

# Kidney-Graft Survival in Simultaneous Kidney-Pancreas Transplantation

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**Patient and kidney survival rates were compared between 69 diabetic patients undergoing simultaneous kidney-pancreas transplantation (group 1) and 723 nondiabetic patients undergoing kidney transplantation (group 2). The patients were treated with different immunosuppressive regimens over the years: steroids plus antilymphocyte globulin (ALG) plus azathioprine (Aza); cyclosporin A (CsA) plus ALG; steroids plus ALG plus Aza, replacing Aza 1 mo posttransplantation; or low doses of steroids plus CsA plus Aza. One-year kidney survival rates with the different regimens were 50, 42, 54, and 76%, respectively, in group 1 and 71, 74, 78, and 84%, respectively, in group 2. Patient survival was 60, 57, 71, and 86%, respectively, in group 1 and 93, 95, 94, and 96%, respectively, in group 2. Differences between the two groups were statistically significant for the first three protocols but not for the one used in this study. In group 1, 38 patients (55%) had a functioning kidney graft, whereas 15 (21%) lost their kidney to rejection. Between these two patient categories, there was no significant difference in age, sex, duration of diabetes, time on dialysis, blood transfusion number, HLA immunization, or HLA matching. Thus, since 1984, kidney-graft survival has not been inferior in diabetic patients. This improvement is mainly due to a decreased mortality related to better patient preparation and improvement in immunosuppression. *Diabetes* 38 (Suppl. 1):38–39, 1989**

**D**iabetes has always been considered a risk factor in kidney transplantation (1). However, results have recently improved markedly, becoming comparable with those obtained in nondiabetic patients (2). In this study, we compared patient and kidney survival rates between diabetic and nondiabetic patients

transplanted during the last 7 yr. Furthermore, in the group of diabetic patients with kidney-graft failure resulting from rejection, we analyzed some possible risk factors.

## MATERIALS AND METHODS

Between January 1980 and July 1987, we treated 69 insulin-dependent diabetic patients with simultaneous cadaveric kidney-pancreas transplantation (group 1) and 734 nondiabetic patients with 799 kidney transplantations from cadaveric or living donors (group 2). The immunosuppressive protocols were slightly different in the two groups and varied at different periods (Table 1). Patient and kidney survival rates at 1 yr were analyzed according to the different regimens. In the group of diabetic patients with irreversible kidney rejection, we analyzed the following possible risk factors for rejection: age, sex, duration of diabetes, duration of hemodialysis, degree of immunization, and HLA matching.

## RESULTS

Patient survival rates at 1 yr according to the different immunosuppressive regimens were 57% (1980–1981), 57% (1981–1982), 71% (1982–1984), and 86% (1984–July 1987), respectively, in group 1 and 93, 95, 94, and 96%, respectively, in group 2. Kidney-graft survival rates at 1 yr were 29, 42, 54, and 76%, respectively, in group 1 and 71, 74, 78, and 84%, respectively, in group 2. The differences were significant ( $P < .001$ ) when the results of the two patient groups treated according to the first three protocols up to the end of 1984 were compared.

Within the group of diabetic patients, 38 had a functioning kidney graft (Table 1, group 1A), whereas 15 patients lost their kidneys to acute or chronic rejection (group 1B). The mean time for kidney loss was  $19.9 \pm 16.1$  mo (range 1 mo to 7 yr) posttransplantation. No significant difference was observed between groups 1A and 1B for the following factors: age (means  $\pm$  SD  $35.9 \pm 10.0$  vs.  $32.3 \pm 6.1$  yr), sex (M/F 1.43 vs. 3.79), duration of diabetes ( $25.6 \pm 6.7$  vs.  $21.9 \pm 5.9$  yr), duration of hemodialysis ( $19.9 \pm 4.2$  vs.  $13.1 \pm 2.6$  mo), pretransplantation blood transfusion number ( $4.6 \pm 3.0$  vs.  $4.5 \pm 3.1$ ), anti-HLA antibodies at trans-

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TABLE 1  
Immunosuppressive regimens

Date	Group 1 (n = 69)	Group 2 (n = 799)
1/80–5/81	A: Aza, steroids, ALG (4 wk)	Aza, steroids, ALG (4 wk)
6/81–6/82	B: CsA, ALG (4–12 wk)	CsA, ALG (4–12 wk)
7/82–9/84	C: Aza, steroids, ALG (4 wk), CsA after 4 wk	Aza, steroids, ALG (4 wks), CsA after 4 wk
10/84–7/87	D: Aza, low doses of steroids, CsA	Aza, low doses of steroids, CsA, CsA after 3–4 wk since 1986

Group 1, diabetic patients; group 2, nondiabetic patients. Aza, azathioprine; ALG antilymphocyte globulin; CsA, cyclosporin A.

plantation time (32 vs. 36%), and mean HLA matching ( $1.0 \pm 0.9$  vs.  $1.5 \pm 0.7$ ). Acute rejection episodes in the first 3 mo were significantly more frequent in group 1B ( $1.1 \pm 0.0$  vs.  $1.6 \pm 0.7$ ;  $P < .001$ ).

## DISCUSSION

From 1980 to 1987, patient and kidney-graft survival rates progressively improved, and since the end of 1984, the kidney-graft survival rate has been similar in diabetic and non-diabetic graft recipients. Improvement in patient survival was related to better preoperative evaluation and to better immunosuppressive management. Improvement in kidney-graft survival was partly due to the increased patient survival but was also a consequence of a reduction in the number of grafts lost to rejection. This improvement was particularly marked in the diabetic patients who received kidney-pancreas grafts. There were no significant differences in patient and kidney survival rates between these patients and non-diabetic recipients of kidney grafts. Therefore, based on our recent experience, neither diabetes nor an associated pancreas transplantation appears to pose an additional risk to the kidney graft.

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