Perspective

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AV Graft Management: Optimizing Function and Longevity in Hemodialysis Access

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Introduction

Arteriovenous (AV) grafts are an important form of vascular access for patients undergoing hemodialysis who are not suitable candidates for native arteriovenous fistulas. Constructed using synthetic conduits, AV grafts provide reliable access with faster usability compared with fistulas. However, they are associated with higher rates of stenosis, thrombosis, and infection, making effective AV graft management essential for maintaining dialysis adequacy and reducing patient morbidity [1,2]. A structured approach to monitoring, maintenance, and intervention is critical to prolong graft survival.

Discussion

The cornerstone of AV graft management is early detection of dysfunction. Stenosis, particularly at the venous anastomosis, is the most common cause of graft failure and often precedes thrombosis. Regular clinical examination, dialysis monitoring parameters, and access flow measurements help identify early warning signs such as increased venous pressures or reduced dialysis efficiency. Duplex ultrasound and fistulography provide detailed anatomical and hemodynamic assessment when dysfunction is suspected [3-5].

Endovascular interventions are the primary treatment for AV graft complications. Percutaneous transluminal angioplasty is the first-line therapy for graft stenosis and can effectively restore adequate blood flow. In cases of recurrent or resistant stenosis, stent graft placement has shown improved patency and reduced need for repeat interventions. Thrombosed AV grafts require urgent management, typically with endovascular thrombectomy combined with treatment of the underlying stenotic lesion. Prompt intervention is essential to avoid access loss and minimize catheter dependence.

Infection remains a significant concern in AV graft management due to the synthetic nature of the conduit. Meticulous cannulation technique, strict infection control measures, and early recognition of signs of infection are vital. In severe cases, partial or complete graft excision may be required. Multidisciplinary collaboration among nephrologists, interventional specialists, and dialysis staff is essential for comprehensive graft care.

Conclusion

Effective AV graft management is crucial for ensuring reliable hemodialysis access and improving patient outcomes. Through routine surveillance, timely endovascular intervention, and vigilant infection prevention, many graft-related complications can be successfully managed. While AV grafts carry inherent risks, a proactive and coordinated care strategy can significantly extend graft lifespan and reduce morbidity. As interventional techniques and surveillance strategies continue to advance, optimized AV graft management will remain a key component of high-quality dialysis care.

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