OUTCOME OF REPEATED RENAL REGRAFTING

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Summary

Fifteen patients underwent renal transplantation 4 and in one case 5 times. 7/15 grafts (47%) survived more than one year. The one year graft loss due to rejection was 40%. Seven patients are currently alive — five with excellent graft function and optimal rehabilitation. Two patients are back and well on dialysis. Standard operation technique worked well in all cases. In our opinion repeated renal re-grafting is a well worthwhile procedure.

Introduction

Since the start of the renal transplantation programme in Gothenburg 1965, the transplantation policy has been active and kidney transplantation has been the method of choice for treatment of patients with terminal uraemia. A liberal selection policy has been used both concerning age and general condition. In our centre we have performed more than 1100 renal transplantations. Three hundred of these have been retransplantations, and 15 patients have received a fourth and in one case a fifth renal graft. In the EDTA Registry report from 1978, 33 fourth and 3 fifth time transplantations were reported [1]. A substantial part of these grafts were performed in Gothenburg, and for this reason we report the outcome of these transplantations and try to answer the question whether multiple renal grafting is worthwhile.

Material

Between May 1972 and September 1978 15 patients were transplanted four and in one case five times. Five were female and 10 male. The mean age at start of therapy for terminal uraemia was 32.6 years, at first transplantation 33.1 years and latest transplantation 37.5 years. Three patients were classified as 'high risk' patients at the fourth transplantation — two older patients with complicating skeletal and neurological disease and one woman 38 years old with cardiac failure.
For these three patients transplantation was tried as a last resort because dialysis was judged impossible for medical or psychological reasons.

The standard operation technique utilising the iliac vessels for anastomosis was used in all cases.

All the grafts were HLA-typed and the crossmatch was negative in all cases. Standard immunosuppression with Azathioprine and Prednisolone was used. In no case were ALG or other adjunctive immunosuppressive methods used. All patients have been followed up at our out-patient unit.

Results

Of the 15 patients who received fourth or fifth renal grafts 7 are alive today. Five of these have well functioning grafts while 2 have rejected their kidneys and are back on dialysis. Eight patients are dead. Four died with functioning grafts and 4 died when back on dialysis after rejection of their last renal graft. Five of 15 patients died within one year after the last transplantation — including the three high risk patients.

The patients have been divided into two groups: group I patients who did not reject the latest graft, and group II patients who rejected the latest graft. The individual fates of the patients in the two groups are shown in Figures 1 and 2. Five patients in group I are alive with excellent kidney function while four have died with functioning grafts. Two patients with excellent kidney function more than one year after transplantation died from GI-bleeding and rectal carcinoma respectively. As is apparent from Figure 1, seven patients had long term function of the latest graft. All six patients in group II lost their latest graft due to rejection — five in early acute and one in chronic rejection. Two patients are alive and well on dialysis while four have died.

Graft loss due to rejection in the previous renal grafts was more common in group II than in group I (Figure 1 and Figure 2). All previous grafts in both groups but three were lost due to rejection. Two second and one third graft were lost early because of technical failures.

Seven of the 15 grafts survived more than one year, giving a one year survival of 47%. Two grafts (13%) were lost within one year due to death of the patient, while six (40%) were rejected.

No correlation between graft survival and HLA-A-B-matching was found. In group I the mean number of HLA-A-B mismatches was 1.7 and in group II 1.5. There were two HLA-A-B compatible kidneys in each group. All patients but three in group I had lymphocytotoxic antibodies at the latest transplantation. Four patients in the two groups had broad lymphocytotoxic antibodies (> 90% against a random panel), one of which received a HLA-A-B compatible kidney which maintains excellent function almost two years after transplantation.

The kidney function in the patients with more than one year graft survival was excellent with a mean creatinine level of 109.4 μmol/l (80–150 μmol/l).

Seven of the patients are currently alive. Five of these have excellent functioning grafts while two are maintained on dialysis. All have reached a good rehabilitation level. Four of five with functioning transplants are fully able to work and have a quality of life which is quite comparable to other healthy persons.
Figure 1. The individual fates from start of therapy for terminal uraemia of nine patients who did not reject the latest graft. The time scale denotes time before and after graft number IV or V. The causes of death are shown immediately after the cross sign. PS: Patient survival from start of therapy for terminal uraemia. GS IV or V: Graft survival of the latest graft.

Figure 2. The individual fates from start of therapy for terminal uraemia of six patients who rejected the latest graft. The time scale denotes the time before and after graft number IV. The causes of death are shown immediately after the cross sign. PS: Patient survival from start of therapy for terminal uraemia. GS IV: Graft survival of the latest graft.
One of the patients has not yet returned to work because of psycho-social reasons. The two patients on haemodialysis are both well rehabilitated and working half-time.

Comments

Many transplant surgeons and nephrologists are of the opinion that the prognosis for regrafts is worse than for primary grafts. This is certainly true when the patients have lost their transplants in early acute rejection [2–6]. In this study we found an encouraging one year graft survival of 47%. The graft loss due to rejection was only 40% despite the presence of lymphocytotoxic antibodies in 80% of the patients.

The fate of the previous grafts influenced the prognosis of the latest graft in most, but not all cases. The outcome was poor when the previous grafts were lost in early acute rejection.

Three of 15 patients were not sensitised by the previous grafts as indicated by absence of lymphocytotoxic antibodies. None of these three patients rejected their latest graft, which is well in accordance with earlier observations [5].

The presence of multispecific antibodies negatively influenced the prognosis of the graft. However, when an HLA-A-B compatible kidney is transplanted to a patient, long term graft survival and excellent kidney function can be obtained as illustrated by our patient Y.J. (Figure 1).

Conclusion

It is possible to obtain long term graft function and excellent rehabilitation after fourth and fifth renal transplantations despite previous graft failure due to rejection. The standard operation technique can be used. In our opinion repeated re-grafting is well worthwhile.

References

2 Ascher N, Ahrenberg D, Simmons R, Najarian J. Transplantation 1979; 27: 30
3 Gustafsson A. Scand J Urol Nephrol 1974; suppl 22
4 Heideman M, Claes G. Transpl Proc 1977; 9: 77

Open Discussion

SLOOF (Groningen) Did the presence of cytotoxic antibodies influence your results?

FRISK As I said, all but three patients had lymphocytotoxic antibodies and four of them had multispecific antibodies. The three patients who had no lympho-
cytotoxic antibodies were all in group one. Three of four patients with multi-specific antibodies were in group two, so of course the presence of antibodies influenced the results.

SLOOF Does it matter how many months or even years you take between sequential transplantation?

FRISK The interval between sequential transplantations had no influence on the results.