

UNIVERSITY OF MICHIGAN HOSPITALS AND HEALTH CENTERS

Home Care Services

HomeMed • MedEQUIP • Michigan Visiting Care
Michigan Visiting Nurses • Wheelchair Seating Service

PROCEDURE

UMHHC-HCS: 253.051
First Approved Date: 7/2006
Current Approved Date: 12/13/12
Approval Signatures:
<i>Signatures on File</i>

TITLE: Instillation and Removal of Ethanol VAD Locks

PROCEDURES:

A. General Standards

1. Only an attending physician or fellow may order ethanol locks. A consent form will be obtained by an attending physician or fellow and placed in the home care record.
2. To eliminate a fibrin sheath, Alteplase will be instilled into the VAD prior to ethanol lock therapy for any VAD that has been in place for greater than 7 days.
3. First doses will be administered prior to patient/caregiver self-dosing in the home.
4. Exclusion criteria: Patients will be ineligible to receive ethanol in the home if any of the following are true:
 - (a) Catheters in which the tip is not in a central vein.
 - (b) A non-silicone central venous catheter (i.e., Bard PICCs).
 - (c) Documented allergy to ethyl alcohol and/or Alteplase.
 - (d) Inability of ethanol to remain instilled in the VAD lumen for 2 hours.

1. **Potential Exclusion Criteria.** Patients may be ineligible to receive Alteplase in the home if any of the following are true:
 - (e) Patient weighing less than 5 kg; or a patient in which the volume of the VAD cannot be determined either by measurement or aspiration.
 - (f) Anyone objecting to the use of ethanol-lock therapy due to social or religious reasons.
 - (g) Alcohol abuse or recovering alcoholic.
 - (h) Caregiver is an alcoholic or recovering alcoholic.
 - (i) Patients or parents/legal guardians of patient who have a history of inability to properly administer IV medications.
5. Patients/caregivers will be educated on administration, the side effects, storage requirements, flammable warnings and the removal of heparin products from the home.
6. Prior to ethanol instillation, the vascular access device (VAD) will be measured and charted in the medical record. VAD volume may be calculated by aspirating the VAD until a blood return is observed or by measurement of the VAD length (see Exhibit 1).
7. Ethanol will be removed prior to next dose of parenteral medication using a 10 mL syringe. If unable to aspirate, MD will be notified.
8. Medication profile will be updated listing heparin containing products as an allergy including the reason as "incompatible with ethanol lock".

B. Nursing Procedure

1. Obtain/review physician order, identify patient and explain the procedure. Assess VAD access site. Inspect drug label, solution, and equipment/supplies.
2. Wash hands.
3. Prepare clean work surface, gather supplies, and assemble equipment.
4. Using aseptic technique attach blunt needles to prefilled normal saline and ethanol syringes.
5. To measure the CVAD lumen:
 - a) Wipe catheter cap vigorously for 15 seconds with an alcohol wipe.
 - b) Flush the CVAD lumen with 5mL of NS in a 10mL syringe to establish patency.
 - c) Obtain an empty 3mL syringe
 - d) Attach the syringe to the green injection cap of the CVAD's lumen to be measured.
 - e) Draw back on the syringe plunger until the first drop of blood appears in the syringe.
 - f) The volume in the syringe is the volume of the CVAD lumen.
 - g) To account for entire coverage of the CVAD lumen, 0.1 mL will be added to the CVAD volume for patients less than 15 kg while 0.2 mL will be added to the CVAD volume for patients greater than or equal to 15kg – This is the volume of ethanol to be ordered by the participating clinician.
 - h) Flush the CVAD lumen with 5 to 10 mL of NS to establish patency .
 - i) Repeat the process for additional lumens to be used.
6. Administer prescribed IV therapy.
7. Once IV therapy completed, wipe VAD cap vigorously for 15 seconds with an alcohol wipe. Flush VAD with 5 to 10 mL of saline.
8. Instill ethanol. Clamp VAD.
9. Chart medication administration and response to care in nursing notes.
10. Remove ethanol prior to next IV infusion using a 10 mL syringe. Flush VAD with 5 to 10 mL of saline prior to IV infusion. If unable to withdraw ethanol, reposition patient, move arms above head, and/or instruct to cough. If still unable to withdraw, notify MD for further instructions, i.e. Alteplase administration may be needed, X-ray to determine proper placement or if able to instill.

EXHIBITS:

1. Determined VAD Volume/Length

APPROVAL AND REVISIONS:

1. July 2006, new procedure.
2. December 2009, method for measuring changed.
3. December 2012, reviewed; defined exclusion and potential exclusion criteria; method for measuring changed for home.

Exhibit 1

VAD Volume/Length

Type of catheter	Catheter size	Number of lumens	Length (cm)	Volume (mL)	Lock measurement (mL/cm)
Broviac	2.7 French	Single	74.87	0.25	0.00334
Broviac	4.2 French	Single	74.27	0.38	0.00512
Broviac	6.6 French	Single	95.2	0.92	0.00966