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How to Overcome AV Access Non-thrombotic Complications

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Dialysis access is the lifeline of dialysis patients and an essential element of the health of hemodialysis patients. However, it is rare for hemodialysis patients to use dialysis access without any problems throughout their lives, and they experience various complications. Flow-related complications such as stenosis and thrombosis, which we commonly experience, cause problems in achieving prescribed dialysis. In this KSN post-graduate education program, a separate course was prepared for flow-related complications, so I will present the rest of the complications.

1. AV access infection: The incidence of AV access infections is relatively low, particularly for AVFs. However, the spectrum of potential sequelae of AV access infections are broad and range from mildly limited cellulitis to extensive graft involvement mandating total explant; the systemic consequences can range from localized pain and fever to overwhelming sepsis and death. Treatment requires early recognition and management to prevent sequelae. Before antibiotic treatment, culture should be performed on an appropriate sample, and antibiotics should be selected according to the susceptibility result. Prevention is important before treatment of infection, and patients should self-clean their dialysis access before cannulation.

2. CVC related infection: Inspection of the CVC exit site may reveal cuff migration that places the CVC at risk of infection and also physical loss of the CVC. Exit-site infection is indicated by the presence of erythema, swelling, tenderness, and purulent drainage around the CVC exit and the part of the tunnel external to the cuff. Before antibiotic treatment, culture should be performed on an appropriate sample, and antibiotics should be selected according to the susceptibility result. It is reasonable to have an individualized approach to the management of an infected catheter based on the patient's health, dialysis, and vascular access circumstances and should follow the detailed guidance.

3. AV access aneurysms: The hemodialysis care provider should check the aneurysm/pseudoaneurysm of AV access for each dialysis session. And patients at high risk of AV access aneurysm/pseudoaneurysm rupture should be trained in first aid in situations of aneurysm rupture. Usually, an asymptomatic aneurysm is not an indication of definite treatment. It is reasonable that surgical management is the preferred treatment for patients with symptomatic, large, or rapidly expanding AV access aneurysm/pseudoaneurysm.

4. AV access steal: Before establishing dialysis access, it is necessary to preemptively establish a strategy to prevent and treat steal syndrome. It is reasonable that post AV access creation, patients should be monitored closely for signs and symptoms associated with AV access steal and managed appropriately with consideration of individual circumstances. Mild to moderate signs and symptoms require close monitoring for progression of ischemia and worsening of signs and symptoms. And moderate to severe signs and symptoms often require urgent treatment to correct the hemodynamic changes and prevent any longer-term disability.

5. AVG seroma: It is recommended that the complications of AVG seroma be carefully monitored and managed in the individual context of the patient and the best clinical judgment and discretion.

6. High-flow AV access: High-flow AV access can cause complications such as high output cardiac

failure and significant recurrent stenosis of the proximal venous outflow, and it is recommended to closely monitor the AV access for prevention and early management.