Disclosures. All Authors: No reported disclosures

1317. Prevalence of Pseudomonas aeruginosa as the Causative Organism for Community Acquired Pneumonia
Adam D. Haviland, MD1; Wendy Szymczak, PhD2; Gregory Weston, MD MSCR3; 1Montefiore Medical Center, New York, New York; 2Montefiore Medical Center and Albert Einstein College of Medicine, Bronx, New York

Session: P-73. Respiratory Infections - Bacterial

Background. IDSA/ATS guidelines regarding pneumonia diagnosis and treatment changed in 2019. Guidelines recommend determining local prevalence of MRSA and P. aeruginosa to help guide empiric antibiotic coverage. The aim of our study was to determine the prevalence of P. aeruginosa as the causative organism for adult patients admitted to a large urban academic medical center with community acquired pneumonia (CAP).

Methods. A report of urine streptococcus antigen tests collected January 1st-December 31st in 2019 was generated. Six hundred charts were reviewed and two hundred subjects met inclusion criteria (figure 1). Inclusion criteria were age >18, hospital admission, and documented suspicion of pneumonia by a physician.

Results. The average age was 70 and half of the cases were women. The causative organism was identified in 60/200 cases (table 1). No cases of P. aeruginosa were identified. The most commonly isolated organisms were Influenza A and pneumococcus. 66% of cases had age >65yo, 25% were from long term care facilities, 34% had structural lung disease, 20% had dementia, 15% were hospitalized in the prior 90 days and received IV antibiotics, and 30% of cases met severe CAP criteria (table 2).

Figure 1. Workflow

Table 1. Organisms Identified

| Organism                | Frequency (n=200) |
|-------------------------|-------------------|
| Influenza A             | 13                |
| Pneumococcus            | 11                |
| RSV                     | 6                 |
| HMPV                    | 5                 |
| MRS A                   | 5                 |
| MRS A                   | 3                 |
| Other GNB (Klebsiella, E. coli) | 4                |
| Legionella              | 3                 |
| Other Virus (Coronavirus, Rhinovirus, Parainfluenza) | 5 |
| Co-Infection (i.e. Influenza A + Pneumococcus) | 5 |

Table 2. Risk Factors

| Risk Factor                     | Frequency (%) (n=200) |
|---------------------------------|----------------------|
| Age >65yo                        | 132 (66)             |
| Hx of Smoking                    | 96 (48)              |
| Presence of Enteral Feeding Tube | 12 (6)               |
| Hx of Dementia                   | 41 (20.5)            |
| Hemodialysis                     | 4 (2)                |
| Structural Lung Disease (ICPD, Cautions, IPT, Bronchectasis) | 68 (34) |
| Hospitalization within prior 90 days with IV abx | 31 (15.5) |
| From Long Term Care Facility     | 50 (25)              |
| Severe CAP Criteria Met (IDSA 2007) | 19 (9.5) |
| Pneumonias in Respiratory or Blood Culture within One Year | 1 (0.5) |

Conclusion. Limitations include a low prevalence of renal failure in the study population, and lack of a standardized respiratory infection evaluation. Our results suggest that empiric coverage for P. aeruginosa may not be needed at our center in this cohort of older patients with clinical characteristics sometimes thought to be risk factors for P. aeruginosa.

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1318. Clinical and Molecular Characteristics of Hypermucoviscous Klebsiella pneumoniae Causing Pneumonia in Korea
Ji Yeon Lee, n/a1; Hyun Ah Kim, n/a1; Mirei Hyun, n/a1; Keimyung University School of Medicine, Daega, Taegu-jikhalsi, Republic of Korea

Session: P-73. Respiratory Infections - Bacterial

Background. Invasive Klebsiella pneumoniae (K. pneumoniae) was emerging in Asia, well-known for community-onset liver abscesses. Healthcare-associated pneumonia caused by hypervirulent K. pneumoniae has been reported in recent studies. The purpose of this study was to evaluate the clinical and molecular characteristics of hypervirulent K. pneumoniae compared with classic K. pneumoniae in respiratory infection.

Methods. The study was performed on 163 K. pneumoniae isolates of respiratory infections collected from Keimyung University of Dongsan Medical Center from November 2013 to November 2015; group A, as classic K. pneumoniae and group B, as hypervirulent K. pneumoniae. Hypermucoviscous phenotype was confirmed with string test. Capsular serotypes, rmpA, magA, alic, mkiD, emB, kfu, and iutA were identified using specific primers by polymerase chain reaction. The biofilm mass was determined using the microtiter plate assay measured by optical density (OD, 570nm).

Results. A total 163 patients were analyzed, 100 (61.3%) of group A and 68 (38.7%) of group B. Community-acquired pneumonia was observed in 49.2% of group B and 18.0% of group A (p=0.001). Underlying diseases except chronic lung disease were more associated with group A. Mean age (72.6±11.7 vs. 68.8±12.5 years,
and antibacterial resistant rates were higher in group A. Mechanical ventilators (21.0% vs. 36.5%, p=0.030) was more associated with group B. Concordances of initial antibiotics (57.5% vs. 92.1%, p=0.001) were more observed in group B. Biofilm formation and infection related 30-day mortality showed no differences between the two groups.

Conclusion. Contrary to our expectations, hypervirulent K. pneumoniae was more associated with community-acquired pneumonia in this study. Compared to classic K. pneumoniae, hypervirulent K. pneumoniae showed more association with severe pneumonia and less association with underlying diseases. In respiratory infection, biofilm formation was not different according to hypermucoviscousness.

