1. Exit Site Cleaning

- Use sterile technique (as outlined above).
- Clean the exit site at each dialysis treatment with chlorhexidine gluconate unless contraindicated. Apply antiseptic per manufacturer’s recommendations. Allow to air dry completely.
- Cover the exit site with sterile, transparent, semipermeable dressing or paper hospital protocol.

Recommended Cleaning Solutions

Catheter Luer-lock Connectors/End Caps:
- Povidone Iodine (allow connectors/end caps to soak for 3 to 5 minutes)–

WARNING: Alcohol should not be used to lock, soak or déruit polyurethane Dialysis Catheters because alcohol is known to degrade polyurethane over time.

1. Clean the exit site at each dialysis treatment with chlorhexidine gluconate unless contraindicated. Apply antiseptic per manufacturer’s recommendations. Allow to air dry completely.
2. Cover the exit site with sterile, transparent, semipermeable dressing or paper hospital protocol.

Site/Exit Cleaning

- Use sterile technique (as outlined above).
- Clean the exit site at each dialysis treatment with chlorhexidine gluconate unless contraindicated. Apply antiseptic per manufacturer’s recommendations. Allow to air dry completely.
- Cover the exit site with sterile, transparent, semipermeable dressing or paper hospital protocol.

Recommended Cleaning Solutions

Catheter Luer-lock Connectors/End Caps:
- Povidone Iodine (allow connectors/end caps to soak for 3 to 5 minutes)–

WARNING: Alcohol should not be used to lock, soak or déruit polyurethane Dialysis Catheters because alcohol is known to degrade polyurethane over time.

POST DIALYSIS

- Use sterile technique (as outlined above).
- Clean the exit site at each dialysis treatment with chlorhexidine gluconate unless contraindicated. Apply antiseptic per manufacturer’s recommendations. Allow to air dry completely.
- Cover the exit site with sterile, transparent, semipermeable dressing or paper hospital protocol.

Recommended Cleaning Solutions

Catheter Luer-lock Connectors/End Caps:
- Povidone Iodine (allow connectors/end caps to soak for 3 to 5 minutes)–

WARNING: Alcohol should not be used to lock, soak or déruit polyurethane Dialysis Catheters because alcohol is known to degrade polyurethane over time.

CATHETER REMOVAL

Evaluate the catheter routinely and promptly remove any nonassessable catheter– per physician’s orders. The white retention cuff facilitates the identification of such catheters. The catheter must be surgically removed. Free the cuff from the tissue and pull the catheter gently and smoothly. After removing the catheter, apply manual pressure to the puncture site for 10-15 minutes until no signs of bleeding are present. Then apply sterile, transparent, semipermeable dressing or paper hospital protocol for a minimum of 8 hours. Follow hospital protocol regarding bedrest after catheter removal.

DISPOSAL

After use, this product may be a potential bihazard. Handle and dispose of in accordance with accepted medical practice and all local, state and federal laws and regulations.

TROUBLESHOOTING

PATIENT WITH FEVER

Patient with fever and chills following the procedure may be indicative of catheter-related bacteremia. If bacteremia is present, removal of the catheter may be indicated.

INSUFFICIENT FLOW

Excessive force must not be used to flush an obstructed lumen. Insufficient flow may be caused by an occluded tip resulting from the tip being near the heart or by the catheter itself. The catheter must be surgically removed. If bacterial or fungal growth is suspected, the catheter must be cultured before removal. If bacterial or fungal growth is confirmed, the catheter must be replaced.

CATHETER EXCHANGE

Do not routinely replace dialysis catheters to prevent catheter-related infections–. It may become necessary to exchange the indwelling catheter if the catheter becomes infected or if a port adjacent to the catheter is the source of the infection. The catheter cannot be successfully removed through the subclavian or femoral veins. Catheter exchanges should be performed under strict aseptic conditions in which the physician should wear a cap, mask, gown, sterile gloves, and use a large sterile drape to cover the patient.

