Background. Carbapenem-Resistant Enterobacteriales (CRE) and Carbapenem-Resistant Pseudomonas aeruginosa (CRPA) can exhibit resistance to one carbapenem while remaining susceptible to another. While case reports describing discrepant carbapenem susceptibilities are available, the authors are unaware of any literature reporting aggregate carbapenem susceptibility discrepancies at a hospital level.

Methods. Susceptibility data from April 1, 2017 - December 31, 2017 was extracted through an antibiogram report for a 706-bed hospital. Eratopem, imipenem-clastatin, and meropenem susceptibilities were captured and compared for common Enterobacteriales and Pseudomonas aeruginosa isolates. A non-parametric test was performed using Matrix Assisted Laser Desorption Ionization Time of Flight (MALDI-TOF) mass spectrometry. Antibiotic susceptibility testing was performed using BD Phoenix. Carbapenem susceptibilities were interpreted using the most updated Clinical and Laboratory Standards Institute (CLSI) Interpretive Criteria. This series illustrates challenges encountered in the treatment of disseminated NC infection in transplant recipients. Multidrug resistant NC coupled with serious toxicities of therapies often severely limits treatment options. Counseling patients and closely monitoring for adverse events is essential.

Disclosures. All Authors: No reported disclosures.

Figure 1: Carbapenem Susceptibility by Isolate

1233. Serious Toxicities During Antimicrobial Therapy for Disseminated Nocardia Infection in Solid Organ Transplant Recipients

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Session: P-72. Resistance Mechanisms

Background. Management of disseminated Nocardia (NC) infection in transplant recipients requires prolonged antimicrobial therapy. Treatment can be particularly challenging if NC is resistant to standard agents. Drug toxicities can further limit options.

Results. The first case is a 66-year old heart transplant patient who presented with fever and cough. Investigations revealed N. otitidiscaviarum lung lesion and multiple brain abscesses. Trimethoprim-sulfamethoxazole (TMP-SMX) and linezolid were started empirically. NC was fully susceptible to linezolid only, and intermediate to quinolones and tobramycin. Linezolid was switched to ciprofloxacin due to ongoing cytopenia, and dose of TMP-SMX was reduced due to renal insufficiency. Repeat brain MRI showed enlarging abscesses; regimen was changed to linezolid and moxifloxacin.

Severe peripheral neuropathy led to linezolid discontinuation and initiation of high-dose doxycycline plus moxifloxacin. One year into therapy, he presented with a large aortic dissection. His long-term quinolone therapy was felt to be contributory. He underwent aortic stent placement and remains on doxycycline monotherapy. The second case is a 74-year old female renal transplant patient who presented with fevers. A perinephric abscess was found which grew N. farcinica resistant to florquinolones and clarithromycin, and intermediate to doxycycline. Further imaging also revealed pulmonary and brain involvement. TMP-SMX was started but soon switched to linezolid due to acute liver injury. A month later she presented with severe thrombocytopenia and sub-dural hematoma thought to be secondary to linezolid. She died despite surgery.

Conclusion. This series illustrates challenges encountered in the treatment of disseminated NC infection in transplant recipients. Multidrug resistant NC coupled with serious toxicities of therapies often severely limits treatment options. Counseling patients and closely monitoring for adverse events is essential.
Table 1: Frequency of Carbapenem Discordance

| Carabapenem | Total Number of Isolates | Number of Discordant Isolates | Percentage of Discordant Isolates |
|-------------|--------------------------|------------------------------|----------------------------------|
| Non-Susceptible | 500 | 100 | 20% |
| Susceptible | 500 | 50 | 10% |

Conclusion. Due to the wide range of susceptibility discordance, clinical implications can be drastic if an institution is relying on susceptibility of one carbapenem to confer susceptibility to another carbapenem.

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1235. Roles of Tetracyclines for Treatment of Stenotrophomonas maltophilia Pneumonia

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Session: P-72: Resistance Mechanisms

Background. Stenotrophomonas maltophilia is a multidrug resistant organism with limited antibiotic treatment options. Sulfamethoxazole-trimethoprim (TMP-SMZ) is considered as first line agent based on in vitro studies and clinical evidence. Minocycline has been showed to be active on in vitro studies and also has been explored in small retrospective studies. However, doxycycline in the same class has variable in susceptibility in in vitro studies and has not been evaluated for efficacy in treatment of S. maltophilia infections. The purpose of this research is to compare minocycline and doxycycline to TMP-SMZ for treatment of S. maltophilia pneumonia.

