Conclusion. CAZ-AVI demonstrated very good in vitro activity against Enterobacterales and P. aeruginosa isolates from China, including those that harbor KPC.

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1269. Infection, Clinical Syndromes and Antimicrobial Resistance by Aeromonas species: 13-Year Experience with an Emerging Pathogen at a Tertiary Care Center Roberto Pineda-Reyes, MD1; Joseph Ornordoff, DO; David Reynoso, MD, PhD1; 1University of Texas Medical Branch, Galveston, Texas

Session: P-72. Resistance Mechanisms

Background. Aeromonas spp. are emerging pathogens that cause a wide breadth of clinical syndromes, ranging from acute gastroenteritis to skin and soft tissue infections, sepsis, and “flesh-eating” necrotizing fasciitis. Aeromonads have been associated with natural disasters and have predominance in estuarine ecosystems, generating a negative impact on the fishing industry and aquaculture, as well as morbidity and mortality in human populations at risk. Antimicrobial resistance patterns differ by geographic locations worldwide, and studies to guide the therapy in the era of multidrug resistance are lacking in the US.

Methods. A retrospective case series was designed to chart review all adult subjects who had culture proven Aeromonas spp. infections during the period 2008-2020. Demographic data, water exposure, clinical syndromes on presentation, origin (community-acquired vs. nosocomial) and severity of infection, antibiotic use, empirical antibiotics, time-to-appropriate therapy, and treatment outcomes were collected.

Results. Eighty-two subjects were included in the analysis. Demographic and clinical data is summarized in Table 1. Near 20% individuals had water exposure, including 53% of those with traumatic wound infections. Skin and soft tissue infections (including traumatic and surgical wound infections) was the most frequent clinical syndrome (51.2%). Sepsis was present on admission in 33% inpatients. Most cases (55%) were encountered during the months of spring and summer, and it is associated with water exposure in more than half of those with traumatic wound infections. In subjects with specific risk factors, the use of carbapenem-sparing strategies, such as 3rd or 4th generation cephalosporins, fluoroquinolones or TMP-SMX, may improve outcomes.

Conclusions. Aeromonads are emerging pathogens that cause mainly intra-abdominal and skin and soft tissue infections. Their incidence is seasonal (55% cases in spring and summer) and it is associated with water exposure in more than half of those with traumatic wound infections. In subjects with specific risk factors, the use of carbapenem-sparing strategies, such as 3rd or 4th generation cephalosporins, fluoroquinolones or TMP-SMX, may improve outcomes.

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1270. Molecular Characterization of Carbapenemase Producing Enterobacterales, Acinetobacter spp. and Pseudomonas spp. in Nosocomial and Community-acquired Clinical Isolates in Bogota, Colombia Luis F. Reyes, MD, PhD1; Ingrid G. Bustos-Moya, BSc2; Diego Josa, BSc1; Enrique Gamboa-Silva, n/a2; Elsa Daniela Ibáñez-Prada, BSc1; Hector Africano, MD2; Juan Urrego-Reyes, MD, MSc1; Claudia Beltrán, MD, Epidemiologist and Pharmacoeconomist1; Sebastian Leon, MD1; Alejandro Ruiz-Cuartas, BSc1; Oscar Barón, MD4; Rafael Leal, BSc4; Jane Hawkey, PhD3; Kelly Wyres, PhD7; Andrew Stewardson, MD, MSc2; 1Universidad de la Sabana, Bogota, Distrito Capital de Bogota, Colombia; 2Universidad de la Sabana, Cajaq, Cundinamarca, Colombia; 3Universidad de la Sabana, Chía, Colombia, Bogota, Cundinamarca, Colombia; 4MSD Colombia, Bogota, Bogotá, Cundinamarca, Colombia; 5MDM Colombia, Bogotá, Colombia; 6MSD Colombia, Bogotá, Colombia, Bogotá, Distrito Capital de Bogota, Colombia; 7Fundación Clínica Shaio, Bogota, Cundinamarca, Colombia; 8Monash University, Melbourne, Western Australia, Australia

Session: P-72. Resistance Mechanisms

Background. Antimicrobial resistance (AMR) in low-income and middle-income countries (LMICs) is a public health problem. AMR is a concerning problem in Gram-negative bacteria such as Enterobacterales, which are frequently carbapenem-resistant pathogens (CRP), and few therapeutic options are available. However, scarce data is known regarding the clinical, molecular characteristics, and clinical outcomes of patients infected with carbapenem-resistant pathogens in LMICs. Thus, this study will attempt to bring novel data in these regards.

