ASK THE EXPERTS

What Will Be the Next Game-Changer in Dialysis Access?

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There are a few key innovations in vascular access that could have a significant impact on dialysis patients. First, physical examination and active surveillance of arteriovenous (AV) access is uneven and can be time consuming in United States dialysis units, leading to poor dialysis and access thrombosis. The application of widespread, transdermal AV access monitoring with cloud-based reporting of serial blood flow measurements and key laboratory tests could help trigger appropriate intervention and prevent access thrombosis.

Another game-changer would be a futher simplified endovascular AV fistula (AVF) device that obviates the need for vascular coiling or ligation, and promotes earlier cannulation. This could allow patients lacking optimal vasculature for standard endovascular AVF creation to receive a nonsurgical AVF, reduce catheter exposure time, and potentially reduce the cost of endovascular AVF device use.

The reality is that tunneled dialysis catheters still play an active role in dialysis patient care. Ideally, a permanent access is preferred, but oftentimes, a catheter is necessary to bridge or even sustain dialytic therapies. I have been intrigued and excited by the new inside-out technique for catheter placement using the Surfacer device (Merit Medical). Catheters can be maintained on the right side without going to the left. Leg catheters can be moved to the right chest. And ultimately, a HeRO graft (Merit Medical) can be placed using this access point. I think there is a big potential here to expand and prolong access options for patients.

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More than 4 million patients worldwide have end-stage kidney disease, and in the United States, there are > 800,000 patients. Autogenous AVF is the preferred vascular access for patients who require hemodialysis. The next big thing in dialysis access will be learning how to improve AVF outcomes through devices that standardize the placement of AVFs, bioengineered grafts, and new drug-delivery balloons including sirolimus, anti-inflammatory drugs such as vitamin D3, and others. Many patients are not candidates for the creation of a surgical AVF due to small-diameter veins. There is interest in increasing the number of patients who may be candidates for AVFs by manipulating the pre-AVF venous anatomy. Understanding the mechanisms underpinning the formation of venous stenosis or failure to maturate is important. New ways to improve graft outcomes such as coatings or bioengineered grafts are being tested. Finally, there is considerable interest in improving dialysis catheter outcomes by reducing thrombosis or infection by applying drugs to catheters. ■