

## *Registry Report*

### **Renal Transplantation in Diabetic Patients with or Without Simultaneous Pancreatic Transplantation 1986: Data from the EDTA Registry**

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**Abstract.** This report summarises the outcome of 90 combined kidney/pancreatic grafts performed in Europe in 1986. Data for the combined kidney/pancreas grafts were obtained by a special questionnaire. The one-year patient and kidney graft survival is compared to the results of a group of 389 patients with diabetic nephropathy on the EDTA Registry data file who received kidney grafts alone. The recipients of combined kidney-pancreas grafts were younger, whereas a greater proportion of males received kidney graft alone. Patient survival at one year after transplantation was similar: 89% in recipients of combined transplants compared to 90% in recipients of kidney grafts alone. Kidney graft survival was 78% at one year for recipients of combined grafts versus 76%. It is concluded that pancreas transplantation has little effect on the fate of concomitant kidney grafts. The procedure should – in

experienced hands and in selected patients – be almost as safe as kidney grafting alone.

**Key words:** Diabetic nephropathy; Combined kidney/pancreas transplantation

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#### **Introduction**

Ever since the advent of combined pancreas and kidney grafting in patients with diabetic nephropathy, the advantages and hazards of pancreatic grafting have been a matter of controversy. The impact of pancreatic grafting on patient survival and on the fate of the simultaneously transplanted kidney graft have been discussed extensively [1-4]. In 1984 McMaster and co-workers [4] suggested that combined grafting was not hazardous either to the patient or to the kidney graft. However, this conclusion was based on a small number

of cases. Data presented from the International Pancreas Registry in Minnesota [5] showed reasonably good kidney graft survival, even though an adequate control group of patients receiving kidney grafts without pancreatic grafts was lacking.

To analyse further the question of patient and graft survival, the EDTA Registry investigated the results of 90 combined kidney/pancreas grafts performed in 1986 in Europe.

## Material and Methods

A total of 122 combined kidney/pancreas transplants performed in 1986 in Europe were brought to the attention of the EDTA Registry through the 1986 centre questionnaire supplemented by information from National Keymen and other sources. A total of 96 special questionnaires were sent in early 1988 to all centres that reported having performed two or more combined grafts in 1986. Information was sought on individual graft recipients concerning sex, date of birth, date of transplantation, date of failure of pancreas/ or kidney graft, date of death, or whether the patient was alive at the end of 1987. Of the 96 questionnaires, 90 (93.8%) were completed and returned.

A control group was selected from the EDTA patient file. This control group consisted of all (389) reported kidney grafts in patients with diabetic nephropathy performed in 1986 in the following countries: Belgium, Denmark, Federal Republic of Germany, Finland, France, Switzerland, and the United Kingdom. Care was taken to exclude patients from these countries who had been subjected to combined kidney and pancreas grafting. Actuarial patient and graft survival rates were computed when the complete patient data up to the end of 1987 were available.

In all instances, standard actuarial methodology was used. Patient death with a functioning graft was counted as graft failure in the calculations.

## Results

Table 1 depicts the distribution of the combined kidney/pancreas grafts in 1986 by country. There was a relative predominance of combined grafts in Sweden and Norway. The remainder of the grafts were performed in Central Europe and relatively few in France, the United Kingdom, and Italy. Because of the uneven distribution of the combined grafts it was felt that a control group of recipients of kidney grafts alone should be restricted to a similar geographical area. However, Sweden and Norway were omitted as it was felt that the remainder of

the diabetic graft recipients in these Scandinavian countries who had not received combined grafts might introduce a bias through a selection of higher-risk patients.

