Transpl Int (2000) 13 [Suppl 1]: S92–S94

A.R. Pontin
M.D. Pascoe
J.F. Botha
V. Tandon
D. Kahn

Does rural follow-up of renal allografts give impaired graft survival?

A.R. Pontin · M.D. Pascoe · J.F. Botha · V. Tandon · D. Kahn
Department of Surgery,
University of Cape Town and Groote Schuur Hospital, Cape Town, South Africa

D. Kahn (✉)
Organ Transplant Unit,
Department of Surgery,
UCT Medical School, Observatory 7925,
Cape Town, South Africa
e-mail: kannemey@uctgsh1.uct.ac.za,
Fax: + 27-21-4486461

Abstract In this study, we compared the patient and graft survival after renal transplantation in patients followed up in rural centers against those in a major transplant center. There was a greater proportion of patients having a living related donor transplant and having prolonged cold ischemic times in the group followed up in a rural centre. The patient and graft survival at 1, 3 and 5 years were similar for local and rural patients. We conclude that a centralized transplant unit with follow-up of patients in rural centers optimizes the use of highly skilled personnel.

Key words Renal allografts · Graft survival · Renal centres

Introduction

In South Africa, renal transplants are performed at the seven teaching hospitals located in the major centers. However, many patients with end-stage renal failure are dialysed in rural dialysis units and are referred to the centralized transplant units for renal transplantation. Following transplantation, the patients are referred back to the rural centers for follow-up by either general physicians with limited nephrological experience or general practitioners. The aim of this study was to determine if the graft survival of patients followed up in rural centers was worse than the patients followed up in a centralized transplant unit.

Patients and methods

The records of all patients who underwent renal transplantation in the Transplant Unit at Groote Schuur Hospital in Cape Town between 1982 and 1989 were retrospectively reviewed. All patients received standardized perioperative management. In particular, conventional surgical techniques were used for the procurement of the organs from the donor and subsequent implantation into the recipient. All procedures were performed by the same team of surgeons.

The Unit in Cape Town is the referral transplant centre for four dialysis programmes which are situated between 400 and 1200 km from Cape Town. Donor organs were allocated according to blood group compatibility, a negative lymphocytotoxic crossmatch and HLA matching, with preference given to the patients in the centre from which the donor organs were retrieved. Patients from rural centres have to travel to Cape Town on scheduled air flights when called for a transplant.

The immunosuppression protocol consisted of cyclosporine (10 mg/kg per day in two divided doses), azathioprine (1–2 mg/kg per day), and methylprednisolone (24 mg/day). The dose of cyclosporine was adjusted according to the cyclosporine level. The cyclosporine was withdrawn at either 3 months (1982–1986) or 6 months (1986–1989), and the patients maintained on azathioprine and steroids [1]. Acute rejection episodes were diagnosed clinically and occasionally confirmed histologically. Acute rejection episodes were treated with bolus doses of intravenous methylprednisolone 500 mg daily for 4 days. Steroid-resistant acute rejection was treated with either monoclonal or polyclonal anti-T-lymphocyte antibodies.

The patients were managed in the transplant unit for at least 14 days following the transplant. After discharge from the transplant unit, the local patients were followed up in the transplant clinic by the nephrologists. The patients from the rural centres were discharged back to the care of the original referring practitioners. The latter were either general physicians or general practitioners.

