

Evaluation of Discharge Antibiotic Prescribing for Community Acquired Pneumonia at a Pediatric Emergency Department

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Introduction

Appropriate antibiotic prescribing is important in combating increasing rates of antibiotic resistance and minimizing risks of harmful antibiotic-associated adverse drug events. Antibiotics are frequently prescribed to pediatric patients, especially in emergency departments (ED), with an estimated 7 million antibiotic prescriptions given to children annually in this setting¹. Maintaining consistent antibiotic prescribing practices in the ED setting is difficult due to numerous factors including high volume, rapid turnover, and a variety of prescriber types including attending physicians, fellows, residents, and advanced practice providers. Community acquired pneumonia (CAP) is a common childhood illness and a frequent reason for antibiotic prescribing with >1.2 million children diagnosed in the outpatient setting and the ED yearly². The 2011 Infectious Diseases Society of America pediatric CAP guidelines recommend amoxicillin as 1st line therapy for healthy individuals with 10 days of antibiotic treatment being the best studied, however mention that shorter courses may be just as effective. In the last several years, there have been multiple studies³⁻⁵ demonstrating shorter durations of antibiotic therapy to be just as effective as 10-day courses for mild to moderate CAP.

In view of the data published since the 2011 CAP guidelines, we aimed to assess current antibiotic prescribing practices in a tertiary care children's hospital ED for CAP, with regards to antibiotic choice, dose, frequency, and duration, in order to identify potential targets for antimicrobial stewardship efforts.

Methods

We performed a retrospective cohort study of children ≤ 18 years old who were discharged from St. Christopher's Hospital for Children Emergency Department from January 1, 2019 – December 31, 2020, with the diagnosis of CAP and prescribed an antibiotic. Patients were excluded if they were >18 years old, admitted to St. Christopher's Hospital for Children or transferred to another facility, or had underlying medical conditions including chronic lung disease or tympanostomy tubes.

Electronic medical charts were identified based on ICD-10 codes and retrospectively reviewed. Data collected included patient demographics, clinical symptoms, medication allergy history, diagnostic testing, cultures, discharge diagnoses, and discharge antibiotic information including specific antibiotic, dose, and duration.

Results

From January 2019-December 2020, 331 patients were discharged with an antibiotic for the diagnosis of CAP. 152 patient charts were retrospectively reviewed in detail in chronological order and 144 met inclusion criteria. Patient age ranged from 6 months to 18 years, with mean age of 5.9 years and 57% were female. Most common presenting symptoms were fever and cough. 82% of patients had a chest x-ray performed with 67.2% showing lobar consolidation or infiltrate. 75% of patients were prescribed amoxicillin and 25% were prescribed an alternative antibiotic, most commonly amoxicillin/clavulanate (41.6%), azithromycin (39%) and cefdinir (16.7%). Of the patients who did not receive amoxicillin, 11.1% were due to documented allergy, 22.2% were due to a recent history of amoxicillin use, 33.3% were due to concerns for atypical pneumonia, 14% were due to need to treat multiple infections, and 19.4% had no reason specified. Most patients received 10 days of treatment (76.8%) while only 11.3% received 5 days of antibiotic therapy.

Conclusions

A review of discharge antibiotic prescribing for patients diagnosed with CAP in the SCHC ED showed most patients received 1st line therapy with amoxicillin with the majority being treated for 10 days. While most patients received preferred antibiotic therapy, one fifth of patients who received an alternative antibiotic had no reason documented. Although the 2011 IDSA guidelines recommend 10 days of treatment for uncomplicated pneumonia, there have been numerous studies published since that time showing that shorter (5-day) antibiotic courses for outpatient CAP are non-inferior to longer durations of therapy. Limiting antibiotic use to the shortest duration necessarily is an important tool for antimicrobial stewardship. Duration of therapy and improved documentation should be targets for further ED antimicrobial stewardship interventions.