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

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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>FI</td>
<td>44 yrs (14 yrs – 75 yrs)</td>
<td>Female 57%</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>

- **Key:**
  - 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

- Transparent: 19
- Gauze: 2

Bar chart showing the comparison between Transparent (FI: 13, RI: 19) and Gauze (FI: 2, RI: 8).
RESULTS: OSTOMY/ENTERIC TUBE
RESULTS: HUB ANTISEPTIC

- Alcohol: 21 (FI), 20 (RI)
- CHG: 2 (FI), 0 (RI)
- Povidone-Iodine: 1 (FI), 10 (RI)
RESULTS: IV push medications and narcotics

- IV push: 12
- Narcotic: 0

Graph showing:
- Orange bars for FI:
  - IV push: 12
  - Narcotic: 0
- Red bars for RI:
  - IV push: 6
  - Narcotic: 0
RESULTS: HANDLERS

- FI group had more handlers than RI group

![Bar chart showing the number of handlers in FI and RI groups. The chart indicates that the FI group had more handlers, particularly more groups with 1 handler.]
RESULTS: LAB DATA

<table>
<thead>
<tr>
<th></th>
<th>FI</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>CVC</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Freq &gt; 1X month</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>
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