Methods. This is a retrospective cohort study conducted in two reference hospitals in Colombia, South America. All consecutive patients infected with CRPs between 2017 and 2021 were included. Clinical data were gathered by retrospective chart review. Bacterial pathogens and antibiotic susceptibility were prospectively identified and stored by each hospital. Molecular characterization was performed by PCR in isolated bacteria.

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Results. A total of 220 patients were included. The mean (SD) age was 60.6 (18.4) years, and 32% (71/220) were female. The most frequently identified CRPs were *Pseudomonas aeruginosa* (85/220, 39%) and *Klebsiella pneumoniae* (81/220, 37%). CRPs were most frequently identified in urine, blood, and respiratory samples (Figure 1). Community-acquired infections were frequently diagnosed in patients infected with CRPs in our study (73% [161/220]), and most of the patients were admitted to the ICU (163/220, 74%). The in-hospital mortality rate was 28% (62/220) and 38% (82/220) in ICU admitted patients. PCRs carried out in 105 CRPs, KPC (69%, 73/105) and VIM (37%, 39/105) were the most frequently identified mechanisms. Of the 105 patients infected with PCR mechanisms, 33/105 (31%) had KPC and 3% (1/35) had VIM. In contrast, in *P. aeruginosa* isolates with PCR assessment, 53% (29/54) had KPC and 59% (32/54) had VIM. Seven (13%) patients infected with *P. aeruginosa* had both KPC and VIM genes identified.

Conclusion. The most frequently identified carbapenem-resistant pathogens in these two Colombian reference hospitals were *P. aeruginosa* and *K. pneumoniae*, with high prevalence rates, whereas was the most commonly identified mechanism of carbapenem resistance in our cohort.

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1271. In Vitro Activities of Ceftaroline and Comparator Agents Against Bacterial Pathogens Frequently Causing Community-Acquired Respiratory Tract Infections in Patients from a Global Population: ATLAS Surveillance Program 2016-2019

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Session: P-72. Resistance Mechanisms

Background. Community-acquired bacterial pneumonia (CABP) is a frequent cause of patient morbidity and mortality. *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Moraxella catarrhalis* are frequent etiologic agents of CABP. Ceftaroline fozamicin is a parenteral cepham approved for treatment of patients with CABP caused by *S. pneumoniae* (including cases with concomitant *Staphylococcus aureus*) (MSSA), *H. influenzae*, and some species of Enterobacteriaceae.

In this study we report the in vitro activity of ceftaroline and comparators against isolates from community-acquired respiratory tract infections (CARTI) collected through a global surveillance program.

Methods. Clinically relevant, non-duplicate, isolates cultured from respiratory specimens by clinical laboratories in 54 countries in 2016-2019 were collected by the ATLAS Surveillance Program central laboratory (IHMA, Schaumburg, IL, USA). In total, 2,636 isolates of *S. pneumoniae, H. influenzae, M. catarrhalis, MSSA*, and methicillin-resistant *S. aureus* (MRSA) were tested. The isolates (n/percent of total) originated from Asia/South Pacific (722/27.4%); Europe (1481/56.2%); Middle East/Africa (572/21.1%); and North America (Canada only) (84/3.2%). Ceftaroline and comparator agent MICs were determined by CLSI M07 and M100 criteria. MICs were interpreted using 2013 CLSI M100 breakpoint criteria.

Results. Ceftaroline and comparator agent in vitro activities are summarized in the tables. Greater than 98% of *S. pneumoniae* and 99.2% of *M. catarrhalis* were susceptible to ceftaroline, including penicillin-non-susceptible *S. pneumoniae* based on a dosage of 600 mg every 12h. Sixty-four (24.4%) MRSA were ceftaroline-susceptible-dose-dependent. MIC2-4 µg/mL based on a dosage of 600 mg every 8h administered over 24h, with the majority from (n) China (70), S. Korea (19), Japan (10), and Chile (8). Three isolates, all from China, were resistant to CPT (MIC of 8 µg/mL). 99.2% of *H. influenzae* isolates were susceptible to ceftaroline.