**Table 1.** Number of combined kidney/pancreatic transplants performed in 1986 according to country. In 1986, 26 centres reported performing 122 combined kidney/pancreatic transplants

Country	Transplants (n)
Austria	5
Belgium	3
Czechoslovakia	4
France	13
FRG	25
GDR	2
Italy	3
Netherlands	10
Norway	10
Spain	4
Sweden	31
Switzerland	4
UK	8
Total performed in 1986	122

### Age and Sex Distribution

Figure 1 shows the age and sex distribution of patients who underwent combined kidney and pancreas grafting (Fig. 1a) and those who received a kidney graft alone (Fig. 1b). In general, recipients of combined grafts tended to be younger. The median age at transplantation was 36 years for patients with combined grafts and, at 39 years, was slightly greater for recipients of kidney grafts alone (non-significant). Only three patients who received combined grafts were between 50 and 60 years old, whereas 16% of the kidney recipients were aged between 50 and 60 years, and 3% were over 60 years old. The sex distribution of 53% males versus 47% females for recipients of combined grafts differed strikingly from the patients receiving kidneys alone, of whom 65% were male and 35% female.

### Patient and Graft Survival

The patient survival is shown in Figs 2a and 2b. It was almost equal in the two groups, with 89% survival at 1 year for recipients of combined grafts compared to 90% for recipients of kidney graft alone. The kidney graft survival also differed little, with a 1-year survival of 78% with combined grafting versus 76% in patients without pancreatic grafts. The pancreas graft survival shown in Fig. 2a was 65% at 1 year.

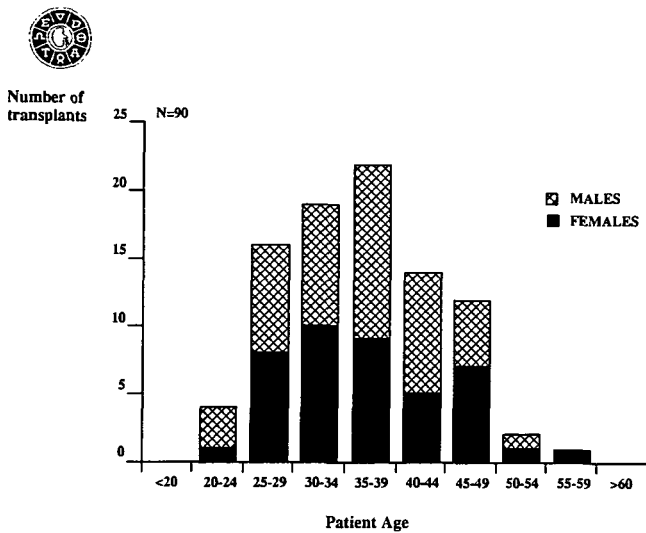


Fig. 1a. Age distribution at combined kidney and pancreas transplantation for diabetic ESRF, 1986.

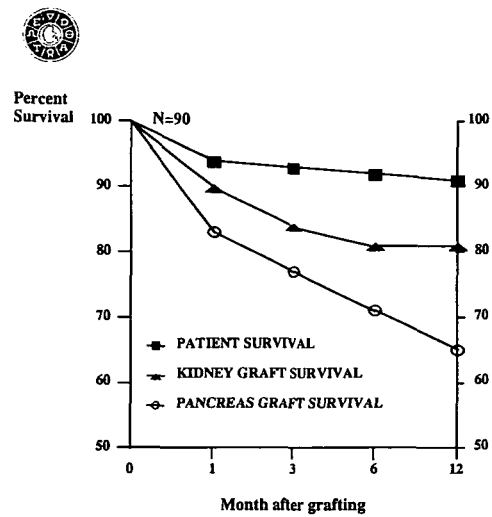


Fig. 2a. Diabetic ESRF: Survival after combined kidney and pancreas transplantation, 1986.