REFERENCES


Other references available upon request.

An incomplete or outdated list of these instructions is included for the uses information. In the event two years have elapsed between this date and product use, the user should contact Bard Access Systems, Inc to see if additional product information is available.

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For percutaneous placement, the catheter is inserted in either the subclavian vein or internal jugular vein through a split sheath introducer. It has been reported that right side, internal jugular placement is the preferred initial location of consideration for the initial insertion. 10 The patient should be placed in Trendelenburg position with the head turned to the opposite side of the entry site.

A (COMMON STEPS):
CATHETERS MUST BE INSERTED UNDER STRICT ASEPTIC CONDITIONS

WARNING: Cannulation of the left internal jugular vein was reportedly associated with a higher incidence of complications compared to catheter placement in the right internal jugular vein. 1

CAUTION: As reported in literature, left sided catheter placement may provide unique challenges due to the right angles formed by the innominate vein and at the left brachiocephalic junction with the SVC. 14

1. Prepare the site for the procedure. The operator should wear a cap, mask, sterile gown, sterile gloves, and use a large sterile drape to cover the patient.
2. Prepare the access site using standard surgical technique and drape the prepared area with sterile towels. If hair removal is necessary, use clippers or depilatories. Next, scrub the entire area preferably with chlorhexidine gluconate unless contraindicated in which case povidone-iodine solution may be used. Use a back-and-forth friction scrub for at least 30 seconds. 22 Do not wipe or blow dry the skin after preparing. Allow the skin to air dry completely before puncturing the site.
3. (If applicable) Administer local anesthesia to the insertion site and the path for subcutaneous tunnel.
4. Flush the venous access device with saline solution prior to insertion and clamping the extension legs. If using stylet, do not clamp the arterial extremity until the arterial incision is made.
5. Insert the introducer needle with an attached syringing to the desired location. Aspirate gently as the insertion is made.
6. While the vein has been entered, remove the syringing leaving the needle in place.
7. If using a microincision, set the flexible end of the microintroducer glide into the needle. Advance the microintroducer glide as far as appropriate. Verify correct position, using fluoroscopy or ultrasound. 7

CAUTION: If the microintroducer glide must be withdrawn while the needle is inserted, remove both the needle and wire as a unit to prevent the needle from damaging or sheathing the catheter.

8. Advance the small sheath and dilator together as a unit over the microintroducer glide, using a slight rotational motion. 7
9. Withdraw the dilator and microintroducer glide, leaving the small sheath in place.

WARNING: Place a thumb over the orifice of the sheath to minimize blood loss and risk of air aspiration.

10. The standard guidewire can be inserted into the needle hub and passed through the needle. Advance the standard guidewire to the desired location in the vessel.
11. If using a microintroducer, gently withdraw and remove the small sheath, while holding the standard guidewire in position.
12. Remove the needle while holding the guidewire in place. Wipe the guidewire clean and secure it in place.

CAUTION: Do not pull back standard guidewire over needle bevel as this could sever the guide needle. The introducer needle must be removed first.
13. Make a small incision at the insertion site. Make a second incision at the desired exit site of the catheter.

B (COMMON STEPS):

1. If using stylet, unscrew the stylet hub from the arterial Luer-lock connector and retract stylet until it is no longer visible at the arterial lumen tip. 7

CAUTION: failure to clamp the arterial extension leg may lead to air embolism.

2. With a tunneler, create a subcutaneous tunnel from the catheter exit site to emerge at the venous entry site.

CAUTION: as suggested by in vivo data, using a blood simulant approximating the viscosity of whole blood.

Step 1
Step 2


CAUTION: Failure to clamp the arterial extension leg when not in use may lead to air embolism.

4. Withdraw the vessel dilator and guidewire, leaving the introducer sheath in place.

CAUTION: Risk of arterial embolism, clamp the venous extension leg (indicated by the blue Luer-Lock connector).

