Infection Outcomes in Oncology Patients Based on Type of Intravenous Connector
Cynthia Chernecky, PhD, RN, AOCN, FAAN, Georgia Health Sciences University, Augusta, GA
Denise Macklin, BSN, RNC, Consultant, Marietta, GA
Jennifer Waller, PhD, Georgia Health Sciences University, Augusta, GA

Educational Objective
This project compared different rates of CR-BSI (catheter related-bloodstream infection) associated with various intravenous (IV) catheter technologies to decrease the CR-BSI incidence by refining nursing care practice, particularly in the immunocompromised oncology patient population.

Introduction
CR-BSI is a major risk for oncology patients since vascular access is required in these patients for medical tests and treatments. The FDA, SHEA/ISDA and CDC have voiced concerns about IV connectors and their relationship to CR-BSI. Very few clinical studies were found in the literature comparing different types of IV connectors in oncology patients on CR-BSIs. For example, one study showed a 50% reduction in IV occlusion rates when changing from a split septum needle-free (NF) connector to an intraluminal protection device (IPD) connector (see Chernecky et al.’s poster titled Clinical Comparative Evaluation of Split Septum and Zero Fluid Displacement Connectors on Central Venous Catheter Occlusion).

The purpose of this project was to determine the infection rates for split septum, negative mechanical valves, and IPD IV connectors in both critical care and medical in-patient oncology patients.

Methodology
Prospectively, Texas and New York ICU oncology and medical oncology units compared split septum (7,251 catheter days) and negative mechanical valve (NMV) IV connectors (2,477 catheter days) for a total of 9,728 catheter days to an IPD connector (9,232 catheter days) on infection rates per infection control personnel. The identical data collection methods were used at each site and data results compared during the same time periods. No other changes in care practices or personnel occurred at the institutions. All personnel used chlorhexidine gluconate antibacterial scrub and dressing kits for care and maintenance.

Results

<table>
<thead>
<tr>
<th>Type of oncology unit</th>
<th># beds</th>
<th>Pre: Negative Connectors</th>
<th>Data collection time period</th>
<th>Catheter days: negative IV connectors</th>
<th>Post: Catheter days IPD (Invision®) Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU</td>
<td>54</td>
<td>Q-Syte™</td>
<td>18 months</td>
<td>7251</td>
<td>6901</td>
</tr>
<tr>
<td>Medical</td>
<td>36</td>
<td>Clave®</td>
<td>6 months</td>
<td>2477</td>
<td>2331</td>
</tr>
</tbody>
</table>

Clinical Implications
The use of the best products to reduce and/or eliminate CR-BSI incidence can negate treatment delays, add time to nursing care, decrease costs, decrease mortality, and increase quality of life for the patient with cancer and family.

Clinical nurses must be patient advocates at the bedside, in committees, and during educational in-services regarding reducing CR-BSI rates and implementing evidence-based best products.

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