

Social and interpersonal relationship modifications after renal transplant. A statistic and epidemiologic evaluation

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Key words

Health-related quality of life • Kidney transplant • Epidemiological study

Summary

Introduction *Kidney and liver transplants are the most frequent transplantation procedures carried out in Italy. We report the result of an epidemiological study on kidney transplanted patients resident in the Province of Messina (Italy).*

Methods *Seventy-five patients were enrolled between June 2010 march 2011, interviewed and evaluated using an adapted Italian version short-form 36. Socio-economic characteristics, quality of life modifications and involvement in transplant-related charities were studied. The follow-up period was ranging between 52 and*

356 months. All subjects gave written informed consent and all results were analysed by chi-square test.

Results *No statistically significant differences were found between sexes, social and interpersonal relationship modifications.*

Discussion *The benefits obtained on quality of life after transplantation is the prerogative of a small percentage of patients and is related to medium and high socio-economic conditions. The possibility of avoiding the haemodialysis represents the primary benefit for the totality of patients.*

Introduction

The incidence and prevalence of chronic renal insufficiency and end-stage renal disease have constantly increased during the last ten years. The number of patients who need kidney transplant and other treatment has also increased. For haemodialysis patients, kidney transplant represent the gold standard of treatment to improve quality of life and to extend survival. A problem for renal transplant is organs shortage and consequently a long waiting list [1, 2].

Every year approximately 3000 organ transplants are carried out in Italy. In 2010, one thousand five hundred and twelve kidney (1512) and one thousand and two liver (1002) transplants (of which, 57 and 58 in Sicily) were performed. These are the most frequent transplants carried out on the Italian national territory. Other transplants in the same year were heart (273), lung (107) and pancreas (74). Generic epidemiological data were derived from the national ministerial internet site [3].

To the present date, there are approximately 10000 people waiting for a transplant: 7048 adults and 103 children for a kidney transplant, 1485 adults and 30 children for a liver transplant and 869 adults and 29 children for a heart transplant [4].

Organ failure represents a serious clinical problem with relevant social and interpersonal implications and occupational disadvantages for patients on a waiting list for a transplant. These patients are often incapacitated by asthenia and malaise because they are forced to live

for long periods waiting for an organ, with many discomfort disease-related and also life-style limitations (haemodialysis, diet), emotional disturbances such as depression, anxiety, rage and, in some cases, economic difficulties [5].

In clinical practice, kidney transplant from a living donor is considered better in increasing the patient's survival than that from a dead donor, however, only a few studies have previously compared the quality of life in these cohorts of patients [6, 7].

A recent Australian study assessed the comparative survival and economic benefits after kidney transplant from dead donor compared to dialysis [8]. Renal transplant, though still controversial in some health programs, has now gained a widespread acceptance about emotional opinions; special interest was devoted to the evaluation of the ethical issues of psychological distress and the improvements of the quality of life [9]. Psychological aspects have become increasingly important, as to a better quality of life is associated with less morbidity and mortality. Quality of life is defined as the value assigned to the lifespan modified by disability, functional conditions, perceptions and social-work opportunities in subjects with illnesses and injuries [10, 11].

We report the result of an epidemiological study on kidney transplanted patients resident in the Province of Messina (Sicily, Italy) in order to estimate the socio-economic characteristics, psychological distress and the modifications brought from the transplant to the health-related quality of life.

Material and methods

In April 2010 the list of kidney transplanted patients, with personal information and telephone numbers, was confidentially transferred to our Department according to the protection of personal data legislation. Between June 2010 and March 2011, a telephone interview was carried out. All transplant patients were included in this study. We recruited 81 kidney transplant patients, that underwent a transplant procedure in Italian and European hospitals; 6 (7.4%) of these patients were lost to follow-up and excluded. Transplants were performed from January 1981 to December 2006. All patients enrolled in this observational study gave written informed consent, and local ethics committee approved the study. Seventy subjects received an organ from a dead donor and five from a living donor. These 75 kidney transplant patients were all regularly followed up by the Nephrology Unit of the University Hospital of Messina. The enquiry form, developed from the Italian version of the short form 36, was adapted and administered, during the follow-up, to all patients. Follow-up period was variable between 52 and 356 months. In this form, the first section enquired about demographic data, disease history and surgical transplant centre details; the second asked about family status, socio-economic conditions, health-related well-being modifications; the final section evaluated chronic pharmacological treatment and recent laboratory tests. In all cases the body mass index was evaluated. The mean value was 28.1 with a standard deviation (SD) of 4.77 and a range between 20 and 38. All results were analysed by chi-square test with a confidence interval (CI) of 95%. The most relevant statistical events were also investigated by Kolmogorov-Smirnov test.

Results

The group of kidney transplanted patients comprised 75 patients, 46 (61.3%) males (M) and 29 (38.7%) females (F). The mean age was 52.6 years with a SD of 11.71 and a range between 21 and 77 years. In 42 (56%) M and 28 (37.3%) F, the transplanted organs came from a cadaver; only 5 patients (6.7%, 4M and 1F) benefited from a living donor transplant. Sixteen (21.3%) patients had a graft versus host disease that required a second transplant; in particular 14 had a single (9M/5F), and 2 a double transplant rejection. In a case of single immunoreaction allograft-related, a patient received the second organ from a living donor. For males the mean conventional haemodialysis treatment duration was 48 months (range 1-156) before the first transplant, 35 months (1-84 months) before the second transplant and 48 months (12-60) before the third transplant; for females this period was 56 months for the first transplant (7-144) and 53 months (24-120) for the second transplant. Immunosuppressive and corticosteroid treatment was patient-specific, according to the drug-tolerance. It was an adapted treatment in 41 (54.7%) men and 26 (34.7%) women, exclusively immunosuppressive in 4 (5.3%) men and

