
Original article

Changes in Health-Related Quality of Life in Greek Adult Patients Two Years after Successful Renal Transplantation

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Abstract

Introduction. This study was undertaken to compare and evaluate the health-related quality of life (HRQOL) in Greek adult transplant recipients before and 2 years after successful renal transplantation (RT). The SF-36 survey score was used.

Methods. Eighty-five Greek hemodialysis patients underwent RT at the Transplant Unit of Evangelismos General Hospital of Athens, including 44 men and 41 women (mean age 43.8 years; range 21-59 years). The scale scores of a Greek version of the SF-36 survey were compared between the transplant and the hemodialysis patients. We also examined the relationships of the scale scores with the patients' age and the type of donor.

Results. According to the SF-36 health survey, transplant recipients had better results for general health perception ($p \leq 0.001$), role-physical functioning ($p \leq 0.01$), role-emotional functioning ($p \leq 0.01$), and vitality ($p \leq 0.01$). In addition, the scale score of physical functioning, general health and vitality of the patients who were younger than 30 years at the time of transplantation were significantly higher than those of the patients who were older than 30 years, while the scores of bodily pain, general health, and physical functioning were significantly lower in cadaveric graft recipients compared with living-related recipients.

Conclusions. The SF-36 health survey is a validated and comprehensive instrument for evaluating renal transplant patients' HRQOL. Our data demonstrated an improvement in HRQOL in renal transplant patients 2 years after successful renal transplantation. The data also confirmed that the recipients' age at transplantation and the type of donor were important factors affecting the HRQOL.

Keywords: end-stage renal disease, hemodialysis, immunosuppression, renal transplantation, quality of life, SF-36

Introduction

End-stage renal disease (ESRD) reduces the life-span of its victims, while renal transplantation (RT) has become the treatment of choice for all patients without contraindications for surgery and use of immunosuppressive drugs. The aim of RT is not only to restore renal function but also to enhance the patient's ability to enjoy as full a life as possible [1].

Health-related quality of life (HRQOL) has become a very important criterion in the evaluation of any type of medical treatment [2-4]. Especially in the field of RT, with the improvement of graft survival, HRQOL is well recognized as an important measure of outcome in transplant patients. Several determinations of HRQOL focus on physical status and symptoms, functional status, mental health, social functioning and general health perceptions [5].

The Short Form Health Survey (SF-36) is a generic instrument containing 8 multi-item scales to evaluate the subjective HRQOL [6]. This questionnaire has become a worldwide generic measure owing to its validation, reliability and conciseness [7]. A review of the literature shows many published studies reporting the results of its validation for different chronic conditions and healthy subjects, as well as its use in accessing the HRQOL in renal transplant patients [8-10].

The aim of this single-center study was to evaluate the changes in HRQOL in Greek adult hemodialysis patients who underwent successful RT and the elements that affect it using a standardized and validated Greek version of the SF-36 survey.

Materials and methods

This cross-sectional study was conducted from January 2009 to June 2011 at the Transplant Unit, Evangelismos General Hospital of Athens, Greece. Completed questionnaires from 85 patients were studied. Forty-four men

and 41 women (mean age 43.8 years; range 21-59 years) were evaluated before RT and 24 months after successful RT. Thirty-nine patients (45.9%) received an allograft from a deceased donor, and 46(54.1%) received an allograft from a living-related donor. End-stage renal disease was caused by hypertensive nephropathy in 31 patients (36.5%), glomerulonephritis in 25 patients (29.4%), chronic pyelonephritis in 19 patients (22.3%), and in 10 patients (8%); the cause was unknown. Information about the patients' age, sex, medical history, hemodialysis, time of RT, and instances of rejection was abstracted from medical records.

All renal transplant patients received immunosuppressive therapy with cyclosporine, steroid, and mycophenolate-mofetil. Patients who had experienced an episode of graft rejection were excluded from the study. Only patients with serum creatinine ≤ 1.5 mg/dL (normal range 0.5-1.3 mg/dL) were included in investigation.

