ABSTRACT (modified from original submission)

Background: Few contemporary studies have evaluated the role of antibacterial prophylaxis during neutropenia in patients with lymphoma undergoing autologous hematopoietic stem cell transplantation (HSCT).

Methods: At our center, levofloxacin prophylaxis was initiated during neutropenia in February 2012 in autologous HSCT recipients with lymphoma. We compared the incidence of bloodstream infection (BSI) and fever and neutropenia in February 2012 in autologous HSCT recipients with lymphoma.

Results: At our center, levofloxacin prophylaxis was initiated during neutropenia in patients with lymphoma undergoing autologous HSCT prophylaxis during neutropenia in patients with lymphoma undergoing autologous HSCT recipients with lymphoma. A multivariable logistic regression model was constructed to determine whether levofloxacin prophylaxis was independently associated with these outcomes. Finally, we compared rates of BSI due to multidrug-resistant (MDR) bacteria (e.g., methicillin-resistant Staphylococcus aureus, vancomycin-resistant enterococci, levofloxacin-resistant or ceftriaxone-resistant Enterobacteriaceae) and the rate of Clostridium difficile infection within 90 days of transplantation before and after this intervention.


INTRODUCTION

• IDSA recommends consideration of prophylactic antibiotics in patients with anticancer chemotherapy-induced neutropenia of at least 7 days.

• Past studies have demonstrated reductions in rates of FN and BSI among patients with chemotherapy-induced neutropenia who received fluoroquinolone prophylaxis.

• Previously published data from our center demonstrated reductions in rates of FN and BSI among autologous HSCT recipients with multiple myeloma who received levofloxacin prophylaxis.

METHODS

Design: Single center, retrospective cohort study.

Study Population: Adult (≥18 years of age) patients with lymphoma who received autologous HSCT at New York Presbyterian/Weill Cornell Medical Center between February 2008 and October 2015.

• Period 1: Feb 2008 – Jan 2012 (no antibacterial prophylaxis)
• Period 2: Feb 2012 – Oct 2015 (levofloxacin prophylaxis)
• 500 mg daily starting one day prior to HSCT until fever and neutropenia or resolution of neutropenia.

RESULTS

rates of infection

Outcomes in Patients with Lymphoma Who Received and Did Not Receive Prophylactic Levofloxacin during Neutropenia after HSCT

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>No Levofloxacin Prophylaxis (n = 151)</th>
<th>Levofloxacin Prophylaxis (n = 47)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever neutropenia</td>
<td>92 (61)</td>
<td>13 (28)</td>
<td>0.05</td>
</tr>
<tr>
<td>BSI (within 30d of transplant)</td>
<td>40 (46)</td>
<td>14 (19)</td>
<td>0.001</td>
</tr>
<tr>
<td>Gram-positive BSI</td>
<td>22 (22)</td>
<td>12 (14)</td>
<td>0.15</td>
</tr>
<tr>
<td>Gram-negative BSI</td>
<td>29 (29)</td>
<td>4 (5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BSI associated with severe sepsis</td>
<td>11 (11)</td>
<td>6 (7)</td>
<td>0.33</td>
</tr>
<tr>
<td>BSI associated with ICU admission</td>
<td>5 (5)</td>
<td>2 (2)</td>
<td>0.33</td>
</tr>
<tr>
<td>Clostridium difficile infection within 90d of transplant</td>
<td>4 (9)</td>
<td>6 (7)</td>
<td>0.59</td>
</tr>
<tr>
<td>Readmission within 90d of transplantation</td>
<td>16 (16)</td>
<td>10 (11)</td>
<td>0.37</td>
</tr>
<tr>
<td>Mortality within 90d of transplantation</td>
<td>8 (8)</td>
<td>1 (1)</td>
<td>0.04</td>
</tr>
</tbody>
</table>

*Excluded patients before 2010 because PCR-based testing for C. diff started in Jan 2010

Conclusions

• In patients with lymphoma undergoing autologous HSCT, levofloxacin prophylaxis is associated with:
• Decrease in rate of BSI, mostly because of a decrease in Gram-negative bacteria
• This association persisted in a multivariable analysis
• Non-significant decrease in rate of febrile neutropenia
• There was no significant increase in rates of BSI caused by MDR bacteria or C. difficile infection.
• There was an association with decreased 90-day mortality, but unclear whether this is related to the intervention of levofloxacin prophylaxis

References