RISK FACTORS FOR CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTION: A COMPARISON OF FREQUENTLY INFECTED VS. RARELY INFECTED HOME PARENTERAL NUTRITION PATIENTS

Marianne Opilla, Thomas Diamantidis, Rodney Okamoto
Nutrishare, Inc., Elk Grove, CA
DISCLOSURES

- I have no disclosures.
INTRODUCTION

- Home parenteral nutrition (HPN) is administered via a central venous catheter (CVC)

- The most frequent complication of HPN is central line associated bloodstream infection (CLABSI)
  - Hospitalization
  - Interruption of therapy
  - Health care $$$$
  - Impacts quality of life

- Identification of risk factors may help reduce CLABSI incidence in an HPN population
OBJECTIVE

- The aim of this study was to compare risk factors for CLABSI in frequently infected (FI) and rarely infected (RI) HPN patients.
METHODS

- CLABSI data collected by medical record review of all pediatric and adult patients from one home infusion provider
- Data collection period from January 2006 – December 2011
- 2 cohort groups established based on their individual infection rates per 1000 CVC days
  - 21 patients in the FI group
    - 4.3/1000 CVC days (2.3/1000 - 8.3/1000)
  - 21 patients in the RI group
    - 0.04/1000 CVC days (0/1000 - 0.45/1000)
METHODS

Data collected

- Age
- Sex
- Diagnosis
- Length of therapy
- CVC type
METHODS

- Risk factors identified from literature review and clinician experience
  - Dressing material
  - Presence of ostomy or enteric tube
  - Hub care antiseptic
  - IV push medications
  - Narcotic use
  - Number of CVC handlers
  - Lab draw method and frequency

- Data compared between FI and RI groups
## RESULTS: DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>Sex</th>
<th>Diagnosis</th>
<th>Length of Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Female 57%</td>
<td>SBS 67% ID 33%</td>
<td>16 yrs (2 yrs – 34 yrs)</td>
</tr>
<tr>
<td>FI</td>
<td>44 yrs (14 yrs – 75 yrs)</td>
<td></td>
<td>SBS 67% ID 33%</td>
<td>16 yrs (2 yrs – 34 yrs)</td>
</tr>
<tr>
<td>RI</td>
<td>50 yrs (15 yrs – 84 yrs)</td>
<td>Female 52%</td>
<td>SBS 95% ID 5%</td>
<td>23 yrs (10 – 36 yrs)</td>
</tr>
</tbody>
</table>

- SBS: Short bowel syndrome all causes
- ID: Intestinal dysmotility all causes
## RESULTS: CVC BY TYPE

<table>
<thead>
<tr>
<th>Group</th>
<th>Tunneled</th>
<th>Port</th>
<th>PICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI</td>
<td>77% (17)</td>
<td>18% (4)</td>
<td>5% (1)</td>
</tr>
<tr>
<td>RI</td>
<td>100% (21)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
RESULTS: DRESSING MATERIAL
RESULTS: OSTOMY/ENTERIC TUBE

<table>
<thead>
<tr>
<th></th>
<th>FI</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ostomy</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Enteric Tube</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
RESULTS: HUB ANTISEPTIC

- Alcohol:
  - FI: 21
  - RI: 20

- CHG:
  - FI: 2
  - RI: 0

- Povidone-Iodine:
  - FI: 1
  - RI: 10
RESULTS: IV PUSH MEDICATIONS AND NARCOTICS

- IV push: 12
- Narcotic: 8

Legend:
- FI
- RI
RESULTS: HANDLERS

- FI group had more handlers than RI group
RESULTS: LAB DATA

- Peripheral: FI 6, RI 15
- CVC: FI 6, RI 15
- Freq > 1X month: FI 0, RI 12
CONCLUSION

- HPN consumers are able to maintain a very low infection rate as evidenced by this RI group
- Risk factors that may increase infection identified by comparing these 2 cohorts of HPN consumers:
  - More than 2 CVC handlers
  - Frequent lab draws more than once monthly
  - CVC rather than peripheral lab draws
  - Use of IV push medications and narcotics
  - Presence of enteric tube
CONCLUSION

- Factors that may contribute to CLABSI to a lesser degree
  - Shorter length of therapy
  - Diagnosis of intestinal dysmotility
  - Port use rather than tunneled CVC

- Recognition and implementation of strategies to reduce risk factors for CLABSI is a priority in the care of HPN patients

- More studies with larger populations of HPN patients need to be conducted