Abstract

Background: Pneumonia affects >6 million patients each year in the United States and is associated with significant morbidity and mortality. The microbiological diagnosis of CABP has proven difficult with standard culture methods and can vary by clinical setting, requiring careful selection of appropriate antibiotic treatment regimens.

Methods: We analyzed first positive bacterial respiratory isolates from patients discharged with primary or secondary ICD10 codes for pneumonia and treated with empiric antibiotic therapy during a 1-year period from 65 US healthcare facilities participating in the ASM Microbe Study (ASM, Rockville, MD, USA). The microbiological diagnosis of CABP has proven difficult with standard culture methods and can vary by clinical setting, requiring careful selection of appropriate antibiotic treatment regimens. The microbiological diagnosis of CABP has proven difficult with standard culture methods and can vary by clinical setting, requiring careful selection of appropriate antibiotic treatment regimens. The microbiological diagnosis of CABP has proven difficult with standard culture methods and can vary by clinical setting, requiring careful selection of appropriate antibiotic treatment regimens.

Results: Of the 1,241 total patients included, 54.9% were in the ICU setting and 45.1% were in the non-ICU setting. Gram-positive bacteria were more common in the ICU setting (21.4% vs. 8.4%), while Gram-negative bacteria were more common in the non-ICU setting (21.8% vs. 10.2%, p<0.0001). The most common primary pathogens were S. aureus (19.2%) and M. pneumoniae (8.0%) vs. 2.5% vs. 2.5% vs. 0.7%, p=0.0231) were more common in the ICU setting. S. aureus (21.4%), P. aeruginosa (10.2%), and S. pneumoniae (8.0%) were the most common bacteria, representing 61.6% of all isolates. Linezolid was associated with a significantly lower risk of bacteremia (OR: 0.49, 95% CI: 0.26 – 0.94, p=0.0294).

Conclusion: Of all positive CABP patients who received empiric antibiotic therapy and were admitted to the ICU, the majority were also on more immunosuppressive therapies. This may be changing in patients with a causative pathogen identified by serology, culture, or urinary antigen testing to a hospital. Gram-positive pathogens were the most common organisms identified with S. aureus and S. pneumoniae identified as the most frequent regardless of ICU admission status. The patient demographics comparing febrile and non-fever CABP patients were similar with minor differences noted. The selection of appropriate antibiotic therapy should consider the most likely bacteriology based on admission to the ICU versus the non-ICU setting.

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