Results Table

| Pathogenic Bacteria | Susceptibility | MIC (µg/mL) | CPT | CRD | LXX | AMK | ERY |
|---------------------|---------------|-------------|-----|-----|-----|-----|-----|
| *H. influenzae*     | 99.2% (209/212) | 97.6% (205/212) | 97.4% (202/212) | NA   |
| *M. catarrhalis*    | 99.2% (25/25)   | 100% (25/25)  | 100% (25/25)  | 100% (25/25) |
| MRSA               | 74.0% (80/220)  | 92% (80/88)   | 92% (80/88)   | 92% (80/88) |
| MSSA               | 99.0% (257/260) | 100% (257/260) | 100% (257/260) | 100% (257/260) |
| *P. aeruginosa*     | 30.5% (154/505) | 59.8% (301/505) | 59.8% (301/505) | 62.4% (320/522) |

Conclusion. Ceftaroline demonstrated potent in vitro activity against current pathogens associated with CABP from a global collection.

Disclosures. Meredith Hackel, PhD MPH; IHMA (Employee) Pfizer, Inc. (Independent Contractor) Gregory Stone, PhD; AstraZeneca (Shareholder, Former Employee) Pfizer, Inc. (Employee) Daniel F. Sahm, PhD; IHMA (Employee) Pfizer, Inc. (Independent Contractor)

1272. Ceftaroline In Vitro Activity Against Molecularly Characterized Acinetobacter baumannii-calcoaceticus Complex and Pseudomonas aeruginosa Clinical Isolates Causing Infection in United States Hospitals

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Session: P-72. Resistance Mechanisms

Background. Ceftaroline (CFDC) is a novel siderophore-conjugated cephalosporin with broad activity against aerobic, nonfastidious Gram-negative bacteria. CFDC and comparator activities were analyzed against molecularly characterized *A. baumannii-calcoaceticus* complex (ABC) and *P. aeruginosa* (PSA), as a part of the SENTRY Antimicrobial Surveillance Program in the USA.

Methods. 248 ABC and 1,069 PSA were consecutively collected from 30 sites in 2020. Susceptibility was performed by broth microdilution and CFDC testing using reported media. FDA and CLSI breakpoints were used for CFDC. CLSI criteria were applied to comparators, except for imipenem-relebactam (IMR) that used FDA breakpoints. ABC and PSA with imipenem and/or meropenem (MER) MIC 24 µg/mL, or cefepime (CPE) MIC ≥ 16 µg/mL were subjected to next-generation genome sequencing for screening for acquired extended-spectrum β-lactamase (ESBL) and carbapenemase genes.

Results. 33.0% of PSA met the MIC screening criteria, and ESBL or carbapenemase genes were not detected among these isolates, except for 1 strain with blaCTX-M. CFDC (97.7-100% susceptible) had similar MIC (0.12-0.5/0.5 µg/mL) values against both PSA populations, as did IMR (98.0-100%). An MIC of 50/90 µg/mL was noted for CFDC against the single blaCTX-M, carrying isolate, whereas other agents had MIC values ≥ 8 µg/mL. Table. CFDC (MIC 0.25/0.5 µg/mL) had the lowest MIC against ABC that met the MIC screening criteria, whereas CFDC, IMR, MER, and CPE were active (99.2-100%). MIC screen negative ACB and PSA had the following results: CPE (MIC ≤ 0.5-2 µg/mL; 86.7-96.7% susceptible) and MER (MIC 0.5-12 µg/mL; 90.0-95.0% susceptible) were the most active agents against ABC where only blakly and variant genes were noted. CFDC was the only agent active (93.9-100% susceptible) against CABR carrying blakly (MIC ≤ 0.5-4 µg/mL; blakly ≤ 0.25/1 µg/mL) or other genes (MIC 0.12-8 µg/mL) or other genes (MIC 0.12-8 µg/mL) or other genes (MIC 0.12-8 µg/mL). Conclusion. Acquired ESBL and carbapenemase genes remained rare among multidrug-resistant PSA in USA hospitals, whereas acquired blakly carbapenemase were prevalent among ACB. CFDC showed potent activity against PSA subsets, as well as cross-locally molecularly characterized subsets of ABC, where treatment options were limited.

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