Interventional Radiology: Endovascular AV Fistula Creation

Site Applicability:

Interventional Radiology SPH

Practice Level: Specialized

Registered Nurses who have completed the required education and provide nursing care in the Interventional Radiology Department

Requirements

1. The Interventional Radiology (IR) nurse is ***not*** responsible for removing the sheaths.
2. Patient will only be transferred to renal short stay (6B) if radial band is removed, patient is hemodynamically stable, hemostasis and radial patency is achieved;
   if patient does not meet the mentioned criteria, patient will remain in Radiology for further monitoring and observation until ready for transfer to recovery area.

Need to Know

- Endovascular AV fistula (EndoAVF) creation is a minimally invasive procedure providing optimal benefits when compared to surgically created AV fistula
- EndoAVF creation is performed on the patient's proximal forearm using the ulnar vein and ulnar artery as the preferred access sites
- Screening and assessment for patient suitability is done by Nephrology and in consultation with the Interventional Radiologist (IR)
- Any patient who is a candidate for AV fistula can be considered for EndoAVF creation as long as they meet the criteria below
- The presence of a patent perforator vessel, vessel diameter size (equal to or greater than 2 mm) and optimal venous outflow are necessary for EndoAVF creation

Equipment and Supplies

- Radiology Pack
- ¾ Drape
- Fenestrated Drape
- (2) Utility Drapes
- (2) Microsorbs

- Micropuncture
- Arterial - 5F Sheath (Terumo Slender) – patient dependent
- Venous - 5F Sheath (Terumo Slender OR Prelude 11 cm) – patient dependent be aware of nitinol vs stainless steel wire
- V14 182 cm Wire x2
- KA2 30 cm Catheter x 2
- Tuohy Borst
- 36" Tubing
- TVA wavelinQ catheter device
- TVA Cart
- TZ Arm Restraints (in TVA cart)
- ThermoGard Grounding Pad
- ConMed Control Switch
- Tourniquet
- Coils (often 6 x 10 or 8 x 10)
- Visipaque 270
- Prelude Sync Compression Band (if radial)

Procedure

Pre-Procedure Assessment

Initial Assessment (performed by Circulating Delegate in the IR suite day of procedure)

1) Prior to the procedure, confirm patient's name, date of birth, allergy status, NPO status, if patient is taking blood thinners, and when blood thinner was stopped (if applicable)
2) Interventional Radiologist to discuss procedure with patient and obtain consent prior to positioning patient on the fluoro table. Explain to patient that hair may need to be clipped.
3) Position patient on fluoro table and attach to cardiovascular monitor. Blood pressure cuff and SpO_2 sensor should be on opposite arm
4) Sync monitor to WOW and obtain baseline vital signs in iView section of Powerchart
5) Perform a Pre-Procedure time-out and record in iView

Intraprocedure

Circulating Delegate:

1) Once patient is positioned, apply ThermoGard grounding pad to patient's leg muscle (thigh or calf). May need to clip hair with clippers if necessary
2) If necessary, clip arm puncture site with hair clippers
3) Place arm board accordingly: left side for left arm EndoAVF creation or right side for right arm EndoAVF creation
4) Prep patient's arm (front and back) with chlorhexidine and place sterile drape (microsorb towel) on arm board
5) Instruct patient to slowly lower down arm and extend arm onto arm board
6) Adjust arm board to ensure hand fits exactly in hand restraints

7) Secure hand to arm board with TZ Arm Restraints to maintain hyperextension of hand
8) Place tourniquet (untied) at axilla level of the affected arm
9) Clean and prepare patient's arm from fingertips to elbow using Chlorhexidine Gluconate
10) Prepare medications for procedural sedation and medications for ulnar artery and ulnar vein access as instructed by IR
11) Tie and untie tourniquet around patient's axilla intraprocedure as instructed by IR
12) Monitor patient throughout procedure and chart accordingly in Powerchart

Scrub Delegate:

1) Set up sterile table and sterile Radiology Pack
2) Drape patient with sterile ¾ drape
3) Drape patient's proximal forearm with sterile utility drapes, followed by fenestrated drape
4) Prepare micropuncture, venous sheath, and arterial sheath
5) Assist IR intraprocedure with handling of wires, catheters, and sheaths

Post Procedure

The venous sheath will be removed first, followed by the arterial sheath.

For Venous Access Puncture Site:

1. After the sheath is removed by the Interventional Radiologist, scrub delegate to manually apply gentle pressure for 5 minutes at the sheath insertion site. May use surgical foam to enhance hemostasis.
2. Once hemostasis is achieved, apply a small Mepore to site.

For Arterial Access Puncture Site:

1. Refer to B-00-12-10162 Interventional Radiology: Radial Compression Device Application and Removal (Post Procedure)

Documentation

1. Pre procedure: Document patient's baseline vitals including baseline CWMS and radial pulse of affected arm found in the Interactive View under the *Pre-Procedure Imaging* Band
2. Intraprocedure: Document continuous monitoring under the *Procedural Sedation* Band. For sheath insertion, document sheath site, sheath size and insertion time under the *Adult Critical Care Lines – Devices: Arterial and Venous Sheath* Band
3. Document medication administration using the Medication Administration Wizard after each medication dose given
4. Post-Procedure: Document sheath removal time, site condition, dressing, direct pressure method/device, type of mechanical pressure device, direct pressure duration under the *Adult critical Care Lines – Devices: Arterial and Venous Sheath*

Patient and Family Education

Provide information in language that the patient understands, use a virtual or in-person interpreter as needed

1. Inform patient of length of bed rest and activity restrictions. Instruct re: proper positioning (keep affected arm or wrist straight for 6 hours)
2. Patients may eat/drink one hour following removal of compression device.
3. Instruct patient to avoid any lifting, sports or heavy work with the affected arm for 2 days.
4. Instruct patient to keep to keep the dressing on for 24 hours and to keep it dry.
5. Provide patient with a *Radial Artery Sheath* pamphlet for post care instructions.

Related Documents

- B-00-12-10162 Interventional Radiology: Radial Compression Device Application and Removal (Post Procedure)

References

Inston, N.G. (2020). Clinical Utility of the WAVELINQ™ EndoAVF System - Endovascular Today. Retrieved 27 April 2020, from https://evtoday.com/articles/2019-oct-supplement/clinical-utility-of-the-waveling-endoavf-system.

Wavelinq 4F EndoAVF System Vessel Mapping. (2020). Retrieved 28 April 2020, from https://www.crbard.com/CRBard/media/ProductAssets/BardPeripheralVascularInc/PF10766/en-US/BDPI_WavelinQ-4F_BD-11098_PF10766_Vessel-Mapping-Tech.pdf

Persons /Groups Consulted:

, Radiologist

Vascular Access Nurse/Educator Renal Program

Developer:

Nurse Educator/Clinical Nurse Leader Interventional Radiology

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