

Letters to the Editor

RE: EFFECT OF FUROSEMIDE ON DIALYSIS REQUIREMENT FOLLOWING CADAVERIC KIDNEY TRANSPLANTATION

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J. Urol., 133: 950-951, 1985

To the Editor. We were surprised to read in this article that more than 70 per cent of the patients had significant post-transplant acute tubular necrosis, defined by the need for dialysis for any reason within 1 week after transplantation. The authors claim that this high rate of acute tubular necrosis simply reflects the length of total ischemia time (average 35 hours). Even if we agree that the risk of acute tubular necrosis increased with the length of total ischemia time,¹ we believe that a lower rate of acute tubular necrosis may be achieved especially by following a protocol of maximal hydration of the recipient during the transplantation procedures.

We reported previously the incidence of acute tubular necrosis at our center among 419 primary cadaveric kidney transplants performed under conventional immunosuppression (azathioprine, prednisone and antilymphocyte globulins). In the subgroup of 139 grafts preserved during 36 to 61 hours (mean $\pm$ standard deviation 41 ± 4) the incidence of acute tubular necrosis was only 23 per cent. This low rate compared to that reported by the authors is unlikely owing to significant differences in donor conditions and harvesting as suggested by Sagalowsky in the editorial comment. All of our grafts were obtained from brain-dead cadaveric donors and they were preserved by simple cold storage with Euro-Collins' solution. The mean first warm ischemia time was 3.4 ± 4 minutes. Therefore, we believe that our lower incidence of acute tubular necrosis must be explained by our policy regarding the perioperative conditions of the recipient. Indeed, we demonstrated that maximal hydration of the recipient during anesthesia significantly decreases the risk of acute tubular necrosis at our center.² These results were confirmed further by a multicenter survey within the Eurotransplant Organization.³

This low rate of acute tubular necrosis despite extended total ischemia time was achieved in recipients under conventional immunosuppression. With cyclosporine A a higher incidence of acute tubular necrosis than with conventional therapy generally was reported. In a prospective randomized study comparing cyclosporine A with conventional therapy in 1983 we found effectively a 45 per cent incidence of acute tubular necrosis among 40 patients on cyclosporine A compared to only 14 per cent among 49 patients on conventional therapy.⁴ Total ischemia time was equally long in both groups (mean 37 hours). In 1986 we attempted to decrease the total ischemia time in cyclosporine A-treated patients (see table) for a mean total ischemia time of 29 hours. The incidence of acute tubular necrosis in the cyclosporine A group currently is as low as that in the conventional group.

In an effort to decrease the incidence of post-transplant acute tubular necrosis more attention should be paid to achieving optimal hydration of the recipient during anesthesia.

Respectfully,
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Reply by Authors. Since the completion of our study in October 1984 cadaver kidney transplant recipients have received intraoperative fluids to maintain a central venous pressure of at least 12 cm. water in addition to a mannitol infusion of 0.75 to 1.0 gm./kg. In April 1985 in situ flushing was introduced to our community-based cadaver kidney retrieval program. The incidence of delayed graft function in a series of cadaver kidney transplants between that date and November 1986 was 43 per cent of 75 cyclosporine-treated recipients. Delayed graft function was the need for dialysis within 1 week after grafting or in recipients not on dialysis it was the failure of a sustained decrease in serial serum creatinine levels beginning within 24 hours after grafting. Cyclosporine was initiated just before transplantation and it was continued regardless of early graft function. Graft survival at 1 year was 86 per cent and the mean serum creatinine levels at 1, 6 and 12 months were 1.9, 1.7 and 1.7 mg./dl., respectively. Mean cold storage time was 32 hours. How many of Squifflet and associates' cadaver kidney graft recipients were not on dialysis at the time of transplantation and, therefore, would not have required dialysis within 1 week after grafting even if the kidney grafts had significant delayed function?

Cadaver donor treatment, warm and cold ischemia times, recipient preparation and immunosuppression induction protocols with nephrotoxic agents, such as cyclosporine, all have roles in the incidence of delayed graft function.

Note by Editor. According to a note by Doctor Squifflet all 419 primary cadaveric kidney transplant recipients were on dialysis at the time of transplantation.

RE: ENDOUROLOGICAL RECONSTRUCTION OF POSTERIOR URETHRAL DISRUPTION

I. J. Fishman, I. H. Hirsch and B. D. Toombs

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To the Editor. The principle described by the authors works well and we have been "scooped" again. We have reconstructed endourologically 14 totally obliterated urethras after pelvic trauma. The last 2 cases were facilitated by passing a Goodwin sound through the supra-

Total ischemia time and incidence of acute tubular necrosis according to the immunosuppressive regimen

Immunosuppressive Therapy	No. Pts.		Acute Tubular Necrosis (%)		Total Ischemia Time (hrs.)*	
	1983	1984	1983	1984	1983	1984
Cyclosporine	40	32	45	19	37 $\pm$ 9	29 $\pm$ 9
Conventional	49	46	14	22	37 $\pm$ 8	35 $\pm$ 9

* Mean $\pm$ standard deviation.