibits BlaC (Table 2). The carbenapems and DUR formed the most AECS with PG transpeptidases of the β-lactams and BLIs respectively; PG transpeptidases had lower Ki<sub>i</sub> values with DUR than those with AVI (Table 3).

Table 1. Minimum Inhibitory Concentrations for Mycobacterium tuberculosis H37Rv

| Antibiotic      | MIC (µg/mL) |
|-----------------|-------------|
| Clavulanate     | 32          |
| Clofazimine     | 32          |
| Durlobactam     | 2           |
| Amoxicillin+2.5 µg/mL Clofazimine | 0.2 |
| Amoxicillin+4 µg/mL Durlobactam   | 0.2 ≤ 0.125 |
| Meropenem+2.5 µg/mL Clofazimine  | 0.2         |
| Meropenem+4 µg/mL Durlobactam     | 0.2         |

Conclusions. DUR alone has some antimicrobial activity against Mtb H37Rv. The likely mechanism that underlies this activity is inhibition of BlaC and several PG transpeptidases. Inhibition of enzyme targets with DUR was more potent and efficient than AVI and REL. DUR in combination with β-lactams lowered MICs but the DUR concentration used was higher than its MIC. Our findings support the exploration of novel BLIs against BlaC and PG transpeptidases with the ultimate goal of repurposing these drugs for the treatment of TB.

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1391. Body Mass Index and Leptin Levels at Different Stages of the Tuberculosis Spectrum

Wajih Askar, MD; Manuel G. Feria, MS; Shinsmon Jose, PhD; Rajat Madan, MBBS, PhD; Moises A. Huaman, MD, MSc; University of Cincinnati/Department of Infectious Disease, Cincinnati, Ohio; University of Cincinnati, Cincinnati, Ohio

Session: P-80. Tuberculosis and other Mycobacterial Infections

Background. Leptin is an adipose tissue-derived cytokine that plays a role in energy regulation and immune functions. High leptin levels and obesity have been associated with decreased risk of developing active TB. We aimed to characterize the association between body mass index (BMI) and leptin levels in patients at different stages of tuberculosis (TB).

Methods. Data from a cross-sectional cardiovascular risk study of 40 to 70 years old individuals enrolled in Lima, Peru, and Cincinnati, US, were analyzed. Four categories based on TB and treatment status were defined: no TB infection (Quantiferon® TB test negative; n=31), latent TB infection (LTBI; QuantiFERON® TB test positive; n=43), active TB on treatment (in the continuation TB treatment phase; n=30), and post-TB (within one year of TB treatment completion; n=16). BMI and plasma leptin levels were compared among the four groups using the Kruskal-Wallis test, followed by Dunn’s multiple comparison test if differences were found in the Kruskal-Wallis test. Multivariate ordered logistic regression models were used to assess factors associated with leptin levels, adjusted for potential confounders.

Results. The median age was 53 years, and 51% were female. BMI was different between study groups (p<0.01), with LTBI individuals having the highest BMI compared to other groups; see Figure 1A. Leptin levels were marginally low in the group with active TB on treatment, but no significant differences were found between groups (p=0.44; see Figure 1B). In multivariate analysis, leptin was associated with female sex (OR 2.3; 95%CI, 9-58), BMI (OR, 1.5; 95%CI, 1.2-1.7), and coronary plaque ≥25% stenosis (OR 0.29; 95%CI, 0.08-0.99). Body mass index (BMI) and plasma leptin levels in participants with negative QuantiFERON®TB test (QFN-), latent tuberculosis infection (LTBI), active tuberculosis on treatment (ATBT), and post-TB treatment (TB-treated).

Session: P-80. Tuberculosis and other Mycobacterial Infections