

Dialysis Vascular Access Centers

An overview of this rising trend in quality AV access care.

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Vascular access is the Achilles' heel of hemodialysis. The total annual cost of vascular access complications is estimated to be nearly \$8,000 per patient risk year, with a total of \$1 billion to \$1.5 billion, or approximately 10% of the total end-stage renal disease (ESRD) budget. More than 20% of hospitalizations of ESRD patients are attributed to complications of vascular access.¹ These hospitalizations account for as much as 50% of hospitalization costs. The growth of ESRD patients is expected to double by the year 2010. Thus, dialysis access care will grow into a multibillion dollar cost to Medicare and other payers.

DIALYSIS VASCULAR ACCESS CENTERS

A dedicated dialysis vascular access center (DVAC) offers high quality of care with the lowest possible cost. The goal of the dedicated access center is to expedite intervention in dialysis access management. Expeditionary, skilled care results in cost-savings by preventing many access-related hospitalizations and complications encountered due to missed hemodialysis treatments.

Dialysis vascular access is the lifeline of the ESRD patient undergoing hemodialysis. Complications of vascular access devastate this vulnerable population. The ESRD patient, who is already considered seriously ill, suffers increased morbidity, hospitalizations, and mortality secondary to access complications. The DVAC is an approach to improve patient outcomes and reduce the costs of treatment.

The rising trend of DVACs is a recent phenomenon. During the past 5 years, a number of such centers have opened around the US, and more centers are in the planning stages. Access centers are being established as either freestanding or hospital-based centers. RMS Lifeline (Davita Inc., El Segundo, CA) has the largest

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number of freestanding access centers, whereas others such as Fresenius Medical Care (Bad Homburg, Germany) and Gambro Health Care (Stockholm, Sweden) are developing both freestanding and hospital-based centers through joint ventures.

THE ECONOMICS

The economic feasibility of a dedicated access center is multifaceted. The number of patients served by the center is central to the feasibility. The typical dialysis patient will require an average of 1.5 to 2 interventions per year. Most of these interventions are amenable to outpatient treatment.² Therefore, a population of 450 ESRD patients should translate into 675 to 900 procedures annually.

Hospital-based dedicated centers have a significant advantage over the freestanding centers. One of the major problems involving freestanding centers is Medicare reimbursement. As of May 2003, access center facility fees are not covered under the billing codes used for dialysis access care when performed out of the hospital. Although these codes can be billed at "office practice" rates, the reimbursement does not cover the supplies. Consequently, many freestanding units are using some portion of the professional reimbursement to offset overhead.

THE DESIGN

The design of a dedicated access center will, of course, be somewhat dependent on the patient popu-

lation. Design detail should be inclusive of administrative space, procedure room(s), postprocedure rooms, and ancillary rooms as dictated by the classification of the unit (ie, freestanding or hospital based). Regardless of the setting, the procedure room(s) should be utilized only for access management. It is possible to design a center utilizing 1,500 to 2,000 square feet of floor space. A 20-ft X 20-ft room is adequate for the procedure room. Certainly, for optimum care, the availability of hemodialysis, either within the center or within close proximity to the center, is desirable.

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The procedure room equipment is not overwhelming. Portable fluoroscopy, ultrasound device(s), and patient monitoring equipment are the basics. Of course, the procedure room can be as basic or as elaborate as desired. The most commonly used supplies are wires, balloons, thrombectomy devices, and catheters.

STAFFING

The quality of care provided to the dialysis patient in need of intervention is enhanced by staffing with physicians, nurses, and technicians who are knowledgeable concerning hemodialysis. The number of personnel required will vary, however, personnel should be committed to the access center. In the hospital-based center, rotation of personnel with other hospital departments is undesirable. This commitment of personnel to the center allows skill improvement due to the repetition of the interventions performed.

Commitment of the personnel to the center enhances a vital component of quality care. A circle of ongoing communication with the physicians, nurses, and other caregivers is paramount to a successful program. Verbal communication is a must but is enhanced if the dedicated center shares information with the attending nephrologists(s) and dialysis unit personnel via a shared software program addressing the patients' access history, hemodialysis treatments, and other pertinent health information (Crystal Culbertson, personal communication). This shared database affords everyone current information regarding the patients' health care.

Physicians staffing the access center are included in the committed personnel. In the past, endovascular

interventions were typically performed in the radiology department. A trend in access centers now encompasses other specialties, such as interventional nephrologists, vascular surgeons, and cardiologists. Regardless of the specialty, the physician(s) must also be committed to the center.^{3,4}

ACCESS MAINTENANCE

Endovascular interventions play a major role in the creation, maintenance, and salvage of AV access.⁵ The focus of access maintenance is evolving. Flow monitoring has increased the numbers of endovascular interventions, particularly angioplasty. Early identification of complications has markedly reduced the cost of ESRD care. Early intervention reduces hospitalizations, catheter placements, missed hemodialysis treatments, and surgical interventions.⁶

Either a freestanding or hospital-based dedicated vascular access center enhances the quality of care for the ESRD patient. The dedicated center facilitates the immediate intervention crucial to the delivery of comprehensive care. Not only does the dedicated center allow for ease in scheduling maintenance procedures and early intervention, but it also allows for the urgent delivery of care. Having the patient never miss a day of dialysis is the goal of the dedicated vascular access center. ■

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