Introduction

While antimicrobial stewardship program (ASP) efforts have traditionally targeted the inpatient setting, experts and regulatory bodies have begun to place a greater emphasis on the importance of outpatient antimicrobial stewardship efforts. ASP services have officially been in place within the Premier Health Partners system for approximately 2 years. These services have been targeted at the inpatient population. The transition from the inpatient setting to the outpatient setting has been identified as a major point where medication-related errors may occur.

To up to 50% of all antibiotics are associated with incorrect dosing, prolonged or shortened durations of therapy, and poor antibiotic agent selection.

There is limited information in the literature to effectively describe the prevalence of antibiotic inappropriateness at hospital discharge. More information may help institutions to focus their efforts or garner more resources to fight antibiotic misuse.

Study Design

Retrospective, Multi-center, Investigational Chart Review

Study Sample

284 patient charts included from December 2015 through December 2016

Site 1- a large, academic medical center inside an urban area (ASP services since mid-2014)

Site 2- a medium-sized community hospital outside of an urban area (ASP services recently established)

Inclusion Criteria

• At least 21 years of age
• Admitted for at least 24 hours
• Oral anti-infective therapy at hospital discharge
• Primary diagnosis of CAP, HCAP, UTI, cellulitis, and/or superficial abscess

Exclusion Criteria

• Hospice, pregnant, or imprisoned patients
• Anti-infectives for a non-study indication
• Discharged on parenteral anti-infective therapy

Outcomes

Primary Outcome

Percentage of all durations considered potentially inappropriate

Secondary Outcomes

• Potentially inappropriate durations by indication
• Total excess days of therapy
• Comparison of sites on the above outcomes
• Significant or trending correlations between demographic variables and the appropriateness of duration of therapy

Analysis

• Analyses performed in SPSS v24 (Armonk, NY)

METHODS

OBJECTIVES

• To identify the potential inappropriateness of anti-infective duration at hospital discharge
• To describe any identified duration of therapy inappropriateness
• To compare the inappropriateness of anti-infective duration between two sites

RESULTS

Potentially Inappropriate Duration by Indication and Site

<table>
<thead>
<tr>
<th>Indication Category (n)</th>
<th>Max DoT</th>
<th>Median Inpatient DoT</th>
<th>Median Outpatient DoT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP treated primarily with levofloxacin 750 mg, azithromycin, or oseltamivir (41)</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>CAP, not otherwise specified (70)</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>HCAP (26)</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>UTI (29)</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Cellulitis (45)</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Cellulitis, with MRSA isolates (13)</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

DISCUSSION AND CONCLUSIONS

Findings

• Study indications identified: CAP 151, HCAP 26, UTI 29, cellulitis 58, abscess 9, mixed 11
• The average combined (inpatient + outpatient) duration of therapy was 11.3 days
• There were no significant differences between the two hospital sites in outcomes
• Patients with a longer length of stay or a higher calculated creatinine clearance were more likely to have a potentially inappropriate duration of therapy (p<0.05, respectively)
• Patients with comorbid malignancy trended towards being less likely to have a potentially inappropriate duration of therapy (p=0.057)

Limitations

• Lack of assessment of patient outcomes
• Overview of multiple disease states
• Retrospective, chart-review design with small sample size
• Severity of illness and complications were not taken into account

Conclusions

• Antibiotic durations at hospital discharge were often potentially inappropriate
• The longer a patient remained hospitalized, the more likely they were to have an excessive duration of therapy

Applications

• Antimicrobial stewardship interventions should focus on both inpatient and outpatient durations of therapy
• ASP teams should advocate for limited durations when the infection process is no longer the primary hospital problem or if the duration of therapy is completed

REFERENCES


