

Fistula First Newsletter

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Network 11 Fistula First Task Force

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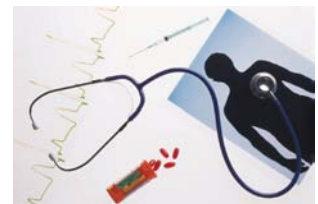
INTRODUCING THE FISTULA FIRST E-NEWSLETTER

Welcome to the first issue of the Network 11 Fistula First e-newsletter. The newsletter will be published regularly by Network 11 to communicate what is happening with the National Vascular Access Improvement Initiative (NVAII). We hope you will find the articles and resources helpful. If you have comments or suggestions for our future issues, or have specific questions that you would like addressed, please e-mail them the Network 11 office at info@nw11.esrd.net.

CHANGE CONCEPT

Early Referral to Surgeon for "AVF only" Evaluation

- Nephrologist/nurse performs appropriate evaluation and physical exam prior to surgery referral.
- Nephrologist refers for vessel mapping where feasible, prior to surgery referral.
- Nephrologist refers patients to surgeons for "AVF only" evaluation, not later than Stage 4 CKD (GFR<30). Surgery scheduled with sufficient lead-time for AVF maturation.
- Nephrologist defines AVF expectations to surgeon, including vessel mapping (if not already performed).
- If timely placement of AVF does not occur, nephrologist ensures patient receives AVF evaluation and placement at the time of initial hospitalization for temporary access.



Tools

Find the vascular access algorithm and model protocol developed by the Network 11 Medical Review Committee by going to the Network 11 web site at www.esrdnet11.org.

Best Practices: Referral for AVF Only

Mark Rassier, MD

Woodruff, WI

NAVII: Dr. Rassier, tell us about your practice.

Dr. Rassier: I am a nephrologist in solo practice and am medical director of 2 dialysis facilities in north central Wisconsin. I am responsible for approximately 80 patients and I start approximately 20 patients on dialysis each year.

NVAII: When you refer patients for access placement, do you have any specific requests?

Dr. Rassier: All of the surgeons I refer to and all of the patients referred are told that I consider plastic a last resort. Plastic access, whether as a catheter or as a PTFE graft, is something to avoid. The patients and surgeons know that if I am asking for hemodialysis access, I mean a fistula. That does not mean PTFE.

NVAII: What if the surgeon disagrees with you?

Dr. Rassier: If a surgeon insists on PTFE and I don't agree, I find a different surgeon.

NVAII: Do you ever find it necessary to use a PTFE graft?

Dr. Rassier: I do sometimes use PTFE grafts as a means to eventually gain a fistula by arterIALIZING upper arm veins.

NVAII: What about catheter use?

Dr. Rassier: I am often forced by late referral or late patient consent to start dialysis with a catheter. However, if we are planning on catheter placement, we also have plans in place for every patient to have a fistula placed after they are medically stable enough to have the surgery. That is usually a week or so after emergently starting dialysis.

NVAII: Do you use ultrasound vein mapping?

Dr. Rassier: Yes. Fortunately, my office is only about 20 feet from my clinic's vascular lab, so I generally map the veins on all my patients.

NVAII: What kind of patient teaching do you do?

Dr. Rassier: If I have the luxury of meeting a patient before they are uremic, I encourage them to think about what type of dialysis, type of access, and to consider transplant. I have an outpatient education program once per month in my dialysis unit where patients and family see the HD and PD units, meet people with various types of access, and meet people with a transplant. They see and talk with other patients. Often, just talking with other dialysis patients is enough to get them to have an appropriate placed at an appropriate time.

NVAII: Dr. Rassier, more than 2/3 of your patients have AV fistulas. What is your secret?

Dr. Rassier: What I do is not difficult, but it does take time. I do a physical exam, I examine veins with ultrasound, I educate the patients regarding what is needed, and I have a close relationship with surgeons and radiology. In addition, I follow-up on every patient to make sure they don't fall through the cracks.

NVAII: Any last words of wisdom?

Dr. Rassier: The only thing I do, really, is to provide the message. I am extremely lucky to have a group of willing and expert surgeons to work with. In addition, I have a support staff that consistently works to support the message. What I do is not detailed or involved, just consistent.

The Role of Ultrasound

Mark Webb, MD

Detroit, MI

The creation of usable AV fistulas for dialysis patients is an important quality improvement goal. One contributing factor is ultrasound mapping - identifying often overlooked veins that are not always readily apparent on clinical exam. All too often I examine a patient's PTFE graft with ultrasound for some problem and find a large cephalic vein running underneath the graft. "Why didn't they do a fistula?" I ask myself. Many times it is obvious that because of thick skin or chubby forearms the vein was not palpable or visible and so the opportunity was missed. The availability of portable and affordable (less than \$30,000) office ultrasound machines allows the surgeon to see under the skin more easily than before.