5. Go to D (Common Steps).

C (INSERTION TECHNIQUE (1): PERCUTANEOUS PLACEMENT)

Make sure the venous distal tip is in the deep venous system.

1. Confirm catheter patency by releasing clamp and aspirating blood through each lumen.

WARNING: Cardiac arrhythmias may result if the guidewire and/or stylet is allowed to touch the walls of the right atrium.

2. Place the patient in Trendelenburg position with the head turned to the opposite side of the entry site.

CAUTION: Be sure to clamp extension legs prior to arterial puncture.

3. For additional security, suture the entire entry site, or use a Statlock* Catheter Stabilization device to anchor the catheter.

4. Go to B (Common Steps).

5. Place a thumb over the orifice of the sheath to minimize blood loss and risk of air aspiration.

CAUTION: Risk of arterial embolism, clamp the venous extension leg (indicated by the blue Luer-Lock connector).

6. Go to D (Common Steps).

7. To minimize the risk of air embolism, clamp the venous extremity leg (indicated by the blue Luer-Lock connector).

8. Advance the catheter over the wire, until the tip reaches the desired location. Note that some resistance may be experienced when passing the catheter through the soft tissues, but this should subside once the catheter tip is intravascular.

CAUTION: For optimal product performance, do not insert any portion of the cuff into the vein.

9. CAUTION: Cardiac arrhythmias may result if the guidewire and/or stylet is allowed to touch the walls of the right atrium.

10. Go to D (Common Steps).

D (COMMON STEPS):

1. Confirm catheter patency by releasing clamp and aspirating blood through each lumen.

WARNING: Cardiac arrhythmias may result if the guidewire and/or stylet is allowed to touch the walls of the right atrium.

2. Place the patient in Trendelenburg position with the head turned to the opposite side of the entry site.

CAUTION: As suggested by in vivo data, using a blood simulant approximating the viscosity of whole blood.

3. Locating the femoral vein, posterolateral to the femoral artery.

4. Go to B (Common Steps), directing tunnel laterally to decrease the risk of infection. 9

5. Go to C (Insertion Technique (2): Surgical Cutdown Procedure).

14.5F Equistream* Catheter Venous and Arterial Pressures

16F Equistream* XK Catheter Venous and Arterial Pressures

Step 2
Step 3

-250  0  250
-300  300 mL/min  150 mL/min  250 mL/min
-200  200 mL/min  100 mL/min  200 mL/min
-150  150 mL/min  50 mL/min  150 mL/min
-100  100 mL/min  0 mL/min  100 mL/min
-50  50 mL/min  0 mL/min  50 mL/min
0  0 mL/min  0 mL/min  0 mL/min
50  50 mL/min  50 mL/min  50 mL/min
100  100 mL/min  100 mL/min  100 mL/min
150  150 mL/min  150 mL/min  150 mL/min
200  200 mL/min  200 mL/min  200 mL/min
250  250 mL/min  250 mL/min  250 mL/min

Reverse Flow Rate vs Venous Pressure

Reverse Flow Rate vs Arterial Pressure

Recommended Dressing Technique

1. Secure the catheter to the skin using one or two sterile tape strips.

WARNING: Acetone and PEG-containing ointments can cause failure of this device and should not be used with polyurethane catheters. Chlorhexidine patches or bacitracin zinc ointments (e.g., Polysporin® ointment) are the preferred alternative.

2. Place a pre-cut gauze dressing over the exit site, fitting it snugly around the catheter. Place a 2 x 2 in. (5 cm x 5 cm) gauze over the pre-cut gauze and catheter.

3. Apply a cover dressing, leaving the extension legs exposed if using a sterile, transparent, impermeable dressing, the following is recommended:

- Overlap the unsecured side of the dressing slightly over the secured side to seal dressing under catheter hub. Carefully remove the frame from the dressing while firmly smoothing down the edges. Smooth down the entire dressing.