

Vasculorama: highlights from the vascular access literature

G. DUNEA

Division of Nephrology, Cook County Hospital, Chicago - USA

Two exciting articles this March described how recently occluded arteriovenous fistulae could be restored to patency by interventional radiology. Until recently, such intervention had been available mainly for clotted arteriovenous grafts. The two reports, one from France and the other from Germany, describe how various interventions can also be applied to fistulae. The techniques used vary, depending on available facilities, the experience of the operators, and the particular lesion present - whether it be a long-segment thrombosis, a small thrombus caused by an underlying thrombosis, or a proximal occlusion of the artery. In all cases adequate visualization of the lesion is necessary, and can be obtained either by puncturing the vessel with a 22 gauge needle for arteriovenography or by accessing the lesion by passing guidewires and catheters in a direction against the venous flow. Patency is restored by balloon dilatation, mechanical thrombectomy, stent insertion, or pharmacologic thrombolysis. Complications are relatively infrequent, and although repeated intervention may be necessary, overall patency approaches 50% at one year (P. Haage et al, *Kidney Int* 57: 1169; L. Turmel - Rodriguez et al, *Kidney Int* 57: 1124).

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Another study, this from Durham, North Carolina, analyzes the factors determining failure of temporary hemodialysis catheters. With subclavian or jugular catheters 17% failed when their tips were located in the right atrium or superior vena cava compared to a 40% failure rate for catheters with tips located more peripherally. Thus catheter location seems to be the most important factor in determining patency of temporary catheters (S.M. Abidi et al, *Clin Nephrol* 53: 199).

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From Seattle, Washington, comes a report describing the use of ultrasound to measure the flow rate in dialysis grafts and fistulae and monitor their patency. The procedure, which takes one minute and requires less than one hour training, can be done with relatively inexpensive instruments. Transducers are placed over the graft and the wave

configuration is studied with the blood pump turned on and compared with that obtained with the pump turned off. By these means the authors have been able to recognize recirculation, stenosis, or improper placement of the needles. (M. Paun et al, *Am J Kidney Dis* 35: 477).

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Periodically new dialysis catheters are brought on the market with claims that they would yield better results than those already in use. In April investigators from the University of Bern, Switzerland, reported their evaluation of a newly designed curved-tip dialysis. In a prospective cross-over study lasting four months they found that the new catheters, which are 25% more expensive than older ones, offered no tangible advantages and concluded that they could not recommend their use (M. Pfister et al, *Am J Kidney Dis* 35: 624).

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"The development of a technique for permanent indwelling teflon cannulation of radial artery and forearm vein has made it possible to perform an unlimited number of dialyses on patients with chronic renal failure. The technique... essentially... consisted of placement of indwelling teflon canulae in the radial artery and vein. When not in use for dialysis, a small arterio-venous teflon bypass shunts blood from artery to vein. The patients have become ambulatory. They eat well and except during the period of dialysis are at home or at work part time. Each dialysis has lasted for approximately 24 to 60 hours. The interval between dialysis varied from 4 to 21 days" (Belding H. Scribner, *Trans Am Soc Artif Intern Org* 6: 114, 1960).

George Dunea, M.D. FRCP, FACP
Associate Editor

Reprint requests to:
Cook County Hospital
1825 West Harrison Street
Chicago, Illinois 60612, USA
e-mail: geodunea@aol.com