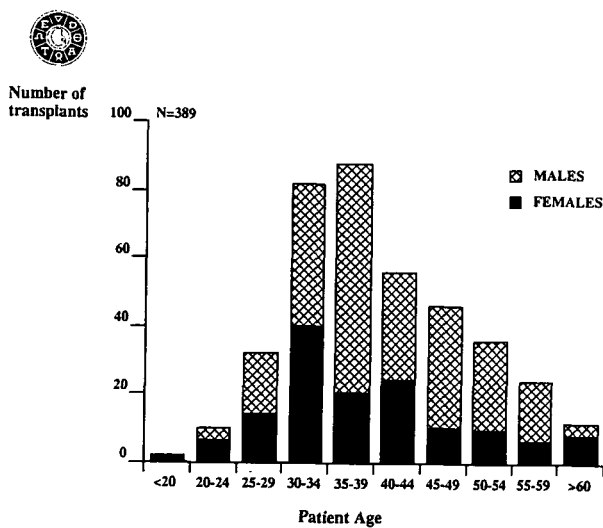


Fig. 1b. Age distribution at kidney transplantation for diabetic ESRF, 1986.

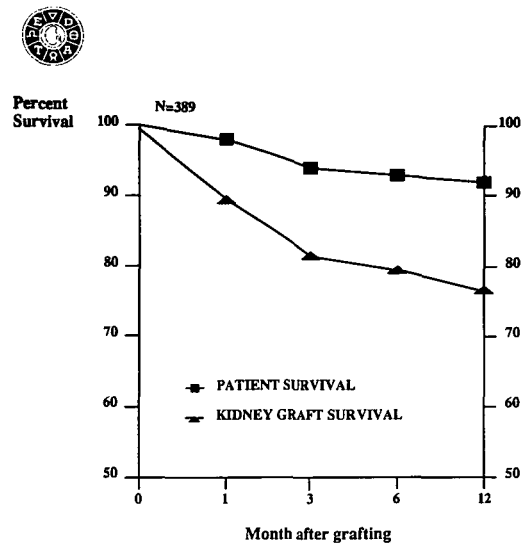


Fig. 2b. Diabetic ESRF: Survival after kidney transplantation, 1986.

### Discussion

The present report demonstrates that both patient and kidney graft survival are comparable in patients undergoing either kidney transplantation alone or combined with pancreas transplantation. The outcome of kidney transplantation with concomitant pancreas grafting was compared to the results of kidney grafting in patients with diabetic nephropathy who underwent transplantation during the same year and who were from a similar geographical area. Although this comparison cannot match the criteria of a randomised study, it nevertheless provides a useful comparison of the two surgical approaches. Details of sex and age distribution suggest

that the two groups are not entirely comparable. For unknown reasons, females appeared to be accepted for combined transplantation at the slightly higher proportion of 47% as compared to the 42% female prevalence with diabetic nephropathy (44% for type I diabetes mellitus) among patients accepted for renal replacement therapy in 1983–1985 [6]. Similarly, and in contrast to recipients of combined grafts, male patients with diabetic nephropathy were selected preferentially for kidney transplantation alone, as shown by the sex ratio of 66% males versus 34% females. These sex imbalances between the two groups should, in any event, have little influence on patient and graft survival. The results of kidney transplantation have long been

known to be identical or very similar [7] when comparing males with females. The difference in age distribution (which is not statistically significant) would be predicted to result in slightly better patient survival in the younger recipients of combined grafts, whilst the effect on kidney graft survival is likely to be small [8]. That no such differences were apparent might be due to the relatively small number of patients included in the present study. Also, the much improved patient survival rates attained in recent years makes detection of small differences very difficult.

As the early postoperative hazards following combined kidney and pancreas grafting now appear to be comparable to those of kidney grafting alone, and the kidney graft survival is not adversely affected by pancreatic grafting, it seems justified to continue to perform combined grafts, at least in surgical units with the appropriate experience [9]. The outcome of pancreatic function in patients undergoing combined grafting is also encouraging, since only 20% of the patients with a functioning kidney graft had lost their simultaneously transplanted pancreas within the first year. Most of the pancreatic graft losses were confined to the first three months after transplantation, and the survival of a pancreas graft alone after kidney graft failure seems to be a rare event (one patient only in this series).

It is the intention of the EDTA Registry to obtain follow-up information on the present cohort of patients with combined kidney/pancreas grafts within 2–3 years, in order to establish any possible beneficial long-term effects of simultaneous pancreas grafting.

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