Pancreatic Transplantation

Impact on the quality of life of diabetic renal transplant recipients

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OBJECTIVE — To determine the impact of pancreas transplantation on the quality of life of renal transplant recipients with diabetes.

RESEARCH DESIGN AND METHODS — In this quasi-experimental comparative study of 41 successful pancreas transplant (SP) recipients, 13 failed pancreas transplant (FP) recipients, and 28 kidney alone (KA) transplant recipients, we collected data from individuals who had their pancreas/kidney or kidney alone transplants ≥6 months before at a university tertiary care center. This study was an extension of a 1992 study of SP and FP recipients. The subject group was enlarged with additional pancreas/kidney recipients and a control group of KA recipients. Five dimensions of life quality were measured.

RESULTS — Groups did not differ significantly regarding age, gender, marital status, comorbidity, type of prior dialysis, current kidney function, length of time since transplant, physical activity, symptom burden, emotional state, and feelings of well-being. A significant time by group interaction occurred for quality of life ($P = 0.0023$) and health ($P = 0.0001$). Patients in the SP and KA groups perceived their past life and health quality to be significantly lower and their present and future life and health quality to be significantly better than did the FP group. The groups' major concerns differed significantly. The FP group's concern related to diabetes, the SP group's to immunosuppression, and the KA group's to graft rejection.

CONCLUSION — Patients with failed pancreas but successful kidney transplants see less improvement in their quality of life than do patients who meet their transplant goals, irrespective of whether they receive a pancreas.

Uremic diabetic patients must balance the risks and benefits of the combined kidney/pancreas transplant when choosing treatment options. Prospective studies of successful pancreas and kidney transplant (P/K) recipients and kidney alone transplant (KA) recipients found significant improvement in all subjects' quality of life (1,2). A third prospective study noted significant improvement in P/K and KA recipients' health perceptions, with the P/K group experiencing greater control (3). A study by our group (4) and one by another group (5) reported that recipients of successful pancreas transplants perceived significantly greater improvements in health and life quality than did recipients of unsuccessful transplants. Studies (6–10) comparing groups of P/K recipients with KA recipients have found that perceived quality of life does not differ significantly.

These comparisons have been limited by small numbers. Also, many studies have not indicated whether the subjects consciously declined pancreas grafting. This study attempts to overcome these limitations and those of our 1992 study by adding an expanded number of pancreas/kidney recipients and a control group of patients who chose to receive a kidney transplant only to our 1992 subject group.

The purpose of this descriptive study was to determine the impact of pancreas transplantation on the quality of life of renal transplant recipients with diabetes.

RESEARCH DESIGN AND METHODS

— Criteria for inclusion in this study remained the same as those for our 1992 study. The most common reasons for patients to fail to meet the criteria were blindness or uremia. A review of 113 patients yielded 85 potential subjects.

The protocol used in 1992 was used to assess the added subjects in the same five dimensions of life quality (11–21).

Statistical analysis

The statistical tests used in the 1992 study were repeated with the new subjects added to the subject group. The respondents were divided into three groups for comparison. In group SP, both the renal

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P/K, pancreas and kidney transplant, KA, kidney alone transplant; SP, successful pancreas transplant; FP, failed pancreas but successful renal transplant.

and pancreas grafts were successful (n = 41); group FP had a successful renal but a failed pancreas graft (n = 13); and group KA had only received a kidney graft, which was successful (n = 28).

RESULTS — Of the invited transplant recipients, 82 (96%) completed and returned the questionnaires. All patients recruited since the 1992 study volunteered except for one whose pancreas graft failed.

The demographic profiles of the three groups were similar. The groups did not differ significantly regarding age, number of children, or length of time since transplant. No significant relationships were noted for gender, marital status, education level, type of dialysis before transplant, type of pancreas transplant, or preoperative incidence of retinopathy and neuropathy.

Post hoc comparisons revealed that the KA group had a significantly shorter history of diabetes than did the FP group. Almost all of the pancreas failures occurred within the first week after surgery, resulting from thrombosis. All patients received immunosuppressive therapy, with most receiving triple immunosuppression.

Group comparisons

No significant differences were found among the three groups regarding fatigue, activity, symptoms, emotional/mental states, self-esteem, and feelings of well-being. The FP group was significantly more satisfied with their social support regarding praise received (P = 0.01). Perhaps less support is given to patients perceived as being returned to health.

While the employment pattern did not differ, trends occurred (P = 0.08). The SP group had a greater proportion employed before and after surgery, perhaps indicating a more fit group.

Although all subjects were free of dialysis and obligated to immunosuppression, there were significant differences in the factors identified as affecting life quality when asked in an open-ended question. The SP group identified immunosuppressive side effects more frequently, the FP group identified diabetic complications, and the KA group identified possible organ rejection and physical symptoms.

Table 1—*Quality of life and quality of health for recipients of successful and failed pancreas and renal transplants*

	Pancreas		
	Successful	Failed	Renal
n	41	13	28
Life quality			
Past	3.1 ± 1.9	5.0 ± 2.9	3.3 ± 2.4
Present	7.7 ± 1.6	6.7 ± 1.5	7.9 ± 1.9
Future	8.5 ± 1.4	7.0 ± 1.8	8.4 ± 1.8
Health quality			
Past	2.6 ± 1.7	5.2 ± 2.8	2.8 ± 2.3
Present	7.9 ± 1.5	6.2 ± 1.6	7.5 ± 1.6
Future	8.4 ± 1.4	6.0 ± 1.7	8.0 ± 1.7

Data are means ± SD. Significant repeated measure analysis of variance: $P \leq 0.001$.

A significant time by group interaction was present for quality of life (P = 0.0023) and health (P = 0.0001) when a repeated measure analysis of variance was done. Post hoc comparisons at each time showed that patients in the SP and KA groups perceived their past life and health quality to be significantly lower and their present and future life and health quality to be significantly better than did patients in the FP group (Table 1).

CONCLUSIONS — This cohort, cross-sectional study included the entire population during a specific time period. Calculations using a medium effect indicate that the overall power level did not exceed 0.50 (22). This power level with the associated small sample size of the groups may account for the lack of significance found with many of the measures.

The findings of this study suggest that achieving one's transplantation goal, functioning organ(s), has a major impact on life quality. Successful KA and SP recipients see their health and life currently of normal quality and getting better in the future. The FP group, even though they have successful, functioning kidneys, perceived significantly less improvement in their life quality than did patients who reached their transplant goals.

It is hypothesized (23) that quality of life represents the difference between reality and expectations. Life quality can only be measured in individual terms, which depend on present lifestyle, past experience, and hopes for the future. The larger the gap between reality and expectations, the poorer the perceived quality of life. The validity and reliability of retrospective ratings can raise questions about the true past status of health and/or life quality, but this is not the pertinent aspect of the rating. Ratings over time measure the change perceived accruing from transplantation. This dynamic approach to life quality may explain the similarity in perceived gains when a subject's transplant goal is reached.

All subjects in this study were made dialysis-free by a kidney transplant and were therefore obligated to immunosuppression. Two of the groups either continued or resumed insulin therapy. However, each group had significantly different concerns that they identified as affecting their life quality.

The findings of this study suggest the need for future prospective studies to examine factors used by people with diabetes who are insulin-dependent and ure-

mic to make treatment decisions. How does knowledge of disease, treatment experiences, values, and goals influence treatment option decisions?

Quality of life studies appear to be moving medical decisions away from comfortable technological variables toward a more human, but less concrete and less controllable, decision arena. A better understanding of the variables that influence these decisions is needed so that we can enhance our ability to assist uremic diabetic patients with their transplant decisions.

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