A Retrospective Study Assessing the Appropriateness of the Initial Antibiotic Therapy for Pneumonia

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ABSTRACT

Background: Pneumonia continues to be a significant challenge in healthcare and is a leading cause of morbidity and mortality worldwide[8]. Pneumonia is diagnosed on the basis of clinical symptoms, and initial management involves the use of empiric antibiotics. Appropriate empiric treatment is critical to the successful treatment of pneumonia as it can have a significant impact on patient outcomes. However, the selection of empiric antibiotics is a complex problem that is influenced by many factors such as type of pneumonia, emerging resistance patterns, and the need to balance broad-spectrum coverage while inimizing antibiotic exposure.

Methods: This study was a single-center, retrospective chart review of patients diagnosed with and treated for community-acquired pneumonia (CAP) or hospital-acquired pneumonia (HAP). The study was conducted at Anderson Hospital, a 144-bed community hospital and included patients diagnosed with pneumonia from March to June 2023. Pediatric and ventilator-associated pneumonia (VAP) patients were excluded. The primary outcome is to assess the appropriateness of the initial antimicrobial regimen using the latest recommendations from the 2019 IDSA/ATS CAP and the 2016 IDSA/ATS HAP/VAP guidelines. Secondary outcomes include the duration of antimicrobial treatment, appropriateness of MRSA nares screening, appropriateness of respiratory cultures, appropriateness of aspiration pneumonia treatment, and lastly the presence of bloodstream infection. Analyses were done using measures of central tendency.

Results: 88/147 (59.9%) patients recieved appropriate initial therapy. The average total duration of antimicrobial therapy was 8.1 days. 125 (85%) patients where MRSA nares screening was utilized appropriately. There were 48 (32.7%) patients that had a respiratory culture performed. 28 patients had suspected aspiration pneumonia; of these patients, 5 (17.9%) were treated appropriately. 21 (14.3%) patients had a concurrent bloodstream infection.

Conclusion: Appropriate initial antimicrobial therapies were selected about 60% of the time. Furthermore, duration of treatment was slightly above the most recent recommendations for duration of therapy for both hospital-acquired and community-acquired pneumonia. Though a small sample size, this review could be used to optimize initial antimicrobial therapies and order sets while also showing room for improvement in duration of treatment