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Vascular access surveillance, beyond the KDOQI guideline

Sung Gyun Kim

Hallym University Sacred Heart Hospital, Korea

Up to 25 ~ 30% of hospitalizations in hemodialysis patients are related to vascular access complications, and there are significant resources distributed to maintenance and surveillance of access. Currently, the National Kidney Foundation Kidney Disease Outcomes Quality Initiative (NKF-KDOQI) vascular access guidelines recommend routine vascular access monitoring and surveillance methods to be used for early detection of access stenosis and prevention of thrombosis. However, the best approach to access monitoring and surveillance remains controversial, and there is a paucity of clear evidence supporting certain surveillance protocols.

The controversy about the utility of surveillance techniques in vascular access largely arises from the fact that the methods used are not particularly reproducible or predictive of access thrombosis. Moreover, recent meta-analyses showed no evidence to suggest a significant change in access survival but a trend toward decreased thrombosis of accesses in fistulas when surveillance was used.

When considering type, location, and likelihood of stenosis, grafts and fistulas have important differences, and therefore should not be treated the same when access surveillance is evaluated. Arteriovenous fistulas and grafts differ in their patterns of hemodynamic characteristics and stenosis.

Abnormal surveillance data should be closely correlated in the setting of clinical signs and symptoms of access dysfunction, and ideally sequential measurements are typically needed.

Based on systematic review of the many techniques available for surveillance, there is no clear evidence that routine surveillance is better than access monitoring with physical exam and clinical signs when performed by trained dialysis staff, and physical examination should be always a basic step of any access monitoring program, along with signs and symptoms that develop, such as increased bleeding times post-dialysis, decreases in urea reduction ratio or Kt/V values, and increased access pressures while on dialysis.

It may be useful to have multiple examination points with which to make decisions regarding referral for intervention, and some of the more reliable methods of surveillance including ultrasound dilution techniques that can be routinely performed in the setting of the dialysis treatment may be useful adjuncts to prevent access failure.

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Further studies in this area will be needed to determine the most appropriate combination of monitoring and additional surveillance methods.