Outcomes Among Patients Enrolled in an Outpatient Parenteral Antibiotic Therapy Program at an Academic Medical Center

Deborah A. Theodore, MD1, E. Yoko Furuya, MD, MSc1,2, William G. Greendyke, MD1,2
1Department of Medicine, Columbia University Irving Medical Center; 2Infection Prevention and Control, NewYork-Presbyterian Hospital

Background

- Outpatient parenteral antibiotic therapy (OPAT) is a key component of the treatment of deep-seated infections requiring long-term intravenous (IV) antibiotics
- Advantages of OPAT include increased cost-effectiveness, decreased exposure to hospital-acquired infections, and potentially improved patient satisfaction; disadvantages include risk of hospital readmission, ER visit, or adverse drug events
- Few data have been published on outcomes among patients followed by an established OPAT program
- Methicillin-resistant Staphylococcus aureus (MRSA) bacteremia is a common indication for OPAT services
- We describe OPAT outcomes with a focus on MRSA bacteremia after the implementation of a formal OPAT monitoring program (OPATMP)

Methods

- Retrospective chart review of two cohorts of patients discharged from an academic, multi-campus, acute care hospital center in New York City on IV antibiotic therapy
- MRSA bacteremia cohort: Patients with MRSA bacteremia discharged on IV therapy between 07/2016 and 12/2017 and enrolled in OPATMP were compared to non-OPATMP patients with MRSA bacteremia discharged on IV therapy between 01/2015 and 12/2017; outcomes included ID follow up, hospital readmissions, ER visits, microbiological recurrences, and death
- Total OPATMP cohort: Indications and outcomes for all patients enrolled in OPATMP at discharge from 07/2016 through 12/2017 were described
- Statistical measures including Chi square tests or Fisher’s exact tests were used, as indicated

Results: MRSA bacteremia cohort

- 25 patients were enrolled in OPATMP from 07/2016 to 12/2017 after a diagnosis of MRSA bacteremia
- 83 additional non-OPATMP patients were discharged on IV therapy for MRSA bacteremia from 01/2015 to 12/2017

Results: Total OPATMP cohort

- 561 patients were enrolled in the OPATMP from July 2016 to December 2017
- 61 (11 percent) were re-hospitalized while on therapy
- 24 (4 percent) had an ER visit for an infectious or OPAT issue while on therapy
- 93 (17 percent) required antibiotic dose changes
- 51 antibiotic-related adverse events occurred that did not result in ER visit or a readmission
- 194 (35 percent) attended an ID follow up appointment
- 435 patients (78 percent) had a positive culture guiding antibiotic choice
- 95 (21 percent) were polymicrobial
- 90 (21 percent) had MSSA
- 39 (9 percent) had MRSA

Conclusions

- Patients discharged on OPAT are at high risk for complications and recurrence; close monitoring is necessary for patient safety and can be provided by a focused OPAT program
- Patients in the MRSA bacteremia OPATMP cohort were significantly more likely to attend an ID follow up appointment
- No other significant differences were seen between the MRSA OPAT cohorts; this study may have been underpowered to detect differences
- Further data are needed to clarify whether an OPAT program can improve outcomes among patients discharged after an episode of MRSA bacteremia

Figure 1. Source of MRSA bacteremia

Figure 2. Indication for discharge on OPAT therapy

Table 1. Outcomes and discharge regimens after MRSA bacteremia

<table>
<thead>
<tr>
<th>Non OPATMP (n = 83)</th>
<th>OPATMP (n = 25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean length of hospitalization</td>
<td>18.3 days</td>
</tr>
<tr>
<td>Seen by ID consult service</td>
<td>71 (85.5%)</td>
</tr>
<tr>
<td>Vancomycin-containing regimen</td>
<td>71 (86%)</td>
</tr>
<tr>
<td>Daptomycin-containing regimen</td>
<td>11 (13%)</td>
</tr>
<tr>
<td>Cefotaxime-containing regimen</td>
<td>3 (3.6%)</td>
</tr>
<tr>
<td>Attended ID follow up appointment</td>
<td>24 (28.9%)</td>
</tr>
<tr>
<td>Readmission within 6 months</td>
<td>42 (50%)</td>
</tr>
<tr>
<td>ER visit within 6 months</td>
<td>46 (55.4%)</td>
</tr>
<tr>
<td>Death within 30 days after discharge</td>
<td>0</td>
</tr>
<tr>
<td>Microbiological recurrence</td>
<td>2 (2.4%)</td>
</tr>
</tbody>
</table>

All values reported as n (%) unless otherwise specified. *p < 0.05