

LIVING RELATED RENAL TRANSPLANTATION IN KUALA LUMPUR

ABU BAKAR SULEIMAN
HUSSEIN AWANG
PROEHOEMAN F.
ROSLAN ARSHAD

SUMMARY

Fifty-six living related renal transplants were performed between December 1975 and December 1980. All except eight of the recipients were male. The mean age was 29.5 years. Patient and graft survival were 86 percent and 73 percent at 1 year and 83 percent and 68 percent at 2 years respectively. Infection was the main cause of death and acute and chronic rejection were the main causes of graft failure. The donors were aged between 18 and 72 years old. There were 21 parent and 35 sibling donors. Donor nephrectomies were performed without mortality and our experience so far with the transplantation of kidneys from elderly donors has been encouraging.

INTRODUCTION

The treatment of end stage renal disease would ideally involve an integrated programme of chronic dialysis and transplantation after conservative treatment becomes inadequate to maintain good health. This type of programme is extremely demanding on the manpower and financial resources of any developing country, and it is not unexpected that it may not be placed on high priority in the health care system of such countries. Such a system however has been in

practice in Malaysia. Attempts to obtain cadaver kidneys for transplantation have not been successful, and in view of the existing social and cultural background, this attitude among the local population is not likely to change for a long time. Living related donors shall continue to be the source of kidneys for patients undergoing transplantation in this country. This report reviews our experience with living related renal transplantation over a 5 year period.

MATERIALS AND METHODS

Between December 1975 and December 1980, 56 patients were transplanted, 48 were males and 8 females. Their ages ranged between 16 and 45 years with a mean age of 29.5 years. The causes of chronic renal failure are in Table I. All patients were on chronic haemodialysis before transplantation.

Routine radiological investigations were performed to rule out abnormalities of the urinary outflow tract. Bilateral nephrectomy was performed on 3 patients and vagotomy and antrectomy on 1 patient prior to transplant surgery. Azathioprine and Prednisolone were started before surgery. Blood transfusions were given for severe anaemia or as replacement for blood loss before surgery. Acute rejection episodes were treated by 1 gram intravenous bolus doses of Solumedrol.

Tissue typing was performed on all prospective donors and recipients. Donors were aged between 18 and 72 years, 35 were sibling and 21 parent donors. Those with 1 or 2 haplotype identity with negative cross matches were considered as donors. All donors were carefully evaluated medically before surgery.

Abu Bakar Suleiman, FRACP
Dept. of Nephrology
Hussein Awang, FRACS
Proehoeman F. M.D
Roslan Arshad, FRACS
Dept of Urology
Institute of Urology and Nephrology
General Hospital
Kuala Lumpur

TABLE I
AETIOLOGY OF CHRONIC RENAL FAILURE SEEN
IN 56 PATIENTS

CAUSES OF CHRONIC RENAL FAILURE	NO. OF PATIENTS
End stage renal failure	39
Chronic glomerulonephritis	12
Chronic pyelonephritis	3
Malignant hypertension	1
Calculous disease	1
Total	56

RESULTS

Fifty-six transplants were performed on 56 recipients. There were 10 deaths. Patient survival calculated by the life table method ¹ was 86 percent at 1 year and 83 percent at 2 years. Liver failure caused deaths in 2 patients who were hepatitis B positive. Three deaths occurred during acute rejection episodes, 1 of severe gastrointestinal bleeding, another of intraabdominal bleeding associated with disseminated intravascular coagulation, and the other of acute bacterial endocarditis.

Graft survival was 73 percent 1 year and 68 percent at 2 years. Graft survival from sibling donors was 69 percent at 1 year and 64 percent at 2 years and from parent donors was 76 percent at 1 year and 67 percent at 2 years. Seven patients were returned to chronic haemodialysis following graft failure due to acute rejection in 2, chronic rejection in 3, renal vein thrombosis in 1 and infected arterial anastomosis and haemorrhage in 1.

Medical complications encountered included severe life threatening ulcerative colitis occurring soon after surgery in a patient not previously known to have had it. Myocardial infarction occurred in 1 patient who later also developed cirrhosis of the liver. Bilateral cataract occurred in 3 patients and aseptic necrosis of the head of the femur in 2 patients. Transplant renal artery stenosis requiring surgical correction occurred in 1 patient.