Methods. This retrospective, multi-center study evaluated hospitalized patients treated for S. maltophilia pneumonia with minocycline, doxycycline, or TMP-SMZ for clinical success, microbiologic success, and recurrence or reinfection within 30 days of discharge. Inclusion criteria were patients 18 years old with S. maltophilia confirmed on respiratory culture from January 2013 to November 2020. Patients were classified as treatment with tetracyclines (minocycline or doxycycline) or TMP-SMZ based on definitive agent used for ≥50% of the treatment course and a minimum of four patients. Patients with S. maltophilia resistant or intermediate to definitive therapy, and patients with combination therapy for treatment for S. maltophilia pneumonia were excluded.

Results. A total of 21 patients were included in tetracyclines group and 59 patients included in TMP-SMZ group. There was no difference in clinical success (28.6% vs. 25.4%; P = 0.094) or microbiologic success (n=28, 55.6% vs. 66.4%; P = 0.677) between tetracyclines and TMP-SMZ, respectively. Recurrence or reinfection requiring treatment (n=24) was higher in the tetracyclines group but not statistically significant compared to TMP-SMZ (66.7% vs. 26.7%; P= 0.092). A subgroup analysis showed no difference between doxycycline, minocycline, and TMP-SMZ for these three aims.

Conclusion. Clinical and microbiologic success were similar in patients treated with tetracyclines compared to TMP-SMZ for S. maltophilia pneumonia. This data suggests minocycline and doxycycline may be an option to treat S. maltophilia pneumonia, but conclusive clinical data continues to be lacking.

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1236. Update on the In Vitro Activity of Ceftaroline against Staphylococcus aureus from United States (US) Medical Centers Stratified by Infection Type (2018-2020)

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Session: P-72: Resistance Mechanisms

Background. Ceftaroline was initially approved by the US FDA in 2010 to treat skin and skin structure infection (SSSI) and community-acquired bacterial pneumonia (CAPB). FDA approval was extended in 2015 to treat patients with SSSS and CAPB who developed bacteremia. Moreover, ceftaroline has also been used off-label to treat other infection types. We evaluated the in vitro activity of ceftaroline against S. aureus isolated in US medical centers in 2018-2020.

Methods. A total of 9,268 S. aureus isolates were consecutively collected from 33 US medical centers in 2018-2020 and susceptibility tested by broth microdilution method against ceftaroline and comparators. Results were stratified by infection type and resistance profile.

Results. Ceftaroline (MIC₉₀ ≤ 0.25/1 mg/L) susceptibility (S) ranged from 98.3% (SSSI) to 95.4% (pneumonia). 97.2% overall (Table). Ceftaroline retained potent activity and broad spectrum against methicillin-resistant S. aureus (MRSA; 41.9% of isolates), with S rates varying from 96.3% (SSSI) to 92.9% (pneumonia). Overall S rate to erythromycin (ERY), levofloxacin (LEV), tetracycline (TET), and trimethoprim-sulfamethoxazole (TMP-SMX) were 44.0%, 67.9%, 94.1%, and 97.5%, respectively. Ceftaroline retained good activity against S. aureus resistant to ERY (94.6%), LEV (94.1%), TET (92.3%), and/or TMP-SMX (98.7%). Among the resistant subsets, ceftaroline S rates were generally highest among isolates from SSSI (93.1-100.0%), followed by other infections (81.8-100.0%), bloodstream infections (BSI; 89.4-96.2%), and pneumonia (86.6-98.1%); overall susceptibility was highest among SSSI-TMX-R isolates (95.4%) followed by ERY-R (90.2%), LEV-R (89.3%), and TET-R (91.4%) isolates. Dalbavancin (MIC₉₀_0.03 mg/L), teicoplanin (MIC₉₀ ≤ 0.5 mg/L), and vancomycin (MIC₉₀ ≤ 1 mg/L) exhibited complete activity (100.0%), whereas daptomycin (MIC₉₀ ≤ 0.5 mg/L) and linezolid (MIC₉₀ ≤ 2 mg/L) were active against >99.9% of isolates.

Conclusion. Ceftaroline remained very active against contemporary (2018-2020) S. aureus from US medical centers, independent of infection type. Ceftaroline retained good activity against MRSA and isolates resistant to ERY, LEV, TET, and/or TMP-SMX.

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