was 13.5 d (range 5–61). One patient died from causes unrelated to infection; all other patients achieved clinical cure and TOL/TAZ was well tolerated. One patient experienced a slight increase in liver function tests that required dose reduction. 3 children received multiple courses (range: 2–8) for CF exacerbations. TOL/TAZ-resistant PA was detected in 1 patient after 2 months of therapy for OM. TOL/TAZ-intermediately susceptible PA was detected in 1 patient after 7 courses of therapy for CF exacerbation, though subsequent cultures grew TOL/TAZ susceptible PA.

Conclusion. TOL/TAZ was effective in treating various CR-PA infections. Therapy was well tolerated with no significant adverse events. Reduced TOL/TAZ susceptibility after prolonged or repeated courses was observed and presents potential opportunities for dose optimization and antimicrobial stewardship.

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2424. Review of Antimicrobial Susceptibility Profile of Different Nocardia Species, a Tertiary Center Experience
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Background. Nocardia spp. are ubiquitous Gram-positive weakly acid-fast environmental microorganisms. Although considered an opportunistic infection, approximately 1/3 of the reported infections are in immunocompetent patients. Treatment is usually challenging, prolonged and involves multiple agents depending on the site of infection, clinical syndrome and the immune status of the patient. The antimicrobials that continue to show high activity against most Nocardia species (>95%) are: amikacin, linezolid and TMP/SMX.

Methods. A total of 3,840 samples positive for Nocardia spp. Most commonly isolated species included N. cyriacigeorgica (16.9%), N. nova complex (15.7%), N. farrinica complex (14.8%), N. brasiliensis (11.5%) and N. abscessus complex (8.2%). Susceptibilities of the more common Nocardia species are shown in the graph. Source of the positive cultures was variable with majority (>60%) from pulmonary source (sputum, BAL and lung tissue), blood in 5.7% and brain in 3.6%. Most common Nocardia species isolated from brain specimens were N. farrinica complex (23.2%), followed by N. abscessus complex (17.5%). Most common Nocardia species isolated from blood were N. farrinica complex (38.8%) followed by N. nova complex (22.9%) and N. cyriacigeorgica (15.9%).

Conclusion. The antimicrobials that continue to show high activity against most Nocardia species (>95%) are: amikacin, linezolid and TMP/SMX. N. pseudobrasiliensis was noted to have high rates of resistance to TMP/SMX (87%). N. farrinica, N. brasiliensis and N. transvalensis/walldieci complex were >90% susceptible to amoxillin/clavulanic acid. Clarithromycin had >99% activity against N. nova complex while both ceftriaxone and doxycycline had >90% activity against N. abscessus complex. It is crucial to identify Nocardia species and obtain susceptibilities to help better choose the regimen with the best clinical outcome.

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2425. Clinical and Microbiologic Outcomes Among Patients With Monomicrobial Stenotrophomonas maltophilia Infections
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Background. Stenotrophomonas maltophilia is an opportunistic pathogen observed in nosocomial infections. Due to biofilm production and intrinsic resistance to numerous antimicrobials, organism eradication is difficult and morbidity and mortality remain high. Unfortunately, study outcomes are often confounded by co-infecting organisms. Therefore, clinical and microbiologic outcome data for monomicrobial infections is warranted.

Methods. Single-center, retrospective chart review of all patients receiving treatment for S. maltophilia between January 2012 to December 2016. Polymicrobial infections and cytotoxic fibrosis patients were excluded. Primary endpoint was clinical cure (CC) at end of therapy. Secondary endpoints included microbiological eradication (ME), 28-day mortality, and resistance selection. An exploratory analysis was performed in patients receiving trimethoprim-sulfamethoxazole (TMP/SMX) or levofloxacin (LVX).

Results. Seventy-six patients were included in the analysis. The population was 60 years of age, predominantly female (62%) with median APACHE score of 16. Infection onset occurred 6 days after admission with 71% located in the ICU. Approximately 2/3 of ICU patients were intubated. Primary site of infection was the lung (92%). Treatment strategies included TMP/SMX (45 patients) or LVX (31 patients). Overall, CC, ME, and 28-day mortality was observed in 79%, 82%, and 14%, respectively. Adverse events were uncommon with three patients receiving TMP/SMX requiring alternate therapy. Comparative analysis revealed similar baseline characteristics except higher APACHE scores (18 vs. 14; P = 0.03) and frequency of mechanical ventilation in the TMP/SMX group (64% vs. 30%; P = 0.007). CC was similar between TMP/SMX and LVX (82% vs. 74%, respectively (P = 0.4)). ME was observed in 80% and 77%, respectively (P = 0.5). Resistance selection to primary treatment was observed in 29% (2/7) and 86% (6/7), respectively (P < 0.1).

Conclusion. Use of TMP/SMX or LVX for S. maltophilia infections resulted in high CC rates. No differences in primary or secondary outcomes were observed; however, a trend toward resistance selection with LVX was identified. Larger studies assessing outcomes and resistance selection are warranted to further delineate treatment.

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2426. Ceftaroline-Associated Neutropenia: Retrospective Study and Systematic Review of Incidence, Risk Factors, and Outcomes
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Background. Ceftaroline-associated neutropenia has been reported, but clinical data are limited. We performed a retrospective study of ceftaroline-associated neutropenia within a large healthcare system and a comprehensive systematic review of the literature. The English literature (2010–2017) of published cases containing individualized case data were utilized to describe the incidence, risk factors, and outcomes associated with ceftaroline-associated neutropenia. Neutropenia was defined as an absolute neutrophil count (ANC) of <1,500 cells/mm³. Cases with pre-existing neutropenia or other potential reason for the development neutropenia while on ceftaroline were excluded.

Results. A total of 37 cases of ceftaroline-associated neutropenia have been published. The median patient age was 44 years (range 20–90), 22 (59%) were female, and most were receiving ceftaroline for invasive Staphylococcus aureus infections. The median time from ceftaroline initiation to development of neutropenia was at 25 days (range 8–125 days). Agranulocytosis (ANC nadir <100 cells/mm³) developed in 49% of cases (n = 18) and an ANC nadir of 0 in 27% (n = 10). The median duration of neutropenia was an average of 4 days (range 1–16 days). Eleven (30%) received granulocyte-colony stimulating factor (G-CSF) treatment and ceftaroline was discontinued in all cases. The outcome was favorable in all cases, and only one case developed a secondary infection during neutropenia. Literature review of studies containing cases and controls (patients receiving drug but did not develop neutropenia) found an incidence of neutropenia of 12% (range 7–18% per individual study) when ceftaroline was utilized for 27–14 days, higher than for comparator antibiotics in the literature. Risk factors for the development of neutropenia during ceftaroline varied between studies and remains undefined.

Conclusion. Neutropenia is common when ceftaroline is utilized for 214 days and the hematologic monitoring can be warranted. Further research is needed to determine the mechanism and risk factors for the high incidence of neutropenia associated with long-term ceftaroline use.

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