NATIONAL INSTITUTES OF HEALTH
CLINICAL CENTER
NURSING and PATIENT CARE SERVICES

Standard of Practice: Care of the Patient with a Central Venous Access Device (CVAD)

Essential Information

1. Intravenous Therapy, Blood Draws via a VAD, and Venipuncture Competency Required. For infusion therapy guidelines, refer to SOP: Care of the Patient Receiving an Intravenous Infusion.

2. In the case of catheter breakage, apply a pair of no teeth green occluding forceps (CHS # 00134) to the catheter between the patient and the area of breakage, proximal to the break. Then contact the Procedures, Vascular Access, Conscious Sedation Services (PVCS) team for a catheter repair. When the PVCS team is not in house, there is a “VAD person” on call 24 hours a day, 7 days a week, via the page operator. Do not attempt to repair the catheter yourself.

I. Assessment

A. The CVAD exit site in the adult inpatient population is objectively and subjectively assessed a minimum of every eight hours and in accordance with patient’s clinical status for signs and symptoms of complications (and upon every outpatient visit).

B. The CVAD exit site is objectively assessed every 1 hour in the pediatric population and high risk patients (i.e. risk for infection, skin impairment, infiltration, or dislodgement). In the inpatient pediatric population, the catheter not in use should be assessed every shift.

C. Assessment of CVADs will include
   1. CVAD exit site for signs and symptoms of complications, including but not limited to; redness, swelling and exudate.
   2. CVAD patency prior to use.
   3. Site assessment, including visualization of catheter length if dressing permits
   4. Assessment for blood return.
   5. Ease of flushing

II. Interventions

A. Needle-less devices will be used with all intravenous devices and infusions.

B. When hair removal is necessary for vein/site assessment, catheter placement, or dressing maintenance, hair will be clipped. Shaving and depilatories may cause abrasions or irritation.

C. Flushing:
   1. Prior to flushing a CVAD, assessment of blood return should be performed. If unable to obtain blood return, RN will refer to CVAD Occlusion Verification Tree (Appendix A of PRO: CVAD Restoring Patency of an Obstructed Central Line)
   2. Prior to flushing dialysis or apheresis catheters that are locked with heparin 1000units/ml or greater, the fill volume must be discarded.
   3. All CVADs are flushed before and after every entry, according to manufacturer’s guidelines and as per Licensed Independent Practitioner (LIP) orders. Refer to the PRO: CVAD Flushing a Central Line.
   4. All CVADs and ports should be flushed using the push-pause technique and with positive pressure finish.
   5. Heparin and 0.9% sodium chloride require a medical order.
   6. When flushing a multi-lumen catheter, a new 10ml syringe must be used for each lumen.

D. Measure the external length of any non-tunneled CVAD (ex., PICC, SICC) with each dressing change or whenever there is suspicion that position of CVAD has been altered. If external catheter length increases or decreases by greater than or equal to 2 cm, RN will notify LIP to obtain an order for a chest x-ray to confirm tip location.

E. Dressings:
   1. Dressings are labeled with time and date of change including the nurse’s initials.
   2. For all CVADs and Ports (accessed subcutaneous venous access devices), transparent semi-permeable dressings are changed every seven days, or when integrity of dressing is compromised. If a patient has sensitivity to a chlorhexidine product then povidone-iodine and/or alcohol products are used. For
patients who cannot use alcohol based cleaners, povidone-iodine only is to be used. If chlorhexidine is not used, transparent dressings are changed every 72 hours.

3. Initial dressing after insertion to be changed within 24 hours.

4. Non-transparent dressings – and gauze dressings must be changed every 2 days.²

5. For dressings that have gauze underneath, they are to be changed every 2 days or sooner if the integrity of the dressing is compromised. For dressings with gauze supporting a port needle, the dressing is to be changed every 48 hours.

6. Anchoring devices (e.g.: Stat-lock™, Grip-Lok™)
   a) Anchoring devices are changed when integrity of device is compromised
   b) If anchoring devices are located beneath the dressing, the anchoring device will be changed with each dressing change
   c) If present, Steri-strips™ are changed with each dressing change

F. For Ports, a non-coring needle with tubing is changed a minimum of every 7 days. With each new access and re-access of the port, all associated fluids and tubing and devices must also be changed.³

G. For all new CVAD insertions including ports, all new tubing, fluids and associated devices will be utilized.²

H. Infusion caps are changed every 72 hours when catheter is in use. When CVAD is not in use, infusion caps are changed every 7 days or if there is blood or debris within the device. There is no need to prime the infusion caps.²,³

I. Booklets are available for patients who are in need of instruction on the care of their catheter at home. These can be accessed from the NIH CC Intranet, Research Participant website http://intranet.cc.nih.gov/rpe/.

J. Patient/family teaching standards:
   1. Cap change
   2. Flushing technique
   3. Dressing changes for tunneled CVADs
   4. Patients with non-tunneled CVADs must be discharged to their home physicians or a home health care provider for sterile dressing changes prior to leaving the Clinical Center.
   5. Site assessment
   6. Use of Aquaguard™
   7. Complications, including use of clamps in emergency and contact information.

III. Documentation

A. Assessment of the CVAD site, in the inpatient adult population, is documented a minimum of every eight hours and in accordance with patient’s clinical status.

B. Outpatients with CVADs that are not in use need objective or subjective assessment data documented with each visit.

C. Assessment of the CVAD exit site, in the pediatric population and high risk patients (i.e. risk for infection, skin impairment, infiltration, or dislodgement) is documented every four hours.

D. Patient/Family teaching

E. Interventions provided as appropriate and related to:
   1. Dressing change
   2. Cap change
   3. CVAD dysfunction
      a) Catheter occlusion and effectiveness of treatment
      b) Site infection
      c) Unplanned removal
      d) CVAD repair
   4. Any measurements of external catheter length
   5. Flushes administered
   6. CVAD patency
   7. Catheter removal and rationale for catheter removal
   8. Port access and de-access
   9. Place ORS for catheter dysfunction

IV. References


Approved:

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