

## A plea for an algorithm

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Brekke et al. have presented a large and unique experience of aortography from 1400 uremic patients as a screening method prior to kidney transplantation. The rationale, as presented in the paper, is understandable and laudable: increasingly older patients with a higher probability of aortoiliac disease are referred for renal transplantation, the iliac vessels are chosen as the best arterial implantation site for the allograft, and vascular reconstruction should preferably be performed prior to renal transplantation as an elective procedure rather than simultaneously or after transplantation.

The relatively low yield of aortoiliac pathology – 26 of 1400 patients, or less than 2% – raises a cost-versus-benefit issue. In the authors' location, the majority of patients have their pretransplant evaluation at a site that is at some distance from the transplant center and they are usually not seen by the transplant surgeons until the actual transplant procedure. Nonetheless, initial evaluation by angiography is a more invasive, potentially risky, and more costly method than initial screening by physical examination, Doppler ultrasonography, and peripheral vascular laboratory evaluation. With current noninvasive vascular assessment methods, a great percentage of the 98% of patients without aortoiliac disease could be screened to leave a small residual group who would have a higher yield of arterial pathology by angiography. Admittedly, older diabetic patients with rigid arteries can confound noninvasive testing, and this special group of patients may, indeed, need angiography with greater frequency.

The risk-versus-benefit issue also deserves comment. Arterial complications of angiography via the transfemoral route are few – in the range of 1%–2% – and include hemorrhage, pseudoaneurysms and, only rarely, vessel occlusion from subintimal dissection by the catheter. Contrast nephropathy, particularly in patients with renal impairment and diabetes mellitus, has been estimated to be between 3.8% and 6.8% [1]. Further deterioration of the minimal renal function in a patient who is already on dialysis is of no consequence; however, some patients may not yet be on dialysis when evaluated. Contrast nephropathy could potentially require dialysis at an earlier time than the natural progression of the renal disease and would take away the advantages of renal transplantation prior to the initiation of dialysis treatment.

Physical examination alone, with palpation of the abdominal and femoral pulses, should provide safe screening for all patients except those with increased risk factors such as cigarette smoking, diabetes, age over 55, and suggestive symptoms of a vascular nature. Noninvasive vascular testing could then further define the smaller subgroup that would need aortography.

### Reference

1. Barrett BJ, Parfrey PS, Vavasour HM, McDonald J, Kent G, Heferton D, Oeda F, Stone E, Reddy R, McManamon PJ (1992) Contrast nephropathy in patients with impaired renal function – high versus low osmolar media. *Kidney Int* 41: 1274–1279