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LETTER TO THE EDITORS

The fate of the fistula following renal transplantation

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Dear Sirs,

The fate of arteriovenous fistulae (AVF) following renal transplantation is poorly described in the literature. There is no consensus regarding the optimal management of the AVF after renal transplantation [1]. Several authors advocate ligation of a functioning AVF following transplantation citing regression in left ventricular hypertrophy [2] as the rationale; however, others have found minimal improvement in left ventricular ejection fraction following ligation of AVF in patients post-transplant [3]. The relative contribution of the fistula and simply optimization of fluid status and cardiac afterload on left ventricular function following transplantation remain unclear however. With a median graft survival of 10.8 years and mean age of transplant recipient 42 years [4], one-third of renal transplant recipients return to dialysis within 5 years of transplantation following failure of the graft [5]. Pre-existing native vascular access may smooth the transition back to haemodialysis for this group of patients.

We sought to describe the outcomes of arteriovenous fistulae within the cohort of patients undergoing renal transplantation at our institution between January 2001 and October 2013 (n = 1074). Data were collected from our prospectively maintained electronic case records on dialysis modality/access at time of transplantation, date of AVF thrombosis/ligation (and reasons for ligation) and AVF patency at time of graft failure.

Data were available for 947 patients (88.2%) (mean age: 47.2 ± 13.4 years). At time of transplantation, 794 patients (73.9%) were on haemodialysis. Of these, 458 (57.7%) used AVF, 36 (4.5%) used AVG, and 300 (37.8%) used tunnelled central venous catheters (TCVCs) (Fig. 1). Follow-up data

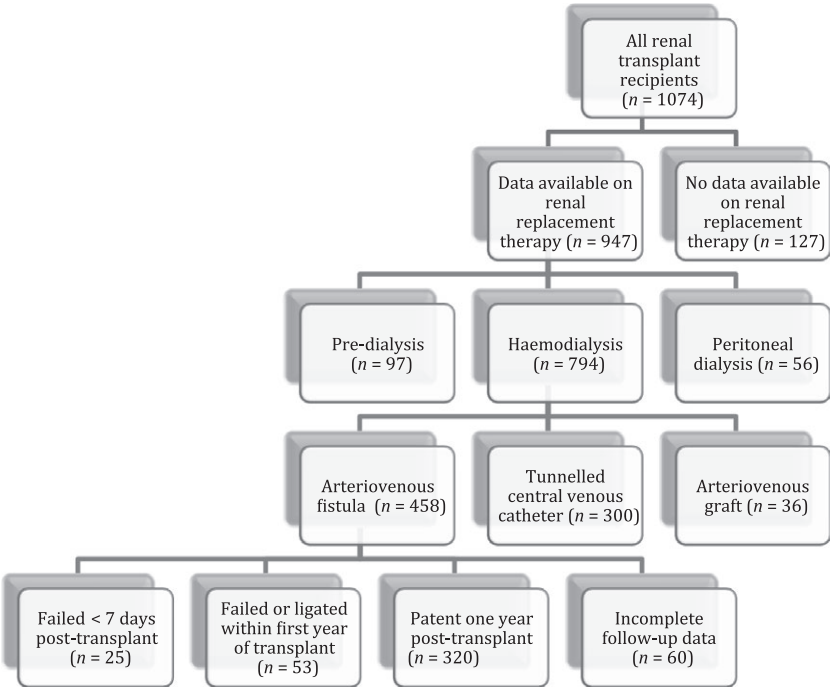

Figure 1 Fate of the fistula following renal transplantation.

were available for 398 of the AVF (86.9%) (mean follow-up 5.2 ± 1.3 years). 25 AVF (6.3%) clotted in the early post-transplant period (<7 days). 320 AVF (80.4%) remained patent at 1 year following transplantation. 52 AVF (13.1%) were ligated. Of the 52 AVF that were ligated, 42 were performed for cosmesis (30 brachiocephalic fistulae and 12 radiocephalic fistula; 47.6% male), seven for arm swelling with central vein stenosis, two for rupture, and one for high output cardiac failure. Our patients were not routinely screened for high access flow rates or pulmonary hypertension; the case of high output cardiac failure was diagnosed on clinical grounds. 98 patients (24.6%) had graft loss during the follow-up period. Of these, 65 (66.3%) had a functioning AVF at the time of graft loss. A further four patients (4.1%) underwent mechanical thrombectomy to restore patency of a thrombosed AVF at the time of graft loss. Of the 29 others, only three (10.3%) had a de novo AVF at the time of re-commencing haemodialysis.

Within our patient cohort, the majority of AVF continued to function without complication following transplantation, with most patients opting to maintain their AVF. Two-thirds of patients with graft loss re-commenced haemodialysis through their original AVF; however, of those who had lost their AVF, the overwhelming majority required insertion of a TCVC.

We would advocate that AVF should be preserved wherever possible following transplantation. In particular, we would dissuade ligation of AVF for cosmesis and support alternative strategies (e.g. angioplasty of central vein stenosis) to preserve access post-transplantation, given that these patients are likely to be the most difficult to achieve definitive access again in the future. In those who loose their AVF, further vascular access should be considered early in the process of graft loss, and a de novo arteriovenous fistula created in all patients who are within 6 months of graft failure.

Patients with failing allografts present a unique management challenge. Medical care must be optimized whilst also addressing the psychosocial implications of re-initiation of dialysis. Further work is required to determine the impact which prevalent vascular access at the time of graft loss has on patient survival, quality of life and healthcare costs.

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Conflicts of interest

The authors have declared no conflicts of interest.

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