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Fistula culture and no-excuses nephrology

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Arteriovenous fistulas are the most efficient, reliable, and least risky method of vascular access for chronic hemodialysis. No real debate remains on this point. Despite growing enthusiasm for increased AV fistula deployment, and energy poured into national organizations like the National Kidney Foundation-Kidney Diseases Quality Outcomes Initiatives Workgroup (NKF-K/DOQI) (1), the National Vascular Access Improvement Initiative (NVAII) Fistula First program (2), and the Healthy People 2010 Initiative (3), the percentage of AV fistulas in prevailing hemodialysis patients in the United States is a dismal 25-30%. Current initiatives set a desperately modest goal of achieving 40% fistulas in prevalent patients.

A huge gap exists between what we know to be best, and what we actually achieve for our patients. This gap is a peculiarly American phenomenon; fistula rates are higher in other countries (4). Expansion of catheter access may contribute to the reduced survival of hemodialysis patients in the United States.

Attributing this epidemic to insufficient diligence in American nephrologists does little to solve the problem, and the technical issues involved in fistula access have been reviewed extensively elsewhere. Our experience in increasing the fistula rate from 30% to 75% in a large urban hemodialysis unit has given us perspective on the array of cultural and systemic barriers to the deployment of fistulas in our patients (5).

"Every system is perfectly designed to produce exactly the results it produces."

Donald Berwick, MD
Institute of Health Care Improvement

American health care organizations are rife with systematic features that resist the best intentions of nephrologists seeking fistulas. Often the interests of hemodialysis patients and their physicians are at odds with the interests of other parts of the health care delivery system.

One improvement would be to create an environment in which conversion of patients from catheter to fistula access can be achieved during hospitalizations. Many patients who are resistant to elective fistula surgery are more agreeable about undergoing intervention when they are already hospitalized … especially if the hospitalization was caused by a complication of an inappropriate vascular access device. The necessary imaging, surgical, and postoperative care services are all readily accessible in an inpatient's location. Unfortunately, attempts at inpatient access conversion are often stymied by the disincentives for the necessary support services (e.g. duplex vein mapping) for which inpatient compensation cannot be recovered. The fistula surgery, and the studies necessary to promote it, are so vital to the care of the patient, and so materially reduce the risk and cost of future care, that barriers to inpatient conversion of vascular accesses should be systematically sought out and replaced with incentives for better care.

Dialysis teams compete with other clinical services for available blood vessels. Immense efforts were needed to protect fistula vessels from phlebotomy teams, intravenous therapy nurses, and therapy teams that deploy Peripherally Inserted Central Catheters (PICC). Physician orders protecting blood vessels were often late to the chart, frequently flouted, and virtually never followed a patient who transferred from one level of care to another. Only diligent persuasion and education sensitized other hospital caregivers to the special needs of dialysis patients in our hospital, which often differed from the needs of other medical patients. In one instance, a successful initiative in our hospital to reduce central line associated bacteremia called for the elimination of femoral catheters in favor of

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increased numbers of subclavian catheters and PICC lines. While this strategy was appropriate for the majority of medical inpatients, generalizing this approach to temporary dialysis catheters threatened future fistula options for dialysis patients. Patience and compromise were needed to resolve the conflict between two worthwhile quality initiatives and obtain the best results for all patients.

Another problem was a cultural expectation of low fistula achievement. Surgeons, nephrologists, dialysis staff, and patients had a perception of the acceptability and inevitability of central venous catheter access. Replacing this fatalism with an expectation of successful fistula placement required hard work from everyone. We were fortunate to have access to superb surgical and imaging services. As nephrologists, we provided coordination of services, vigilance in protecting blood vessels, education, and persuasion. We were constantly reminded that one dissenting member of the healthcare team could derail a fistula, even in the presence of enthusiastic support from all others. We needed to educate our own staff as extensively as the rest of the hospital and insist upon "no-excuses nephrology" from everyone.

Promoting a culture of fistula access in an institutional setting sometimes required considerable resolve. We noted a significant drop in the quality of vascular access surgery after the departure of a skilled surgical team, and referred our access work to another hospital for several months, despite intense administrative pressure to keep surgical referrals "in-house." Refusal to accept suboptimal outcomes ultimately led to the acquisition of another excellent surgical team. Many nephrologists face subtle or overt pressures to limit their referral options. Choice of access surgeon must be driven by outcome, and be independent of economics or local politics.

Overcoming the barriers to fistulas has been rewarding. We have watched infection rates in the dialysis unit plummet, and have not had endocarditis in the dialysis unit for nearly four years. Sustained high fistula rates and patient-to-patient persuasion are evidence of the development of a "fistula culture" in our dialysis program.

The American health system provides more dialysis than any other, but is characterized by often perverse economic incentives, and allows for multiple independent sub-systems to act without coordination of goals. Successful initiatives to increase fistula rates in the United States need to anticipate cultural and systemic barriers to good access outcomes. The Fistula First Initiative has helped focus attention and effort on improving vascular access outcomes. Centers with access to the necessary surgical and imaging talent should be able to design processes that can achieve fistula rates comparable to what is already achieved in other countries.

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