Multiple domains of objective and subjective data that may affect HRQOL were measured using the SF-36 survey, which contains 36 questions that assess 8 aspects

of HRQOL: physical functioning, role-physical functioning, bodily pain, general health perception, vitality, social functioning, role-emotional functioning, and mental health.

These questionnaires were answered using a scale ranging from 1 to 100, with higher scores indicative of a better outcome. Both interview and questionnaire distributions were conducted by the same investigator who gave the same instructions and all data were collected anonymously.

Statistical analysis

All descriptive data of the SF-36 were reported as means \pm standard deviation (SD). The data were analyzed by means of SPSS software. (Statistical Package for the Social Sciences version 12.01, SSPS Inc, Chicago, III, USA). The Mann-Whitney U and the chi-square tests were used for group comparison, and the Student's t-test was used to analyze normally distributed quantitative data. Values for $P < 0.5$ were considered statistically significant.

Table 1. Results of SF-36 survey before and 2 years after renal transplantation

Generic scales of the SF - 36	Baseline- HP	2 years after RT	Baseline vs 2 years after RT
PF	55.8 \pm 28.1	76.7 \pm 17	
RPF	10.2 \pm 44.7	61.7 \pm 36.0	$p < 01$
BP	45.5 \pm 23.1	90.2 \pm 15.1	
GH	34.4 \pm 22.7	84.0 \pm 23.2	$P < 001$
VT	25.9 \pm 3.0	83 \pm 25.1	$P < 01$
SF	30.9 \pm 19.1	78.1 \pm 29.6	
REF	39.6 \pm 18.5	83.0 \pm 13.2	$P < 01$
MH	23.4 \pm 45.8	68.4 \pm 14.8	

RT, renal transplantation; HP, hemodialysis patients; PF, physical functioning; RPF, role-physical functioning; BP, bodily pain; GH, general health perception; VT, vitality; SF, social functioning; REF, role-emotional functioning; MH, mental health; values are presented as means \pm SD

Results

The mean SF-36 score before RT was 55.8 versus 76.7 at 2 years after RT for physical functioning, 10.2 versus

61.7 for role-physical functioning, 45.5 versus 90.2 for bodily pain, 34.4 versus 84.0 for general health perception, 25.9 versus 83.0 for vitality, 30.9 versus 78.1 for social functioning, 39.6 versus 83.8 for role-emotional func-

Table 2. SF-36 scale scores in renal transplant patients classified according to their age at the time of transplantation and the type of the graft donor

Generic scales of the SF 36	Age at transplantation (years)		Donor	
	Age <30 (n= 28)	Age >30 (n=57)	Cadaveric (n=39)	Living-related (n=46)
PF	74.3 \pm 5.5*	68.9 \pm 13.2	46.8 \pm 8.57	80.2 \pm 15.4
RPF	56.31 \pm 34.8	51.7 \pm 36	51.9 \pm 17	60.2 \pm 5.5
BP	78.9 \pm 6.9	80.2 \pm 15.1	51.4 \pm 21.2*	89.4 \pm 17.9
GH	82.9 \pm 7.1*	64.0 \pm 23.2	6.0 \pm 17.67	85.1 \pm 16.8
VT	77.4 \pm 18.9*	63.0 \pm 25.1	70.8 \pm 18.4	76.8 \pm 23.1
SF	58.7 \pm 18.9	75.1 \pm 29.6	56.4 \pm 15.0	69.2 \pm 13.8
REF	63.6 \pm 11.5	77.0 \pm 13.2	69.3 \pm 11.7	74.3 \pm 19.6
MH	75.9 \pm 8.2	88.4 \pm 14.8	75.0 \pm 16.9	86.3 \pm 12.0

