Hemodialysis: Arteriovenous Fistula or Graft Care Following Creation

Site Applicability:

All PHC Renal Program Hemodialysis (HD) units (In-centre and Community Dialysis Units)

Skill Level:

Specialized: Nurses who have completed the required education and provide nursing care in a PHC Renal Program HD unit perform this procedure.

Related Documents and Resources:

1. B-00-12-10029 – Removal of Fistula Needles from Arteriovenous Fistula or Graft

Clinical Indication:

Patients who underwent an arteriovenous fistula or graft creation.

Need to Know:

1. An arteriovenous fistula (AVF) is created by surgical subcutaneous anastomosis between the native artery and vein. The AVF is usually created at the wrist, elbow, and on rare occasions at the thigh. The AVF should be created in advance of the HD treatment, as it needs at least 3-4 months for the AVF to mature.
2. Sutures should be removed between 14 to 21 days post surgery depending on clinical examination and surgeon's preference. A physician's order is not required prior to removing the sutures if above guideline is followed (e.g. well-healed surgical incision and absence of signs and symptoms of infection).
3. A synthetic material (soft plastic-like tubing) is used to create an artificial connection between the artery and vein. This is called an arteriovenous graft (AVG).
4. Palpating the AVF / AVG to feel for a vibration is known as a "thrill." This is one of the assessments when checking for the patency of the fistula. If a pulsating thrill is palpated, it may indicate a stenosis. The physician, nurse practitioner (NP), or vascular access (VA) nurse should be notified immediately.
5. Auscultating with a stethoscope for a swishing/whirring noise is known as a "bruit." A monophasic or a high pitched noise upon auscultation may indicate a problem with the access. The physician, NP, or VA nurse should be notified immediately.
6. Most access creations are a day procedure only. Patients rarely stay overnight.

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PRACTICE GUIDELINE

Assessment:

Initial and Ongoing

1. Upon return from procedure, check vital signs (VS) every 15 minutes for the first hour. Every 30 minutes for one hour, and then every 1 hour for 4 hours. If staying overnight, VS should be taken every four hours.
2. With every set of VS, check for thrill, bruit, pain, and CWMS (colour, warmth, movement, sensation)
3. Assess for signs and symptoms of bleeding, including hematoma. If a hematoma is noted at any point, mark the site and assess for further swelling. The physician, NP, or VA nurse should also be notified immediately.

Interventions:

1. Notify the physician if the patient is hypotensive or hypertensive. Hypotension is the leading cause of thrombosis in newly created AVF and AVG.
2. Assess for patency of the access by listening to the bruit and palpating for the thrill during the initial monitoring. Assess for presence of bruit or thrill once a shift there after. If a thrill is not palpable and bruit is not audible by stethoscope, the physician, NP, or VA nurse should be notified.
3. Assess for pain and give analgesia as ordered.
4. Post sign above bed: “NO IV, BP, OR BLOODWORK FROM _____ ARM.”
5. Check that clothing is loose on access arm.
6. Assess for signs and symptoms of infection.

Patient Education and Resources:

1. Avoid constrictive clothing on access arm.
2. Avoid lying on access arm.
3. Avoid carrying heavy articles.
4. Avoid having blood pressure or bloodwork taken from access arm.
5. Elevate swollen AVF / AVG arm above the level of the heart if patient is sitting or lying down.
6. Educate the patient on how to check for a bruit or thrill. Checking the access should be performed before going to bed and upon waking.
7. Immediately notify the physician if the patient notices any of the following at the access arm.
    a. bleeding

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b. swelling
c. loss of sensation
d. coolness
e. weakness
f. discoloration

Documentation:

1. Document in the 24-hour Patient Care Flow Sheet: presence of a thrill and bruit, CWMS, incision site condition.
2. Document any significant findings in the HD log and interdisciplinary progress notes to communicate to the interdisciplinary team.

References:

1. Beathard, G. (2017). Maturation and evaluation of the newly created hemodialysis arteriovenous fistula. In UpToDate, Cull, D.L and Berns, J.S (Ed) UpToDate, Waltham, MA, 2017. Accessed February 20 2018 at www.uptodate.com
2. British Columbia Provincial Renal Agency. (2015). Assessment of newly created AV fistulas and grafts. http://www.bcrenalagency.ca
3. Hemodialysis. Elsevier Clinical Skills. (2017). Extended text. St. Louis, MO. Elsevier. Retrieved February 20 2017 from www.elsevierskills.com
4. Murphy, F. (2011). The ongoing challenges with renal vascular access. *British Journal Of Nursing (BJN)*. 20S6-s14.

Persons/Groups Consulted:

Renal Clinical Practice Group

Developed By:

Clinical Nurse Leader/Educator (Vascular Access), PHC Renal Program

Nurse Educator, PHC Renal Program

Approved By: Professional Practice Standards Committee

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