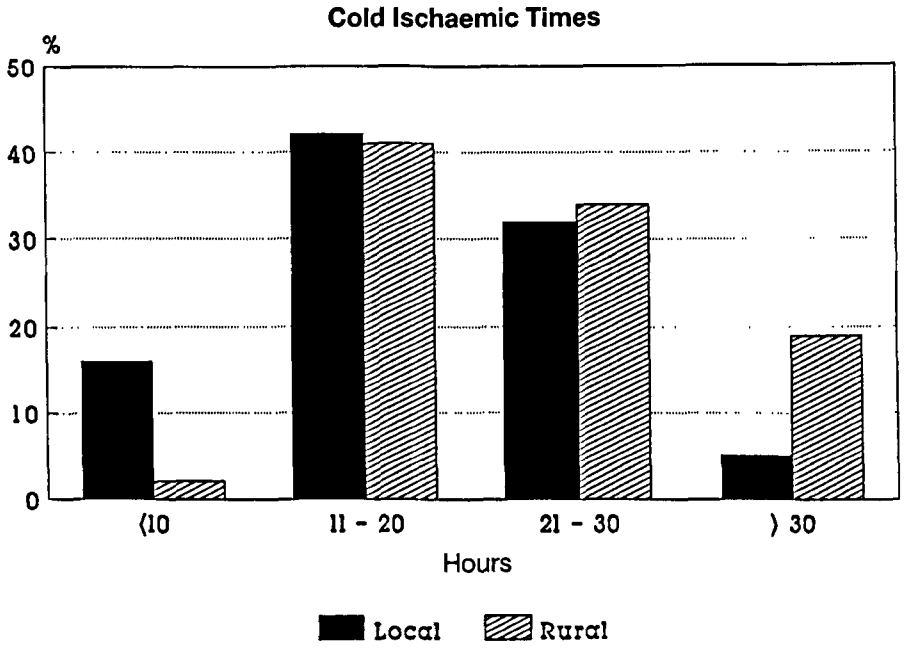

Fig. 1 Cold ischemic times in local and rural patients

Table 1 Source of donor kidney, previous transplant, sensitization and degree of matching in local and rural patients

	Local	Rural	*P*-value
Patients	299	181	
Cadaver donor	266	137	
Living related donor	33 (11%)	44 (24%)	< 0.05
Re-transplant	17%	15%	NS
PRA > 30%	31%	19%	NS
< 4 HLA A,B,DR-MM	18%	23%	NS

Results

A total of 480 renal transplants were performed in the Transplant Unit at Groote Schuur Hospital between 1982 and 1989. This included 299 patients from Cape Town (local patients) and 181 patients referred from rural centres. There were 403 cadaver donor renal transplants (266 local patients and 137 rural patients) and 77 living related donor transplants (33 local and 44 rural). Thus, there was a greater proportion of rural patients (24%) having a living related transplant compared to the local patients (11%) (Table 1).

There were more sensitized patients (PRA > 30%) in the local group compared to the rural group (31% and 19%, respectively). The numbers of patients undergoing retransplantation were similar in the local and rural groups (17% and 15%, respectively). The degree of HLA matching was poor for both groups of patients, with only 18% of the local patients and 23% of the rural patients having fewer than four HLA-A, B and DR mismatches. The fact that the rural patients had to travel to Cape Town on scheduled air flights often resulted in significant delays in the transplant. Thus, more patients in the rural group had prolonged cold ischemic times (Fig. 1).

The actual graft survival after cadaver renal transplantation at 1, 3 and 5 years was 61%, 50% and 41%, respectively, in rural patients and 61%, 49% and 40%, respectively, in local patients. Similarly, there was no difference in actual graft survival after living related transplantation at 1, 3 and 5 years between rural patients (90%, 79% and 72%, respectively) and local patients (90%, 84% and 72%, respectively.

Discussion

In this study, we compared the outcome of renal allografts in patients followed up in a major transplant centre with patients cared for by general physicians in rural centres. This analysis showed that for both cadaver renal transplants and living related renal transplants, the graft survival in patients followed up locally was similar to that in the patients followed up in rural centers. These data show that transplantation of patients from rural centers is not a waste of valuable organs. Furthermore, having a central transplant unit with several rural dialysis units optimizes the use of highly trained personnel.

The patients from rural centers were compromised in that they had to travel long distances on scheduled air flights to the transplant unit, resulting in delays in the transplant. This was reflected in the greater proportion of rural patients with prolonged cold ischemic times. Patients from rural centers are further disadvantaged by

being away from home and not having the support of their families during very stressful times.

There is a problem with regard to equity in access to renal transplantation, with local patients being transplanted fairly soon after starting dialysis. In contrast, patients from rural centers tend to wait longer and often have to resort to having a living related kidney transplant. The proportion of rural patients having a living related donor transplant was greater than for local patients.

In conclusion, we believe that a centralized renal transplant programme, with specialist transplant physicians and surgeons, and follow-up of recipients in rural centers with general physicians, optimizes the use of personnel without compromising the success of the transplant. In view of the similar graft survival, we believe that patients from rural dialysis centers should have equal access to the valuable resource of cadaver organs.

References

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