Infections were the most common complication encountered and was recently reviewed. ² Our infection rate was 1.5 per transplant recipient and 21 percent of patients were completely free of infection. Infections of the urinary tract was the most common seen, occurring in 37 percent and lung infections occurred in 10 percent. Wound

TABLE II
MORTALITY IN RENAL TRANSPLANT RECIPIENTS

CAUSES OF DEATH	NO. OF PATIENTS
Liver failure	2
Infection	2
Acute rejection	2
Git bleed 1	
Abdo. bleed 1	
Hyperglycaemic coma	1
Suicide	1
Dialysis dementia	1
Perioperative	1
Total	10

infections also occurred in 10 percent of patients. Coagulase positive staphylococcus was the most common organism identified, and the *Klebsiella* *Enterobacter* group and *E. Coli* were the next most common. These 3 groups of organisms accounted for 71 percent of all bacterial infections seen. Pulmonary tuberculosis developed in 1 patient.

Of 39 patients with functioning grafts, 23 had serum creatinine below 150 umol/L, 9 between 15-200 umol/L and 7 above 200 umol/L. All 8 grafts from donors aged 60 years and above were functioning at the time of review.

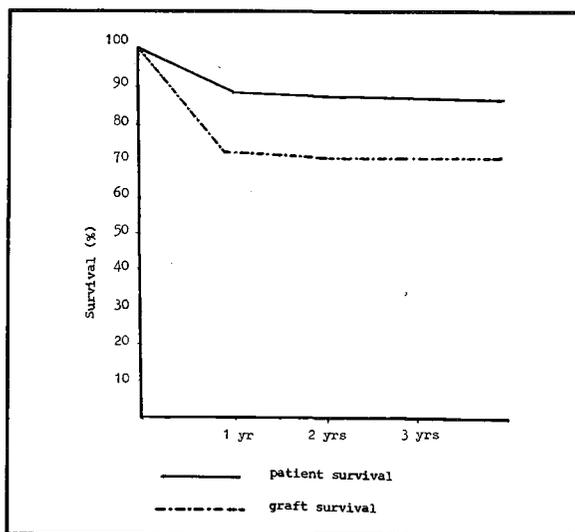


Fig. 1 Living related renal transplantation. (Actuarial survival)

DISCUSSION

The aetiology of end stage renal failure remained

unknown in most patients. Chronic glomerulonephritis was diagnosed in 12 patients. The majority of patients presented for the first time in end stage renal failure and the cause of the underlying disease remained unidentified.

The results showed overall patient and graft survival of 86 percent and 73 percent at 1 year and 83 percent and 68 percent at 2 years. Graft survival from sibling donors and parent donors at 1 year of 69 percent and 76 percent respectively is similar to that reported in the American College of Surgeons — National Institute of Health Human Transplant Registry (1975),³ which showed 75 percent 1 year survival for sibling donors and 70 percent for parent donors. Our results showed that graft survival was marginally better among parent donors than sibling donors.

The results of living related donor transplantation are closely associated with HLA compatibility between donor and recipient,⁴ and transplants between HLA identical siblings should be expected to do extremely well.⁵ Unfortunately HLA typing of the family, apart from the patient and potential donors, could not be performed in most cases.

This resulted in easy recognition of 1 haplotype identity, however 2 haplotype identity could not be ascertained in some cases when 1 or 2 antigens were not identified. From our results we feel justified in using 2 haplotype and 1 haplotype sibling and parent donors. We do not feel justified in using a donor who has a complete lack of haplotype identity with the sibling, and it has been shown that sibling kidneys differing at more than 2 haplotypes do worse than matched cadaver kidneys.⁶

Our infection rate is similar to that of other centres⁷ and pulmonary tuberculosis has not been a difficult problem so far. The 2 deaths due to liver failure have been viewed with concern, especially considering the high exposure rate of patients to Hepatitis B infection in our haemodialysis unit.⁸

Donors were aged between 18 and 72 years, and 8 were aged 60 years and above. We have discouraged prospective donors who were too young from donating, and those who were considered not mature enough to make a decision to donate a kidney. However we have not considered any upper limit for the age of the donors to be an absolute contraindication to donation, as long as they were medically fit. There have been few patients receiving kidneys from elderly donors, and the 8

patients who received kidneys from donors above the age of 60 years still had functioning grafts. As cadaveric kidneys are not available, kidneys from elderly parent donors may be the only hope for many patients. They may be the only prospective donors available and it is important therefore in our circumstances to consider them as donors. The importance of careful and thorough evaluation of all donors cannot be overemphasised and recent experience with living related renal transplantation from elderly donors has been good.^{9,10}

This experience has shown good patient and graft survival, and rehabilitation of patients with functioning grafts has been excellent. Initial experience with transplants using kidneys from elderly donors has been encouraging, and this practice shall be continued.

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