PF, physical functioning; RPF, role-physical functioning; BP, bodily pain; GH, general health perception; VT, vitality; SF, social functioning; REF, role-emotional functioning; MH, mental health. Values are presented as means \pm SD* $P < 0.5$, * $P < 0.1$

tioning and 23.4 versus 68.4 for mental health (Table 1). The SF-36 showed significant differences in 4 dimensions after RT. Better results were noticed in general health perception ($p \leq 0.001$), role-physical functioning ($p \leq 0.01$), role-emotional functioning ($p \leq 0.01$), and vitality ($p \leq 0.01$) (Table 1). Transplant patients also reported less bodily pain, better physical and social functioning and better mental health, but these differences were not significant ($p = 0.065$, $p = 0.06$, $p = 0.062$ and $p = 0.07$, respectively). No differences were found between men and women. Within the transplant group, the following observations were of considerable interest (Table 2): patients who were younger than 30 years at the time of transplantation showed significantly better levels of physical functioning ($p \leq 0.05$), general health ($p \leq 0.05$), and vitality ($p \leq 0.01$) two years after successful RT compared to those who were older than 30 years at the time of the procedure. In addition, recipients of allografts from deceased donors showed significantly worse levels of bodily pain ($p \leq 0.05$), general health ($p \leq 0.01$), and physical functioning ($p \leq 0.01$) compared to living-related allograft recipients (Table 2).

Discussion

Outcome measures after a procedure like RT have traditionally addressed only operative and long-term survival and complication rates. HRQOL is gaining importance as an outcome measure, especially because of the intense resource use demanded by transplantation. Improved technology and therapies have prolonged survival rates after RT, thus attention is shifting to the quality of those years.

Over the recent years, a considerable concern has been shown toward the HRQOL as an effective parameter in clinical investigations [9]. Many reports are available concerning the improvement of HRQOL in transplant patients [2,4,10]. Several methods for scoring the HRQOL have also been reported [2,11]. We used the SF-36 survey consisting of 36 questions because we believe that this instrument allowed us to assess RT's influence on patients' physical, social, and psychological status.

The results of the study showed that a higher HRQOL two years after RT was achieved especially in the dimensions of general health perception, role-physical functioning, role-emotional functioning, and vitality. These results are in accordance with the literature [2,9,12,13]. Laupacis *et al.* [14] also reported improvement in almost all dimensions within 6 months of successful RT, according to the HRQOL of ESRD patients. However, the risk of graft rejection in patients with RT is highest within the first 6 postoperative months, hospital appointments are necessary every few days, and the patients are still adjusting to medication and its effects during this period [8].

Some scales of the SF-36 did not reveal a significant difference 2 years before and 2 years after RT, for

example, physical functioning and mental health were not significantly improved after RT. This might be attributed to the fear of organ rejection that some recipients might have or to the fear of the effects on their appearance caused by surgery and immunosuppressive drugs. However, we must take into consideration that the transplant recipients were a select group with good clinical and demographic characteristics.

Waiser *et al.* [15] reported that the quality of life is dependent on the immunosuppressive regimen. However, in RT patients we found an association between HRQOL and immunosuppressive therapy. Unlike 2 other studies [16] we found that sex did not appear to have any significant effects on HRQOL.

We also analyzed which factors had the biggest effect on the SF-36 scale scores. The cross-sectional evaluation showed that age at the time of transplantation and the type of donor graft had a significant influence on the patients HRQOL. The lower the patient's age, the higher the scale scores, especially in relation to physical functioning, general health and vitality. Finally, the RT patients who received a living-related allograft had significantly better levels with regard to bodily pain, general health, and physical functioning compared to cadaveric graft recipients.

Conclusion

In conclusion, our results indicate that the overall HRQOL significantly improves after successful RT. General health perception, role-physical functioning, role-emotional functioning and vitality were demonstrated to have a profound positive influence on patients' HRQOL after RT. The lower the patients' age at the time of transplantation, the higher the SF-36 scale scores. The type of the donor was also an important factor affecting HRQOL in RT patients.

Conflict of interest statement. None declared.

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