Detection of Access Dysfunction in Permanent Vascular Accesses [AV Fistula (AVF) & AV Graft (AVG)] for Dialysis Facility Staff

Monitoring: Monitoring by physical exam and clinical indicators should be used in conjunction with available surveillance methods to help detect problems and direct decisions regarding the performance of interventional procedures. Report all abnormal findings as directed by your facility policies and procedures.

Physical Examination (Done every treatment):

- Inspection
  - Examine access site for presence of aneurysm, edema of extremity, signs and symptoms of infection, persistent swelling of arm, failure of AVF to collapse when lifted (utilizing the arm lift technique)
- Auscultation
  - Listen for a difference in bruit (examples: normal AVF, normal AVG)
- Palpation
  - Feel for thrill

Clinical Indications:

- Prescribed blood flow rate cannot be achieved on a consistent basis
- Arterial / Venous Pressure monitoring
  - Pre-pump arterial pressure monitoring (e.g., elevated negative pre-pump arterial pressures, persistent arterial pressure >-250 mmHg)
  - Venous pressures are consistently increased
- Bleeding with cannulation or prolonged bleeding after needle withdrawal
- Unexplained decrease in adequacy (i.e., Kt/V, URR)
- Difficult cannulation by expert cannulators
- Recurrent episodes of infiltration and appearance of clots

Surveillance: Surveillance (defined as periodic evaluation by measurement of access blood flow, direct or derived static pressures, duplex ultrasound studies) may be useful and should be instituted at the direction of the nephrologist (or his/her representative). A single isolated abnormal value should heighten one's awareness to the presence of an evolving problem warranting serial evaluation. With all techniques, ongoing trend analysis of the surveillance testing has greater power to detect dysfunction than isolated values alone. Persistent abnormalities in any of the monitoring or surveillance parameters should prompt referral for access imaging.

AVG Preferred Surveillance Techniques:

- Intra-access blood flow (IABF) (monthly)
- Duplex ultrasound (quarterly)
- Static pressures, direct or derived (every 2 weeks)
- Physical exam

In AVGs, consider additional imaging if…

- IABF < 600 ml/min with sequential decreases
- 25% drop in IABF if <1000 ml/min
- A venous segment static pressure ratio > 0.5
- Abnormalities are identified on physical exam (inspection, auscultation, palpation)

AVF Preferred Surveillance Techniques

- Direct flow measurements
- Duplex ultrasound (quarterly)
- Physical exam

In AVFs, consider additional imaging if…

- IABF < 400-500 ml/min with sequential decreases
- 25% drop in IABF if <1000 ml/min
- A venous segment static pressure ratio > 0.5
- Abnormalities are identified on physical exam (inspection, auscultation, palpation)

Based on the K-DOQI Guidelines, for more information visit www.kdoqi.org

This material was prepared by the Mid-Atlantic Renal Coalition as part of the Fistula First Breakthrough Initiative Special Project, which is performed under contract HHSM-500-2006-NW005C, with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. Developed July 2010