Abstract Submission No. : 9052
May 26(Thu), 08:30-10:30 PG Education 1 (Hemodialysis)

Strategies to Improve Patency of Vascular Access

Sangeon Gwoo
Changwon Hanmaeum Hospital, Korea, Republic of

Longevity on dialysis is directly proportional to the quality of dialysis, and that quality in turn depends on the reliability and integrity of the access to the patient's vascular system. This crucial connection is known as the hemodialysis vascular access. The ideal hemodialysis vascular access is one that provides reliable, complication- free access to deliver prescribed dialysis and that is also concurrently suitable for a given patient's needs.

It is no exaggeration to say that proper maintenance of such vascular access is of paramount importance to the health and survival of hemodialysis patients. To this end, efforts have been made from the past to the present to prevent flow dysfunction and other access-related complications, detect problems early, and take appropriate measures.

Attempts such as fish oil, aspirin, simvastatin, ezetimibe, and clopidogrel-prostacyclin have been attempted to prevent fluid obstruction in AV fistula. However, they could not prove their benefits or lacked evidence. Adjuvant far-infrared therapy has been effective in some studies but may require additional studies in that it is limited to specific regions and researchers. AV grafts have also undergone much research to prevent flow dysfunctions. The use of fish oil in patients with newly created AV grafts, and aspirin 25 mg with dipyridamole 200 mg twice daily had some benefits but was personalized to the patient's situation. It seems that an approach is needed. As with AV fistula, simvastatin and ezetimibe did not show any obvious benefits.

Overall, there were very few studies that evaluated therapies to prevent AVF and AVG dysfunction that were of high-quality evidence. Even in those studies of high quality, careful consideration should be made before using additional therapies based on statistically significant results in the absence of important clinically meaningful differences. Antiplatelet and anticoagulant agents may increase the risk of bleeding, and their use needs to be carefully considered in the elderly population and those patients with high bleeding risks.

In the past, the 2006 K/DOQI clinical practice guidelines for vascular access recommended that regular monitoring and surveillance be performed to detect and intervene in flow-dysfunctions for the prevention of thrombosis and improvement of patency. In Korea, PTA is performed by a so-called vascular access clinic once every three months without evaluating whether there is a clinical problem in performing hemodialysis. However, such angioplasty can cause additional vascular damage and neointimal proliferation, which can ultimately contribute to stenosis. It has also caused unnecessary radiation exposure to patients, and impact on the rise in medical expenses. Most, unfortunately, existing clinics claim to have managed vascular access, but have failed to prove a benefit to the actual survival of vascular access. Therefore, analyzing existing studies, the 2019 K/DOQI guidelines strongly recommend not to perform PTA for stenosis found by surveillance without clinical indicators.

However, among the papers published after the 2019 KDOQI guideline, there was a study that surveillance helped to improve AV fistula patency. In that study, surveillance detected subclinical stenosis and performed intervention according to criteria. The criteria for intervention in the QA group were: 25% reduction in QA, QA <500 mL/min, or significant stenosis with hemodynamic repercussion

(peak systolic velocity [PSV] more than 400 cm/sec or PSV pre-stenosis / stenosis higher than 3). Such measures have improved thrombosis rates, thrombosis-free survival, and secondary patency. However, the authors did not perform PTA mechanically in all cases that met the criteria. Even if the criteria were met, it was decided whether to perform angioplasty or observation by subjectively evaluating the patient. Rather than surveillance and preemptive PTA improving hemodialysis access patency, I believe that the clues to patency improvement are for the nephrologist to evaluate the vascular access of hemodialysis patients and make appropriate decisions about the next procedure.

In addition to flow-related dysfunction, other complications such as central vascular access infections, aneurysms/pseudo-aneurysms, and peri-graft seroma can also affect AV vascular access patency and survival. In this regard, monitoring and surveillance by dual ultrasound can play an important role in the early detection and treatment of complications. Ultimately, nephrologists with a better understanding of vascular access will play an important role in improving the patency and the health of hemodialysis patients.