3 (4%) women and exclusively corticoid in only 1 (1.3%) man. Mean creatinemia level (normal value 0.5-1.4 mg/dl) was 1.64 (SD = 0.98, CI 95%, range 0.5-4.9) and mean azotemia level (10-50 mg/dl) was 68.75 (SD = 37.78, CI 95%, range 23-209). Kidney failure causes were: glomerulopathy related to systemic diseases (41.3%), chronic glomerulopathy (18.7%), renal malformations and polycystic disease (16%), hypertensive nephrosclerosis (14.7%), tubulointerstitial nephritis (5.3%), and obstructive uropathies and pyelonephritis (4%). Co-morbidity (arterial hypertension, diabetes mellitus insulino-independent, thyropathies, bradi- and tachyarrhythmias, cholecystopathies and dyslipidemias) was present in 62 patients (82.7%).

One male-patient with an elevated level of creatinemia returned in conventional haemodialysis and is waiting for a new transplant. Socio-economic characteristics, health-related quality of life modifications and involvement in transplant-related charities are detailed respectively in Table I. No statistically significant differences were found between sexes, social and interpersonal relationship modifications. Subjects with medium and high socio-economic conditions showed higher appreciation in the quality life enquiry form compared to those with low income; however this didn't reach statistical significant ($p > 0.5$). The results of statistical analysis between pre-transplant depression episodes and social relationship modifications (chi-square = 1.77, $P = 0.778$, CI 95%) were not casual for absent and sporadic (1-3 episodes per year) events, and casual for frequent (4-6 per year); as well as in association with interpersonal relationship modifications (chi-square = 2.66, $P = 0.616$, CI 95%). The correlations between absent and sporadic pre-transplant depression episodes and social relationship modifications (respectively $D = 0.356 > 0.238$ and $D = 0.484 > 0.361$, CI 95%) as well as in association with interpersonal relationship (respectively $D = 0.267 > 0.235$ and $D = 0.484 > 0.361$, CI 95%) better investigated by Kolmogorov-Smirnov test.

Discussion and conclusion

Dialysis and renal transplant increase survival in patients with chronic renal failure; however it is not possible to compare between these treatments. The main aim of a renal transplant is to improve health-related quality of life and increase survival rates [12, 13]. Renal transplant requires an adequately stable clinical status, necessary to minimise post-operative complications, to reduce adverse effects secondary to immunosuppressant and to deal with a potential unsuccessful transplant.

Recent literature [14] suggests that renal transplant from a dead donor could improve survival rates in specific groups of patients with chronic renal failure, in patients believed to be adequately clinically and physically stable. On the other hand some studies [15] suggest that patients who receive an organ from a living donor have longer survival compared to patients undergoing dialysis

Tab. I. Socio-economic characteristics of the interviewed patients and health-related quality of life modifications.

	%	Total	Males	Females
Housing				
urban	76%	57	37	20
suburban	22.7%	17	9	8
rural	1.3%	1	0	1
Head of household				
	61.3%	46	39	7
Marital status				
married	72%	54	40	14
single	20%	15	4	11
widowed	6.7%	5	1	4
divorced	1.3%	1	1	0
Household income				
Low (< 14000 €)	49.3%	37	20	17
middle (> 14000 <30000 €)	41.3%	31	21	10
middle-high (> 30000 €)	9.4%	7	5	2
Depression episodes (before transplant)				
absent	60%	45	28	17
sporadic (1-3 episodes/year)	25%	19	12	7
frequent (4-6 episodes/year)	14%	11	6	5
Smoking				
	62.7%	47	28	19
Alcohol/Drug abuse				
	0%	0	0	0
Convictions				
	0%	0	0	0
Social relationships modifications				
considerable	60%	45	28	17
good	4%	3	2	1
sufficient	8%	6	5	1
insufficient	18.7%	14	9	5
none	9.3%	7	2	5
Interpersonal relationships modifications				
considerable	53.4%	40	28	12
good	1.3%	1	0	1
sufficient	16%	12	6	6
insufficient	12%	9	5	4
none	17.3%	13	7	6
Involvement in transplant-related charities				
yes	49.3%	37	24	13
no	50.7%	38	22	16

or those who receive an organ from a dead donor. New advances in immunosuppressive treatment, diagnosis and treatment of infectious complications; studies on ischaemic damage show a progressive improvement of short and long-term outcomes [16]. There is little agreement in the literature about quality of life improving following a transplant, however a recent cohort study [12] found a significant improvement in the quality of life in non-diabetic patients following a renal transplant from a living donor, compared to patients who were treated with dialysis. Another recent paper focused on psychological correlates (such as mood, anxiety and emotional symptoms) and their relationship with improved renal function following a transplant [17, 18], highlighting interesting findings needing replication.

Our findings suggest that quality of life after kidney transplant is more improved only for a small percentage of patients, generally with a declared higher income. Life before a transplant, considered by patients as a “forced routine”, with the associated restlessness and anxiety (waiting for the availability of an organ) becomes, in some cases, a post-transplant life with tight dependence on pharmacological treatment. However, in the majority of cases, patients admitted benefits of the transplant and real improvements in quality of life (thanks to not having to rely on haemodialysis). Patients in this study who received an organ from a live donor, had higher anxiety compared to patients who received an organ from a dead donor; however we could not draw inferences due to the small number of patients in the former group.

In the last 15 years, the number of transplant procedures for kidney failure have increased despite little progress in organ donation policy development and limited organ

availability. Quality of life is a very important determinant of long term outcomes following a transplant for patients with a long life expectancy.

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