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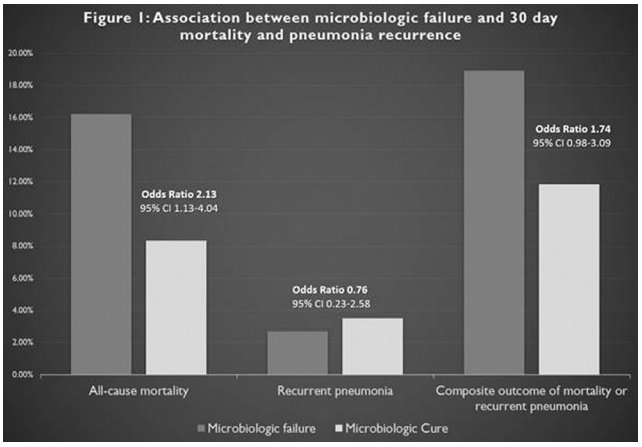
Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

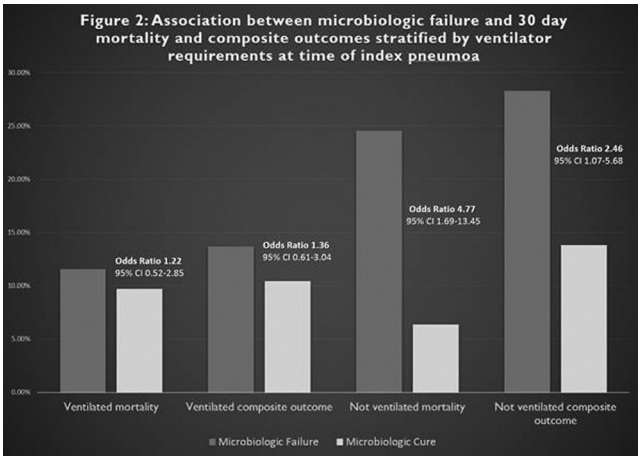
Background. Microbiologic cure is a frequent outcome in pneumonia trials, but its clinical relevance remains poorly understood. We aimed to evaluate the association between microbiologic failure in pneumonia in the setting of clinical cure and recurrent pneumonia and mortality.

Methods. Retrospective, single-center cohort study of adult patients hospitalized between January 1, 2008 and January 1, 2017. Patients with index pneumonia (defined as a positive respiratory culture and continuous receipt of ≥5 days of antibiotics) who demonstrated clinical cure (defined as cessation of all antibiotics for ≥48 hours and survival for 7 days following antibiotic completion) were included. All included patients had to have follow-up respiratory cultures obtained between 3 days before and 7 days after completion of antibiotic therapy. Patients with persistence of the inciting pathogen were classified as microbiologic failure and all others as microbiologic cure. Primary outcomes were 30-day mortality and a 30-day composite of mortality and/or recurrent pneumonia.

Results. Of 376 included patients, 61% had microbiologic cure compared with 39% with microbiologic failure. Mean age was 55.4 years, 62% of patients were male and 79% White. Mean antibiotic duration was 14.8 days. Sixty-one percent of patients were mechanically ventilated at the time of index pneumonia. The most common pathogens were *Enterobacteriaceae* (35%), *Staphylococcus aureus* (31%) and *Pseudomonas aeruginosa* (22%). In the microbiologic failure group, the primary composite outcome occurred in 18.9% of patients compared with 11.8% in the microbiologic cure group (OR 1.73, 95% CI 0.98–3.09) (Figure 1). All-cause 30-day mortality was greater in patients with microbiologic failure (16.2%) than microbiologic cure (8.3%) (OR 2.13, 95% CI 1.12–4.04). These associations were particularly strong among nonventilated patients (Figure 2). Rates of recurrent pneumonia were similar between groups.

Conclusion. Patients with clinical cure but microbiologic failure were more than twofold more likely to die 30 days after their index pneumonia than those with microbiologic cure. Patients with microbiologic failure who were not mechanically ventilated at the time of index pneumonia had a greater than fourfold increased mortality risk.





Disclosures. **K. Kaye**, Zavante Therapeutics, Inc.: Scientific Advisor, Consulting fee

1468. PCV13 Serotype Trends Over Time in Pneumococcal Community Acquired Pneumonia: Which Method(s) Work Best?

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Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. Recent studies have shown that a 13-valent pneumococcal conjugate vaccine (PCV13) was effective at preventing vaccine-type pneumococcal community acquired pneumonia (CAP_{Spn}) in healthy adults. With the anticipated herd immunity from routine infant immunization with PCV13 used since 2010, the benefits of adult immunization in Canada were unclear and surveillance for CAP_{Spn} with serotype distributions was needed. This study aimed to compare PCV13 serotype trends in CAP_{Spn} from 2010 to 2015 using various laboratory methods.

Methods. Active surveillance for CAP was performed from 2010 to 2015 in adult hospitals across five Canadian provinces. Bacteremic CAP_{Spn} cases were identified using blood culture, and nonbacteremic CAP_{Spn} cases by sputum culture or using a PCV13-specific urine antigen detection (UAD_{PCV13}). Serotype was assigned using Quellung reaction, PCR, or UAD_{PCV13}. CAP_{Spn} cases were categorized by laboratory test(s), age, or disease (bacteremic or nonbacteremic CAP_{Spn}).

Results. A diagnostic test for *S. pneumoniae* was performed on 6,687 CAP cases. *S. pneumoniae* positivity decreased from 2011 to 2014, and increased again in 2015. PCV13 serotypes followed a similar trend, where the decline in PCV13 serotypes attributed to serotypes 7F and 19A was noted, and the proportion of serotype 3 increased over time. Similar trends were seen regardless of whether data were categorized by laboratory test(s), age, or disease.

Conclusion. Our data suggest that all methods showed similar trends in PCV13 serotype distribution over 2010 to 2015. Herd immunity through childhood immunization with PCV13 was evident, but insufficient to afford complete protection to hospitalized adults. CAP_{Spn} remained a significant cause of morbidity and mortality in hospitalized adult, and serotype 3 seems to be persisting despite herd immunity seen with other serotypes. Ongoing surveillance is required.

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1469. Microbial Etiology of Community-Acquired Pneumonia Requiring Hospitalization Among US Adults

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Session: 147. Respiratory Infections: CAP
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Background. Community-acquired pneumonia (CAP) continues to be the leading cause of infection-related mortality in the United States. Epidemiological studies of CAP are usually based on single-center studies and there is a need for large population based studies. We evaluated the microbial etiology of CAP among patients requiring hospitalization using a large US database.

Methods. We included adult patients admitted with pneumonia from 2010 to 2015 to 175 US hospitals participating in Premier and providing administrative and microbacteriological data. Patients were identified as having CAP if they had a radiographic evidence of pneumonia (X-ray) on the first day and if they were on antimicrobials on the first day for 3 consecutive days. For studying the microbial etiology, patients were included if they had a positive culture or test collected by hospital Day 0 or 1. Patients with identical Gram negative organisms in blood and urine were