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1319. Assessment of Spectrum Score-Based Antibiotic De-Escalation in Patients with Nosocomial Pneumonia

Daniel T. Ilges, PharmD2, Elizabeth Neuner, PharmD, BCPS, BCIDP3, Tamara Krekel, PharmD, BCPS, BCIDP3, David J. Ritchie, PharmD, BCPS (AQ-ID)1; Nicholas B. Hampton, PharmD2; Scott Micek, PharmD, FCCP, BCPS3, 1Barnes-Jewish Hospital, St. Louis, Missouri; 2BJHC Healthcare, St. Louis, Missouri; 3Barnes Jewish Hospital, St. Louis, Missouri

Session: P-73. Respiratory Infections - Bacterial Background. Hospital-acquired and ventilator-associated pneumonia (HAP/VAP) cause significant morbidity and mortality. Guidelines recommend broad-spectrum empiric antibiotic therapy, including treatment for Pseudomonas aeruginosa (PSA) and methicillin-resistant Staphylococcus aureus (MRSA), followed by de-escalation (DE). This study sought to assess the impact of DE on treatment failure.

Methods. This single-center retrospective cohort study screened all adult patients with a discharge diagnosis code for pneumonia from 2016-2019. Patients were enrolled if they met pre-defined criteria for HAP/VAP ≥48 hours after admission. Date of pneumonia diagnosis was defined as day 0. Spectrum scores were calculated, and DE was defined as a score reduction on day 3 versus day 1. Patients with DE were compared to patients with no de-escalation (NDE). Data were compared using chi-square, Mann-Whitney U, or T-tests. The primary outcome was composite treatment failure, defined as all-cause mortality or re-admission for pneumonia within 30 days of diagnosis, analyzed using a Cox proportional hazards analysis to control for confounding variables.

Results. DE and NDE resulted in similar rates of composite treatment failure at 30 days; however, DE was associated with fewer antimicrobial days, episodes of C. difficile, and days of hospitalization. Spectrum scores can objectively identify DE, but further studies are needed to fully understand their utility in this context.

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1320. In Vitro Activity of Lefamulin against Staphylococcus aureus Isolated from the Lower Respiratory Tract of Children with Cystic Fibrosis

Helo S. Sader, MD, PhD, FIDSA1; Susanne Paukner, PhDr2; Steven P. Gelone, PharmD1; S J Ryan Arends, PhD; Rodrigo E. Mendes, PhD3; JMI Laboratories, North Liberty, Iowa; Nabriva Therapeutics GmbH, Vienna, Wien, Austria; Nabriva Therapeutics US, Inc., King of Prussia, PA

Session: P-73. Respiratory Infections - Bacterial Background. Lefamulin is a first-in-class, oral and IV pleuromutilin antibiotic approved in the US, EU, and Canada for the treatment of community-acquired bacterial pneumonia (CABP) in adults. Lefamulin inhibits bacterial protein synthesis via a unique mechanism of action and its potency against S. aureus has been well established. We evaluated the in vitro activity of lefamulin against S. aureus from patients with cystic fibrosis (CF).

Methods. Unique isolates (n=224) were collected from the lower respiratory tract (LRT) of children (≤17 years old) with CF and LRT infection. Organisms were qualified as respiratory specimens and determined to be the probable cause of infection by the participant center. The isolates were collected in 2018-2020 from 22 medical centers in 11 countries and tested by broth microdilution methods at JMI Laboratories. Most isolates were from the US (43.3%), Spain (24.1%), France (20.5%), and Costa Rica (7.1%).

Results. Lefamulin was highly active against the CF S. aureus collection (MIC≤min 0.06/0.12 µg/mL, with 99.6% of isolates inhibited at ≤0.25 mg/L, consistent with the susceptible [S] breakpoint published by the US FDA, CLSI, and EUCAST. Only 1 lefamulin-non-S (MIC, 1 mg/L) isolate was observed, a methicillin-susceptible (MSSA) collected in Costa Rica in 2018 and carrying a vga(A) gene. Lefamulin retained potent activity against methicillin-resistant (R) S. aureus (MSSA, n=52; MIC≤min 0.06/0.12 µg/mL, azithromycin-R (R) S. aureus (MSSA, n=52; MIC≤min 0.06/0.12 µg/mL, azithromycin-R (n=115; MIC≤min 0.06/0.12 µg/mL, levofloxacin-R (n=23; MIC≤min 0.06/0.12 µg/mL, clindamycin-R (n=11; MIC≤min 0.06/0.12 µg/mL, and gentamicin-R (n=9; MIC≤min 0.03-0.12 µg/mL) isolates as well as those isolates with multiple resistance phenotypes. Against MRSA, susceptibility to azithromycin was 23.5% and to levofloxacin 64.7%. All isolates were susceptible to vancomycin, linezolid and ceftaroline (Table). Among isolates from the US (n=97), the MRSA rate was 30.9% and all isolates were Lefamulin-S (MIC≤min 0.06/0.12 µg/mL).

Conclusion. DE and NDE resulted in similar rates of composite treatment failure at 30 days; however, DE was associated with fewer antimicrobial days, episodes of C. difficile, and days of hospitalization. Spectrum scores can objectively identify DE, but further studies are needed to fully understand their utility in this context.