Discovering Outpatient Stewardship Targets: An Evaluation of Community Acquired Pneumonia in the Outpatient Setting

Bethany A Wattengel, PharmD, Kari Mergenhen, PharmD, BCPs AQ-ID, John Sellick, DO, MS, Jennifer Schroock ,PharmD, Megan Skelly, PharmD, Randal Napierala, PharmD

VA Western New York Healthcare System, Buffalo, NY

Background

- Community-acquired pneumonia (CAP), a respiratory infection in individuals who have not recently been hospitalized nor received antibiotics, is one of the leading causes of death in the United States.
- Approximately 4 million individuals are diagnosed with CAP each year, with the incidence and mortality increasing with age.
- While most data regarding management of CAP comes from inpatient management of hospitalized patients, the majority of CAP cases are actually managed on an outpatient basis.

Objectives

- Primary and Secondary Objectives:
  - To determine incidence of appropriate diagnosis and appropriate treatment regimens.
  - To identify potential stewardship targets in the outpatient treatment of CAP.
  - To determine incidence of treatment failure due to incorrect initial drug choice based on presence of comorbidities, increasing influenza vaccination rates, and minimizing inappropriate antibiotic prescribing for viral infections and bronchitis.
  - 30-day re-presentation rates
  - 30- and 90-day mortality

Methods:

- Retrospective chart review via the computerized patient record system.
- Patients were identified via recorded ICD-9 and ICD-10 codes.
- Study period: 1/1/2018 to 1/31/2018.
- Multivariate logistic regression analysis was used to evaluate factors associated with each of the endpoints.

Definitions:

- CAP: acute illnesses with radiographic evidence of pneumonia as well as ≥ 1 of the following symptoms: fever/chills, dyspnea, cough with or without sputum production.
- Appropriate treatment: in accordance with IDSA guidelines.
- Treatment failure: lack of response or worsening of clinical or radiologic status requiring changes in antibiotics or invasive procedures.
- Success: all other cases.

Inclusion Criteria

- All patients ≥ 18 years of age and older, treated for CAP.
- Hospital admission
- HIV/AIDS
- Patients hospitalized and received IV antibiotics within 90 days of presentation
- Treated for concomitant infection

Exclusion Criteria

- Patients ≥ 18 years of age and older, treated for CAP.
- Inpatient admission
- HIV/AIDS
- Patients hospitalized and received IV antibiotics within 90 days of presentation
- Treated for concomitant infection

Results

Outcome: "At Risk" for DRSP vs. Low Risk

- Appropriate antibiotic regimen: 69.2% vs. 75.5% p = 0.017
- Inappropriate antibiotic regimen: 30.8% vs. 24.5% p = 0.017

Comorbidities

- Diabetics: 128
- COPD: 123
- Kidney Disease: 98
- CHF: 44
- COP: 43
- Arthritis: 42
- Liver Disease: 31

Appropriateness of Antibiotic Regimens

- Appropriate antibiotic regimen: 69.2% vs. 30.8% p = 0.0001

Antibiotics

- Azithromycin
- Respiratory Fluoroquinolones
- beta lactam = atypical
- Miscellaneous

Discussion

- All patients were more likely to have an inappropriate diagnosis of CAP, however they were more likely to receive an inappropriate regimen with respect to the IDSA guidelines.
- Azithromycin was the most commonly prescribed antibiotic, suggesting an area for improvement.
- Most common reasons for inappropriate prescribing were due to incorrect initial drug choice based on presence of chronic diseases and excessive days of therapy.
- Potential stewardship targets include targeting patients at risk for DRSP and ensuring guideline concordant therapy, education for duration of therapy and appropriate empirical choices based on presence of comorbidities, increasing influenza vaccination rates, and minimizing inappropriate antibiotic prescribing for viral infections and bronchitis.

Conclusions

- Most common reasons for inappropriate prescribing were due to incorrect initial drug choice based on presence of chronic diseases and excessive days of therapy.
- Potential stewardship targets include targeting patients at risk for DRSP and ensuring guideline concordant therapy, education for duration of therapy and appropriate empirical choices based on presence of comorbidities, increasing influenza vaccination rates, and minimizing inappropriate antibiotic prescribing for viral infections and bronchitis.