Introduction

Opportunities exist to improve early prescribing practices by providing ID consultation in the ED.

- Emergency room utilization in the US has increased over the last decade in the setting of barriers to primary care access (1-2).
- Inappropriate antibiotic use in the ED is high, with >50% of patients receiving antibiotics for viral upper respiratory tract infections (3).
- For patients presenting with severe sepsis, selection and timely administration of effective antibiotics reduces morbidity and mortality (4).
- ED consultation in the first two days of admission results in lower mortality rates, reduced readmission rates, shorter length of stay, and fewer ICU days (5).

This study was undertaken because audit of antibiotic usage in our ED at Montefiore shows that of those patients who receive antibiotics in the hospital, 61% were initiated in the ED and 30% were not optimal.

Methods

Setting:
- ED at the Einstein Campus of Montefiore Medical Center (a 42 bed non- profit teaching facility with over 72,000 ED visits and 16,000 admissions per year).

Timing:
- January through June 2014
- Monday through Friday from 8am-8pm

Intervention:
- Collaborative ED, ASP and ID management pilot program
- Team consisted of a dedicated ID specialist working in collaboration with ASP/ID consultation.

Acceptability of recommendations by ED staff were measured, with 92% of ED physicians recommending to stop antimicrobial therapy completely. Acceptability of recommendations by ED staff were measured, including those patients recommended for discharge.

Results

- 331 patients were evaluated over 6 months.
- An average of 3 patients per day were evaluated (range 0.9- patients).
- Acceptability of ASP/ID consultation was high, with 92% of ED physicians prescribing the recommended antibiotic regimen.

The ID consultant spent an average of 4 additional hours per day evaluating patients in the ED, coordinating care, and communicating with other providers.

Most common reasons for consultation were pneumonia, sepsis, skin/skin tissue infections, and urinary tract infections.

Discussion

A collaborative approach with early ASP and ID consultation in the ED is a feasible and acceptable model that can improve initial antibiotic prescribing, reduce unnecessary antibiotic use, improve patient safety, and avert unnecessary admissions.

Further investigation is warranted to examine cost-savings (based on antibiotic utilization, length of stay, avoidance of unnecessary admissions, and compliance with state and national standards), as well as patient outcomes such as morbidity (adverse drug reactions, clostridium difficile infection, etc.) and mortality.

Expansion of this collaborative program between ID/ASP and ED is underway.

Future Studies

- Similar collaborative ID/ASP models could be adapted to other hospitals and settings to improve antibiotic utilization patterns.

References

1. Mahalia Desruisseaux, MD, Sarah Hochman, MD, Marla Keller, MD, FIDSA, Ira Leviton, MD, FIDSA, Kerry Murphy, MD, Anjali Sharma, MD, Scott Pearlman, MD, Nadine Katz, MD, Deborah White, MD, Lisen-Arie Pirofski, MD, FIDSA and Belinda Ostrowsky, MD, MPH, FIDSA

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Revised Abstract

Background: Emergency room utilization in the United States has increased over the last decade. Little is known about antibiotic utilization and its appropriateness in the Emergency Department (ED). Published data indicate that over 50% of patients presenting with viral upper respiratory tract infections receive inappropriate antibiotics during an ED visit. Thus, opportunities exist to improve prescribing.

Methods: We developed an antibiotic stewardship (ASP) and infectious diseases (ID) management pilot program, designed in collaboration with the ED at the Einstein Campus of Montefiore Medical Center. For 6 months, an ID physician notified about patients presenting with infectious conditions by ED providers or ASP staff (during antibiotic auditing and approval calls). An ID physician formally evaluated the patient and offered recommendations for antibiotic selection, dosing, duration, additional testing, and when appropriate, outpatient management. Patients who were hospitalized were offered follow up with an ID specialist.

Results: During the intervention period, 331 patients were evaluated. Of those patients, 179 (54%) were initially prescribed ‘inappropriate’ antimicrobial regimens. Outpatient management with discharge from the ED was recommended in 37 (11%) patients, and 34 (10%) were recommended to stop antimicrobial therapy completely. Acceptability of ASP/ID consultation was high, with 92% of ED physicians prescribing the recommended antibiotic regimen.

Conclusion: Our pilot data suggests that a collaborative approach with early ASP and ID consultation in the ED is a feasible and acceptable model that can improve initial antibiotic prescribing, reduce unnecessary antibiotic use, improve patient safety, and avert unnecessary hospital admissions and build relationships with ED staff.

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Clinical Syndromes

- Pneumonia
- Sepsis
- Skin and soft tissue infection
- UTI and pyelonephritis
- Other

- CHF infection
- Osteomyelitis or bone infection
- Intrabdominal infection
- Clostridial infection
- Mycobacterial Infection
- Head and neck infections
- Endocardial and endocarditis

Figure 1: Recommendations by ID/ASP Consultation in the ED

Figure 2: Reason for ID Consultation in the ED

Table 1: Acceptability to ED staff

<table>
<thead>
<tr>
<th>Antibiotic recommendations accepted by ED staff</th>
<th>n/N (%)</th>
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<tr>
<td>Total</td>
<td>303/331 (92%)</td>
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Table 1: Baseline and Post Intervention Data Comparison

Summary and Future Directions

- A collaborative approach with early ASP and ID consultation in the ED is feasible and acceptable.
- Early ID/ASP consultation in the ED can improve initial antibiotic prescribing, reduce unnecessary antibiotic use, improve patient safety, and avert unnecessary admissions.
- Further investigation is warranted to examine cost-savings (based on antibiotic utilization, length of stay, avoidance of unnecessary admissions, and compliance with state and national standards), as well as patient outcomes such as morbidity (adverse drug reactions, clostridium difficile infection, etc.) and mortality.
- Expansion of this collaborative program between ID/ASP and ED is underway.

- Similar collaborative ID/ASP models could be adapted to other hospitals and settings to improve antibiotic utilization patterns.