Many experts recommend that ultrasound mapping be done prior to surgical consultation and that the nephrologist examine the patient, make a decision about the most appropriate vascular access, and then communicate that expectation to the surgeon. Nephrologists must make an assessment of the service their patients get from the local surgeons, and adjust their practices accordingly. As the importance of vascular access for dialysis is increasingly recognized, however, more surgeons are becoming sophisticated in the assessment and treatment of the dialysis patient. In larger metropolitan areas there are surgeons who focus on vascular access for dialysis as a large or exclusive part of their practices. For many of us, the office ultrasound is an essential extension of the physical examination, used for every new patient assessment and in many of the follow-up visits. Although the precision measurement achieved by a trained vascular lab technician is ideal, in practices where surgeons are adept enough to do a basic vascular ultrasound exam, a step can be eliminated, saving time and money. In our practice, we refer the patient for a formal vascular lab exam only if we feel we need a "second opinion".



In the new patient assessment, the office ultrasound is used to map the veins—measure the size, identify branches to be used in the anastomosis, identify or exclude veins that are clotted from intravenous needle injury or other factors, follow the course of the vein, and identify the outflow. An attractive large vein at the wrist may lead to a long stenotic stretch in the mid-forearm, dooming a wrist fistula, and setting up the patient for an early failure. Futile operations can be predicted with better screening of the anatomy, and thus avoided. The best procedure for each patient can usually be correctly identified in the initial office evaluation by the use of ultrasound.

Knowledge of the anatomy also allows for long-term planning. A wrist fistula that does not mature sufficiently to be usable may still develop the antecubital veins. An antecubital fistula, useless for cannulation, may grow a basilic vein to sufficient size and toughness to allow for transposition. All these stepwise approaches to providing vascular access are only made possible by an expanded knowledge of individual venous anatomy – accomplished through vein mapping.

Arterial status is also important. A surgeon can be fooled by a "good pulse" in a superficial incompressible artery and may eagerly jump on a huge vein at the wrist, coupled with a two millimeter calcified radial artery in an older diabetic woman. This can be a recipe for intraoperative agony for the surgeon, early fistula failure, insufficient flows in any fistula that does develop, or digital ischemia due to steal. Pre-operative knowledge of the anatomy from ultrasound examination may help identify the best option for the patient without frustrating and time wasting exploratory surgery.

After the fistula is created it is reexamined with ultrasound on almost every office visit - meas-

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uring the size as the fistula develops over time, identifying branches that may need to be ligated to allow appropriate development of the fistula, or finding stenoses that indicate a need for balloon fistuloplasty. Measuring flow may be useful in the assessment of some fistulas. Measuring acceleration of flow may pinpoint an important stenosis. Tortuosity or depth-greater-than-width of a fistula on ultrasound may identify areas where cannulation will be difficult. Some deep fistulas will require superficialization or transposition prior to usability, and this assessment is aided by the ultrasound examination.

Once the fistula is judged usable, we frequently offer the patient the ultimate guide to cannulation. A digital photograph of the arm is taken and printed, then the fistula drawn on the printed photo with the assistance of an ultrasound examination. The course of the fistula is indicated, size at various points, depth below the skin at various points, location of branches, suggested areas for cannulation, and suggested areas to avoid are included. The photo-diagram is then copied and several copies are given to the patient and one is placed on the chart. Making the access more understandable for the dialysis center personnel can reduce infiltration and make everyone's day a little better.

Use of ultrasound mapping helps to evaluate and plan for access placement and yields improved results. Not all ultrasound exams will be billable, but many will, and the machine will pay for itself over time. Office and intraoperative vascular ultrasound is an indispensable tool for surgeons to be more effective in the management of the vascular access.

Recommended Reading

Allon M, Robbin ML: Increasing arteriovenous fistulas in hemodialysis patients: Problems and solutions. *Kidney Int* 2002; 62(4): 1109-24.

Kalman PG, Pope M, Bholra C, Richardson R, Sniderman KW: A practical approach to vascular access for hemodialysis and predictors of success. *J Vasc Surg* 1999 Oct; 30(4): 727-33.

Ravani P, Marcelli D, Malberti F: Vascular access surgery managed by renal physicians: the choice of native arteriovenous fistulas for hemodialysis. *AJKD* 2002 Dec; 40(6): 1264-76.

Sedlacek M, Teodorescu V, Falk A, Vassalotti j, Uribarri J: Hemodialysis access placement with preoperative noninvasive vascular mapping: comparison between patients with and without diabetes. *AJKD* 2001 Sept; 38 (3): 560-4.

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