Nursing Management Of Venous Access Devices (VADs):

Introduction & Overview

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December, 2011
Why Do We Care?

- Beginning October 1, 2008, the Federal Centers for Medicare and Medicaid Services (CMS) no longer reimburses hospitals for the treatment of a “reasonably-preventable” hospital-acquired catheter-related bloodstream infection (C-RBSI).
- CDC estimates for C-RBSI treatment are $34,000-$56,000 per infection (CDC Guidelines, 2002).
- Infection, phlebitis, and less often bacteremia remain a major problem with intravascular catheters (McGee, 2003).
- The majority of serious C-RBSIs are associated with central venous catheters, particularly those placed in an intensive care unit.
An Ounce of Prevention.....

- Adherence to hand hygiene recommendations and the use of aseptic techniques during insertion and dressing changes remain the most important measures for the prevention of catheter-associated infections (O’Grady, 2003).

- Other measures:
  - Choosing appropriate sites for catheter insertion.
  - Using the appropriate type and gauge of catheter, for example, using the smallest gauge to meet patient needs.
  - Use of maximum barrier precautions during insertion.
  - Changing catheters and administration sets at appropriate intervals.
An Ounce of Prevention….other measures (cont.)

- Ensuring proper catheter-site care and maintenance.
- Prompt removal of catheters when no longer essential:
  - Is CT scan completed?
  - Is patient now on a regular diet with IV reglan?
  - Two ‘large-bore’ IVs ordered for GI bleed, patient has had a cauterization, and the hematocrit is now stable. Are two venous access devices still needed?
- Emergent line insertions, or those placed by EMS “in the field” should be changed as soon as conditions/patient stability permits
Standards of IV Care

- Standards published by the Infusion Nurses Society (INS) and the Centers for Disease Control (CDC) set the bar for intravenous therapy practices.
- MGH Policies, Procedures, and Practices reflect current CDC and INS Standards.
- Documentation of an IV placement at MGH should include:
  - type and gauge of the catheter inserted
  - date and time of insertion
  - location of the vein
  - name and licensure of person inserting the device
General Care of VADs

- **HAND HYGIENE**
  - BEFORE and AFTER patient contact

- **INJECTION CAP DISINFECTION: “Scrub the Hub!”**
  - VIGOROUSLY scrub injection cap with alcohol for 15 seconds
  - Include threads on luer-locking needleless connectors/hubs

- **Provider orders:**
  - IV FLUIDS …. New order Q 24 hours
  - SALINE LOCKS….New order Q 96 hours
  - TRANSFUSION ORDERS ….Orders should be written within 24 hours of start of transfusion
  - Heparin flush orders for central lines as indicated
Flush techniques for all VADs

- **SALINE FLUSHES**
  - Use prefilled preservative-free syringes
  - ONE-TIME use only
  - If you must use bacteriostatic saline, limit to 30 ml per day (benzyl alcohol preservative can affect LFTs)

- Use positive-pressure & pulsatile method of flushing
  - Use a push-pause technique when instilling flush solution (i.e. give 2-3 ml of flush, pause, give another 2-3 mls of flush, pause…repeat until done)
  - Pulsatile/push-pause action creates ‘turbulence’ within needleless connector and catheter for more thorough flushing
## Flushing Techniques

<table>
<thead>
<tr>
<th>Type of catheter cap</th>
<th>Flushing technique</th>
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<tbody>
<tr>
<td>Needles less system cap <em>with</em> positive pressure feature</td>
<td>Flush using push-pause technique. Remove syringe, and <em>only then</em> may you clamp the catheter.</td>
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<tr>
<td>Needles less system cap <em>without</em> positive pressure feature</td>
<td>Flush using push-pause technique. Maintain positive pressure by clamping line while injecting last ml of fluid.</td>
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<tr>
<td><strong>None</strong>- Flushing when using a direct connection (e.g. during monthly maintenance flush of port).</td>
<td>Flush using push-pause technique. Maintain positive pressure by clamping line while injecting last ml of fluid.</td>
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Administration Set Changes

**Blood/Blood Components**
- Tubing and filters used to administer blood or blood products are changed within 8 hours of initiating infusion per MGH policy
- Administration sets must be changed AT LEAST within 24 hours per CDC guidelines
- Note that tubing is often changed after each unit in many clinical areas (e.g. with single use blood administration sets)

**Intravenous Solutions**
- Primary continuous and intermittent IV sets (tubing) every 96 hours
- EXCEPTION: Transplant Units every 72 hours
- Change of add-on devices such as filters, should coincide with administration set changes
- Tubing used to infuse lipid-containing emulsions (ex.-propofol) is changed every 24 hour

**Parenteral Nutrition/TPN/Hyperalimentation**
- TPN tubing and filter every 24 hours
Types of Venous Access Devices

- **Peripheral IV Devices**
  - Peripheral IV Catheters
  - Midlines
  - “Short” Jugular Lines

- **Central Venous Access Devices**
  - Peripherally Inserted Central Catheters (PICCs)
  - Subclavian/Jugular/Femoral Lines (also called Multiple Lumen Percutaneous temporary or non-tunneled catheters)
  - Implanted ports: Portacaths, Passports, Power Ports
  - Tunneled catheters: Hickmans, Broviacs, Groshongs, Small Bore
PLEASE NOTE...

- All information provided is subject to review and revision. Please continue to refer to MGH Policies and Procedures in Trove as your primary resource.
References

- Guthrie, D., Dreher, D., Munson, M. PICC Overview – Parts I and II, NURSING 2007, August and September 2007
- Infusion Nurses Society (INS) Infusion Nursing Standards of Practice, 2011
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- MGH Infection Control Manual
- MGH Nursing Procedure Manual
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